The National Food Institute researches and communicates sustainable and value-adding solutions in the areas of food and health for the benefit of society and industry. The institute’s tasks are carried out in a cross-disciplinary cooperation between the disciplines of nutrition, chemistry, toxicology, microbiology, epidemiology, and technology.

The vision is that the National Food Institute creates welfare for the future through research into food and health. The institute makes a difference by producing knowledge and technical solutions which:

- prevent disease and promote health
- make it possible to feed the growing population
- develop a sustainable food production

Contact
Director of Institute Christine Nellemann
Organisational unit: Department

Publications:

**Vitamin D-biofortified beef: A comparison of cholecalciferol with synthetic versus UVB-mushroom-derived ergosterol as feed source**

This study investigates dietary fortification of heifer feeds with cholecalciferol and ergocalciferol sources and effects on beef total vitamin D activity, vitamer, respective 25-hydroxy metabolite contents, and meat quality. Thirty heifers were allocated to one of three dietary treatments [(1) basal diet + 4000 IU of vitamin D₃ (Vit D₃); (2) basal diet + 4000 IU of vitamin D₂ (Vit D₂); and (3) basal diet + 4000 IU of vitamin D₂-enriched mushrooms (Mushroom D₂)] for a 30 day pre-slaughter period. Supplementation of heifer diets with Vit D₃ yielded higher (p < 0.001) Longissimus thoracis (LT) total vitamin D activity (by 38–56%; p < 0.05) and serum 25-OH-D concentration (by 20–36%; p < 0.05), compared to that from Vit D₂ and Mushroom D₂ supplemented animals. Irrespective of vitamin D source, carcass characteristics, sensory and meat quality parameter were unaffected (p > 0.05) by the dietary treatments. In conclusion, vitamin D₃ biofortification of cattle diets is the most efficacious way to enhance total beef vitamin D activity.

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, University College Dublin, University College Cork
Workshop on acceleration of the validation and regulatory acceptance of alternative methods and implementation of testing strategies

This report describes the proceedings of the BfR-RIVM workshop on validation of alternative methods which was held 23 and 24 March 2017 in Berlin, Germany. Stakeholders from governmental agencies, regulatory authorities, universities, industry and the OECD were invited to discuss current problems concerning the regulatory acceptance and implementation of alternative test methods and testing strategies, with the aim to develop feasible solutions. Classical validation of alternative methods usually involves one to one comparison with the gold standard animal study. This approach suffers from the reductionist nature of an alternative test as compared to the animal study as well as from the animal study being considered as the gold standard. Modern approaches combine individual alternatives into testing strategies, for which integrated and defined approaches are emerging at OECD. Furthermore, progress in mechanistic toxicology, e.g. through the adverse outcome pathway approach, and in computational systems toxicology allows integration of alternative test battery results into toxicity predictions that are more fine-tuned to the human situation. The road towards transition to a mechanistically-based human-focused hazard and risk assessment of chemicals requires an open mind towards stepping away from the animal study as the gold standard and defining human biologically based regulatory requirements for human hazard and risk assessment.

General information
State: Published
Organisations: Copenhagen Center for Health Technology, National Food Institute, Research Group for Molecular and Reproductive Toxicology, National Institute of Public Health and the Environment, Utrecht University, Federal Institute for Risk Assessment, European Chemicals Agency, Cosmetics Europe, BASF, European Commission Joint Research Centre Institute, Vrije Universiteit Brussel, SeCAM
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Main Research Area: Technical/natural sciences

Publication information
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Volume: 50
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Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.981 SJR 0.931
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.15 SJR 1.025 SNIP 0.941
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.096 SNIP 1.132 CiteScore 3.38
Combination of sodium caseinate and succinylated alginate improved stability of high fat fish oil-in-water emulsions

Sodium caseinate (CAS) and commercial sodium alginate (CA), long chain modified alginate (LCMA) or short chain modified alginate (SCMA) were used in combination for emulsifying and stabilizing high fat (50–70%) fish oil-in-water emulsions. Physical (creaming, droplet size, viscosity and protein determination) and oxidative (primary and secondary oxidation products) stabilities of the emulsions were studied during 12 days of storage. Creaming stability was higher for emulsions produced with alginates and CAS compared to emulsions prepared with only CAS. Combined use of CAS + LCMA performed better in terms of physical stability compared to emulsions produced with only CAS. However, the oxidative stability of this emulsion was inferior probably due to the presence of an unsaturated carbon chain in LCMA structure. CAS + SCMA emulsions not only showed better physical stability such as smaller droplet size, lower creaming and higher viscosity, but also had an improved oxidative stability than emulsions produced with only CAS.

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Aarhus University, Division of Food Technology
Authors: Yesiltas, B. (Intern), Sørensen, A. M. (Intern), García Moreno, P. J. (Intern), Anankanbil, S. (Ekstern), Guo, Z. (Ekstern), Jacobsen, C. (Intern)
Pages: 290-299
Publication date: 30 Jul 2018
Main Research Area: Technical/natural sciences
Stability of vitamin D₃ and vitamin D₂ in oil, fish and mushrooms after household cooking

Information on the retention of vitamin D in food following household cooking is scarce. So far the retention of its metabolites vitamin D₃, vitamin D₂, and 25-hydroxyvitamin D₃ has shown that the type of food and the cooking method are the essential determinants, and there is no significant difference between the metabolites. We investigated the retention of vitamin D₃ and vitamin D₂ in sunflower oil, vitamin D₃ in rainbow trout, and vitamin D₂ in button mushrooms. The investigated cooking methods were boiling at different pH, steam cooking, microwave cooking, pan-frying, and oven baking. There was no difference between the retention of vitamin D₃ and vitamin D₂ added to sunflower oil, which ranged from 70 to 99%. In rainbow trout, the retention of vitamin D₃ at 85–114% was not significantly different from 100%, except for pan-frying at 85%. However, the retention of vitamin D₂ in mushrooms at 62–88% was significantly different from 100% (p ≤ 0.05).

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application
Authors: Ložnjak, P. (Intern), Jakobsen, J. (Intern)
Number of pages: 6
Pages: 144-149
Publication date: 15 Jul 2018
Main Research Area: Technical/natural sciences

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Journal: Food Chemistry
Volume: 254
ISSN (Print): 0308-8146
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 2.109 SJR 1.793
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 4.85 SJR 1.731 SNIP 2.095
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.582 SNIP 1.946 CiteScore 4.31
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.557 SNIP 2.01 CiteScore 3.92
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.554 SNIP 2.056 CiteScore 3.87
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.762 SNIP 2.342 CiteScore 3.98
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.911 SNIP 2.383 CiteScore 4.17
Enzyme-assisted peeling of cold water shrimps (Pandalus borealis)

An enzymatic method to facilitate the peeling of cold water shrimps (Pandalus borealis) was developed. The protease solutions were used to mature the shrimps to promote shell-loosening prior to peeling. The efficiency of peeling enzyme-treated shrimps was evaluated by a new quantitative measurement based on the tensile force, presented as a peelability profile. It was found that enzymatic maturation efficiently improved the peelability of shrimps. The factors affecting the peelability of the enzyme-matured shrimps were the type of enzyme, enzyme concentration and maturation duration, while changes in pH had no impact. Maturation of shrimps in solutions of the endoproteases Endocut-01L (180 NU/g) and Endocut-03L (60 U/g) and the exoproteinase Exocut-A0 (100 U/g) resulted in better peelability compared to shrimps matured in endoproteinase Tail21 (65 U/mL) and 2% NaCl. A combination of 0.25% Endocut-03L and 0.25% Exocut-A0 for 20 h resulted in the best peeling of shrimps (100% completely peeled shrimps, 3 mJ/g work and 89% meat yield). Reuse of the enzyme solution was possible due to a 95% retention rate of proteolytic activity after two 20-h cycles of maturation. The studied enzymatic maturation offered a better shrimp product with respect to texture and color in comparison with an industrial brine-matured reference, i.e., ~22% higher redness and ~31% higher hardness. Industrial relevance: Enzymatic maturation is an attempt made as a pre-treatment to facilitate the removal of the shell from meat of shrimp. This approach would benefit the shrimp processing industry by 1) enhancing peeling efficiency that includes least efforts to remove the shell, high rate of completely peeled shrimps and high meat yield; 2) shortening the duration of maturation but still sufficiently loosening the shell for machine peeling; 3) performing as a chemical-free peeling aid, which may increase the preference of consumers over chemical compounds; and 4) being environmentally friendly since disposal of enzyme waste is harmless to the environment.

General information
State: Published
Organisations: National Food Institute, Research Group for Food Production Engineering, University of Copenhagen, Royal Greenland A/S
Enzyme-assisted peeling, Peelability, Protease, Shell-loosening, Shrimp

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Source: Scopus
Source-ID: 85042197843
Kinetic Modeling of Texture and Color Changes During Thermal Treatment of Chicken Breast Meat

Heat treatment is commonly applied as a primary method for ensuring the microbial safety of poultry meat and to enhance its palatability. Although texture and color of cooked chicken breast meat are important quality parameters for the consumers that need to be controlled during thermal processing, studies assessing the temperature-time-dependent quality changes during thermal treatment are lacking. This work aims to investigate the texture and color changes of chicken breast meat during thermal processing and to develop kinetic models that describe these changes. We studied the storage modulus changes of chicken breast meat as function of temperature. The storage modulus increases from 55 °C until leveling off in an equilibrium value above 80 °C, which was attributed to microstructure changes and described with a sigmoidal function. The changes in the texture (TPA) and color (CIE L*a*b*) of chicken breast meat were measured as function of temperature and time. The texture and color parameters show a rise with heating time until reaching an equilibrium value, while the rate of change increased with temperature. Kinetic models that take the non-zero equilibrium into account were developed to describe the color (lightness) and texture (hardness, gumminess, and chewiness) changes with heating time and temperature. The kinetic models provide a deeper insight into the mechanisms of texture and color changes during thermal treatment. They can be used to predict the texture and color development of chicken breast meat during thermal processing and, thus, help to optimize the process.

General information
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Organisations: National Food Institute, Research Group for Food Production Engineering
Authors: Rabeler, F. (Intern), Feyissa, A. H. (Intern)
Number of pages: 10
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Main Research Area: Technical/natural sciences

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Journal: Food and Bioprocess Technology
ISSN (Print): 1935-5130
Ratings:
BFI (2018): BFI-level 1
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BFI (2017): BFI-level 1
Scopus rating (2017): SJR 1.29 SNIP 1.194
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): SJR 1.391 SNIP 1.392 CiteScore 3.03
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.329 SNIP 1.375 CiteScore 2.74
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.426 SNIP 1.769 CiteScore 3.24
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.234 SNIP 1.701 CiteScore 2.97
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
Scopus rating (2012): SJR 1.361 SNIP 2.346 CiteScore 3.42
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
Scopus rating (2011): SJR 1.14 SNIP 2.027 CiteScore 2.87
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
Scopus rating (2010): SJR 0.944 SNIP 1.383
Web of Science (2010): Indexed yes
Scopus rating (2009): SJR 0.67 SNIP 1.162
Original language: English
Poultry meat, Quality changes, Rate law, Storage modulus, Texture profile analyses (TPA), Thermal processing

DOIs:
Breakfast in human nutrition: The international breakfast research initiative

Breakfast is often referred to as the most important meal of the day and in recent years has been implicated in weight control, cardio-metabolic risk factors and cognitive performance although, at present, the literature remains inconclusive as to the precise health benefits of breakfast. There are extensive reports of breakfast’s contributions to daily food and nutrient intakes, as well as many studies that have compared daily food and nutrient intakes by breakfast consumers and skippers. However, significant variation exists in the definitions of breakfast and breakfast skippers, and in methods used to relate breakfast nutrient intakes to overall diet quality. The present review describes a novel and harmonised approach to the study of the nutritional impact of breakfast through The International Breakfast research Initiative involving national dietary survey data from Canada, Denmark, France, Spain, the UK and the USA. It is anticipated that the analysis of such data along harmonised lines, will allow the project to achieve its primary goal of exploring approaches to defining optimal breakfast food and nutrient intakes. Such data will be of value to public health nutrition policy-makers and food manufacturers and will also allow consistent messaging to help consumers to optimize food choices at breakfast.

General information
State: Published
Organisations: Division of Risk Assessment and Nutrition, National Food Institute, University College Dublin, University of British Columbia, Nutri Psy Consult, University of Washington, Ulster University, Cereal Partners Worldwide, CEU San Pablo University, Universidad de Zaragoza, Nutrition and Food Safety, MS-Nutrition, Thielecke Consultancy
Authors: Gibney, M. J. (Ekstern), Barr, S. I. (Ekstern), Bellisle, F. (Ekstern), Drewnowski, A. (Ekstern), Fagt, S. (Intern), Livingstone, B. (Ekstern), Masset, G. (Ekstern), Moreiras, G. V. (Ekstern), Moreno, L. A. (Ekstern), Smith, J. (Ekstern), Vieux, F. (Ekstern), Thielecke, F. (Ekstern), Hopkins, S. (Ekstern)
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Main Research Area: Technical/natural sciences

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Journal: Nutrients
Volume: 10
Issue number: 5
Article number: 559
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Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.403 SJR 1.557
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 4.29 SJR 1.543 SNIP 1.411
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.481 SNIP 1.408 CiteScore 4.07
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.392 SNIP 1.289 CiteScore 3.78
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.309 SNIP 1.241 CiteScore 3.86
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
Scopus rating (2012): SJR 0.662 SNIP 1.005 CiteScore 2.12
ISI indexed (2012): ISI indexed no
Scopus rating (2011): SJR 0.29 SNIP 0.369 CiteScore 0.8
ISI indexed (2011): ISI indexed no
Scopus rating (2010): SJR 0.115 SNIP 0.045
Due to the rapid emergence of resistance to classical antibiotics, novel antimicrobial compounds are needed. It is desirable to selectively kill pathogenic bacteria without targeting other beneficial bacteria in order to prevent the negative clinical consequences caused by many broad-spectrum antibiotics as well as reducing the development of antibiotic resistance. Antimicrobial peptides (AMPs) represent an alternative to classical antibiotics and it has been previously demonstrated that Cap18 has high antimicrobial activity against a broad range of bacterial species. In this study we report the design of a positional scanning library consisting of 696 Cap18 derivatives and the subsequent screening for antimicrobial activity against Y. ruckeri, A. salmonicida, S. Typhimurium and L. lactis as well as for hemolytic activity measuring the hemoglobin release of horse erythrocytes. We show that the hydrophobic face of Cap18, in particular I13, L17 and I24, is essential for its antimicrobial activity against S. Typhimurium, Y. ruckeri, A. salmonicida, E. coli, P. aeruginosa, L. lactis, L. monocytogenes and E. faecalis. In particular, Cap18 derivatives harboring a I13D, L17D, L17P, I24D or I24N substitution lost their antimicrobial activity against any of the tested bacterial strains. In addition, we were able to generate species-specific Cap18 derivatives by particular amino acid substitutions either in the hydrophobic face at positions L6, L17, I20, and I27, or in the hydrophilic face at positions K16 and K18. Finally, our data showed the proline residue at position 29 to be essential for the inherent low hemolytic activity of Cap18 and that substitution of the residues K16, K23, or G21 by any hydrophobic residues enhances the hemolytic activity. This study demonstrates the potential of generating species-specific AMPs for the selective elimination of bacterial pathogens.
Selenium and selenium species in feeds and muscle tissue of Atlantic salmon

Selenium (Se) is an essential element for animals, including fish. Due to changes in feed composition for Atlantic salmon (Salmo salar), it may be necessary to supplement feeds with Se. In the present work, the transfer of Se and Se species from feed to muscle of Atlantic salmon fed Se supplemented diets was studied. Salmon were fed basal fish feed (0.35 mg Se/kg and 0.89 mg Se/kg feed), or feed supplemented either with selenised yeast or sodium selenite, at low (1–2 mg Se/kg feed) and high (15 mg Se/kg feed) levels, for 12 weeks. For the extraction of Se species from fish muscle, enzymatic cleavage with protease type XIV was applied. The extraction methods for Se species from fish feed were optimised, and two separate extraction procedures were applied, 1) enzymatic cleavage for organic Se supplemented feeds and 2) weak alkaline solvent for inorganic Se supplemented feeds, respectively. For selenium speciation analysis in feed and muscle tissue anion-exchange HPLC-ICP-MS for analysis of inorganic Se species and cation-exchange HPLC-ICP-MS for analysis of organic Se species, were applied. In addition, reversed phase HPLC-ICP-MS was applied for analysis of selenocysteine (SeCys) in selected muscle samples. The results demonstrated that supplemented Se (organic and inorganic) accumulated in muscle of Atlantic salmon, and a higher retention of Se was seen in the muscle of salmon fed organic Se diets. Selenomethionine (SeMet) was the major Se species in salmon fed basal diets and diets supplemented with organic Se, accounting for 91–118% of the total Se. In contrast, for muscle of salmon fed high inorganic Se diet, SeMet accounted for 30% of the total Se peaks detected. Several unidentified Se peaks were detected, in the fish fed high inorganic diet, and analysis showed indicated SeCys is a minor Se species present in this fish muscle tissue.

General information
State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science, Institute of Marine Research
Authors: Sele, V. (Ekstern), Ørnsrud, R. (Ekstern), Sloth, J. J. (Intern), Berntssen, M. H. (Ekstern), Amlund, H. (Ekstern)
Number of pages: 10
Pages: 124-133
Publication date: 1 May 2018
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Trace Elements in Medicine and Biology
Order of draw practices in venous blood sampling at clinical biochemistry departments in the Danish health care system

BACKGROUND: Deviation in blood collection procedures is a central source of preanalytical variation affecting overall analytical and diagnostic precision. The order of draw of venous sampling is suspected to affect analytical results, in particular for coagulation analysis. Here we compare the procedures in venous blood sampling among clinical
biochemistry departments to assess the uniformity of order of blood draw and adherence to international guidelines in the Danish health care system.

METHODS: We collected venous order of draw procedures from 49 clinical biochemistry departments at 22 public hospitals in Denmark. Procedures were compared to the international guidelines from the Clinical Laboratory Standards Institute (CLSI) and World Health Organization (WHO), and assessed in relation to department ISO 15189:2012 accreditation.

RESULTS: We observed seven different order of draw procedures related to citrate, serum, heparin, and EDTA tubes, and the use of discard tubes in relation to coagulation assays. 31 departments (63.3%) were found to adhere to CLSI and WHO guidelines. A majority of departments instructs the use of discard tubes before collection for coagulation assays in citrate tubes (44 departments; 89.8%). The citrate tube was the first sample tube to be drawn for most departments (35 departments; 75.5%); and the preferred order of non-citrate tubes was serum-heparin-EDTA (36 departments; 73.5%). Adherence to the CLSI and WHO guidelines was not associated with department ISO 15189:2012 accreditation (p = 0.57).

CONCLUSIONS: Venous order of draw procedures is diverse at Danish clinical biochemistry departments and show moderate adherence to international guidelines.

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, University of Copenhagen, Copenhagen University Hospital
Authors: Jacobsen, K. K. (Ekstern), Brandt, I. (Ekstern), Christensen, A. V. (Ekstern), Rimsø, B. A. (Ekstern), Krøier, C. J. (Ekstern), Sørensen, M. (Ekstern), Smith, J. (Ekstern), Jensen, K. O. F. (Ekstern), Larsen, J. M. (Intern)
Pages: 113-116
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Volume: 56
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BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SJR 0.984 SNIP 1.016
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.36 SJR 0.943 SNIP 1.009
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.917 SNIP 0.953 CiteScore 2.18
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.846 SNIP 0.934 CiteScore 2.19
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.794 SNIP 0.99 CiteScore 2.34
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.771 SNIP 1.014 CiteScore 2.34
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.747 SNIP 0.958 CiteScore 2.18
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.714 SNIP 0.999
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.702 SNIP 0.871
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.784 SNIP 1.028
Web of Science (2008): Indexed yes
Effect of low energy diet for eight weeks to adults with overweight or obesity on folate, retinol, vitamin B\textsubscript{12}, D and e status and the degree of inflammation: a post hoc analysis of a randomized intervention trial

Background: Obesity is associated with vitamin insufficiency and low grade inflammation. The purpose of this study was to investigate the effect of weight loss on folate, retinol, vitamin B\textsubscript{12}, D and E status and the degree of inflammation.

Methods: Out of 110, 85 individuals (75% women) aged 39 ± 11 years with a mean ± SD BMI of 33 ± 4 kg/m\textsuperscript{2}, completed an eight-week low energy diet (LED). Serum concentration of folate, retinol, B\textsubscript{12}, D and E and C-reactive protein and homocysteine (Hcy) were measured at baseline and at end of the LED. Results: At baseline, 8% of the participants were deficient in folate, 13% in vitamin B\textsubscript{12}, 2% in retinol, 28% in vitamin D (72% were insufficient in vitamin D), and none were deficient in vitamin E. At baseline, BMI was inversely associated with retinol (P < 0.05) as was total and abdominal fat percentage with folate (P < 0.05); further BMI and measures of adiposity were positively associated with CRP (P < 0.01) and Hcy (P < 0.05). Homocysteine was inversely associated with all vitamins but retinol (P < 0.001). After the LED, the participants lost a mean ± 95% confidence intervals of 12.3 [-13.1,-11.6] kg. The serum concentration of folate, vitamin B\textsubscript{12} and D were increased (P < 0.001) after the LED whereas the concentration of retinol and vitamin E were reduced (P < 0.001). Conclusion: Eight-weeks LED resulted in 13% weight loss and an increase in the serum concentrations of folate, vitamin B\textsubscript{12} and D. Baseline adiposity was inversely associated with folate and retinol, and positively associated with markers of inflammation. Trial registration: Ethical Committee of Copenhagen as no. H-4-2013-135, NCT01561131.
Traditional methods v. new technologies – dilemmas for dietary assessment in large-scale nutrition surveys and studies: a report following an international panel discussion at the 9th International Conference on Diet and Activity Methods (ICDAM9), Brisbane, 3 September 2015

The aim of the present paper is to summarise current and future applications of dietary assessment technologies in nutrition surveys in developed countries. It includes the discussion of key points and highlights of subsequent developments from a panel discussion to address strengths and weaknesses of traditional dietary assessment methods (food records, FFQ, 24 h recalls, diet history with interviewer-assisted data collection) v. new technology-based dietary assessment methods (web-based and mobile device applications). The panel discussion ‘Traditional methods v. new technologies: dilemmas for dietary assessment in population surveys’, was held at the 9th International Conference on Diet and Activity Methods (ICDAM9), Brisbane, September 2015. Despite respondent and researcher burden, traditional methods have been most commonly used in nutrition surveys. However, dietary assessment technologies offer potential advantages including faster data processing and better data quality. This is a fast-moving field and there is evidence of increasing demand for the use of new technologies amongst the general public and researchers. There is a need for research and investment to support efforts being made to facilitate the inclusion of new technologies for rapid, accurate and representative data.

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition , MRC Elsie Widdowson Laboratory, National Aids Trust, University of Leeds, University of Hawaii at Manoa, University of Newcastle, National Institute of Public Health and the Environment
Number of pages: 10
Publication date: 2 Apr 2018
Main Research Area: Technical/natural sciences

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Journal: Journal of Nutritional Science
Volume: 7
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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.822 SJR 0.984
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 0.72 SJR 0.62 SNIP 0.545
Web of Science (2016): Indexed yes
Scopus rating (2015): SNIP 0.376 SJR 0.381
Web of Science (2015): Indexed yes
The microbial contamination level profiles (MCLPs) attributed to contamination of beef carcasses, personnel, and equipment were determined in five Kenyan small and medium enterprise slaughterhouses. Aerobic plate counts, Enterobacteriaceae, Staphylococcus, and Salmonella were used to determine contamination at four different slaughter stages, namely, dehiding, evisceration, splitting, and dispatch. Microbiological criteria of the four microorganisms were used to score contamination levels (CLs) as poor (0), poor to average (1), average (2), or good (3). MCLPs were further assigned to carcasses, personnel, and equipment at each stage by summing up the CL scores. The MCLP attributed to aerobic plate count contamination was 2 or 3 for carcasses but 0 for personnel and equipment in almost all slaughterhouses. A score of 0 on carcasses was mostly attributed to Enterobacteriaceae at evisceration and to Salmonella at dehiding and evisceration. In addition, a score of 0 was mostly attributed to Staphylococcus contamination of personnel at dehiding. A score of 3 was attributed mostly to Enterobacteriaceae on hands at splitting, whereas a score of 2 was mostly attributed to the clothes at dehiding and evisceration. A CL score of 3 was mostly attributed to Enterobacteriaceae and Salmonella contamination of equipment at dehiding and splitting, respectively. Although CLs attributed to contamination of carcasses, personnel, and equipment ranged from 0 to 3, the maximum MCLP score of 9 was only attained in carcasses from two slaughterhouses at dehiding and from one slaughterhouse at dispatch. There is, therefore, a lot of room for small and medium enterprise slaughterhouses to improve their food safety objectives by improving food safety management systems at the points characterized by low CL scores.
Direct whole-genome sequencing of Plasmodium falciparum specimens from dried erythrocyte spots

Background: Plasmodium falciparum malaria remains a major health burden and genomic research represents one of the necessary approaches for continued progress towards malaria control and elimination. Sample acquisition for this purpose is troublesome, with the majority of malaria-infected individuals living in rural areas, away from main infrastructure and the electrical grid. The aim of this study was to describe a low-tech procedure to sample P. falciparum specimens for direct whole genome sequencing (WGS), without use of electricity and cold-chain. Methods: Venous blood samples were collected from malaria patients in Bandim, Guinea-Bissau and leukocyte-depleted using Plasmodipur filters, the enriched parasite sample was spotted on Whatman paper and dried. The samples were stored at ambient temperatures and subsequently used for DNA-extraction. Ratios of parasite:human content of the extracted DNA was assessed by qPCR, and five samples with varying parasitaemia, were sequenced. Sequencing data were used to analyse the sample content, as well as sample coverage and depth as compared to the 3d7 reference genome. Results: qPCR revealed that 73% of
the 199 samples were applicable for WGS, as defined by a minimum ratio of parasite:human DNA of 2:1. WGS revealed an even distribution of sequence data across the 3d7 reference genome, regardless of parasitaemia. The acquired read depths varied from 16 to 99×, and coverage varied from 87.5 to 98.9% of the 3d7 reference genome. SNP-analysis of six genes, for which amplicon sequencing has been performed previously, confirmed the reliability of the WGS-data.

Conclusion: This study describes a simple filter paper based protocol for sampling P. falciparum from malaria patients for subsequent direct WGS, enabling acquisition of samples in remote settings with no access to electricity.

General information
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Organisations: Department of Bio and Health Informatics, National Food Institute, Research Group for Genomic Epidemiology, Genomic Epidemiology, University of Copenhagen, University of Southern Denmark, Bandim Health Project, Karolinska Institutet
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Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.89 SJR 1.866 SNIP 1.127
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 2.087 SNIP 1.16 CiteScore 3.09
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 2.084 SNIP 1.32 CiteScore 3.07
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 2.18 SNIP 1.294 CiteScore 3.56
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.902 SNIP 1.33 CiteScore 3.61
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.775 SNIP 1.297 CiteScore 3.56
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.838 SNIP 1.259
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
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BFI (2008): BFI-level 2
Scopus rating (2008): SJR 1.394 SNIP 1.122
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.236 SNIP 0.995
Scopus rating (2006): SJR 1.209 SNIP 1.288
Scopus rating (2005): SJR 1.022 SNIP 0.671
Scopus rating (2004): SJR 0.743 SNIP 0.59
Prevalence and risk factors for CTX-M gram-negative bacteria in hospitalized patients at a tertiary care hospital in Kilimanjaro, Tanzania

Emergence and spread of extended spectrum beta-lactamase (ESBL)-producing gram-negative bacteria, mainly due to CTX-M, is a major global public health problem. Patients infected with ESBL-producing gram-negative bacteria have an increased risk of treatment failure and death. We investigated the prevalence and risk factors for CTX-M gram-negative bacteria isolated from clinical specimens of patients hospitalized at a tertiary care hospital in Kilimanjaro, Tanzania. Isolated gram-negative bacteria from inpatients admitted at Kilimanjaro Christian Medical Centre (KCMC) between August 2013 and August 2015 were fully genome sequenced. The prevalence of ESBL-producing gram-negative bacteria was determined based on the presence of blaCTX-M. The odds ratio (OR) and risk factors for ESBL-producing gram-negative bacteria due to CTX-M were assessed using logistic regression models. The overall CTX-M prevalence (95% CI) was 13.6% (10.1–18.1). Adjusted for other factors, the OR of CTX-M gram-negative bacteria for patients previously hospitalized was 0.26 (0.08–0.88), p = 0.031; the OR for patients currently on antibiotics was 4.02 (1.29–12.58), p = 0.017; the OR for patients currently on ceftriaxone was 0.14 (0.04–0.46), p = 0.001; and the OR for patients with wound infections was 0.24 (0.09–0.61), p = 0.003. The prevalence of ESBL-producing gram-negative bacteria due to CTX-M in this setting is relatively low compared to other previous reports in similar settings. However, to properly stop further spread in the hospital, we recommend setting up a hospital surveillance system that takes full advantage of the available next-generation sequencing facility to routinely screen for all types of bacterial resistance genes.

General information
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Organisations: Department of Bio and Health Informatics, Genomic Epidemiology, National Food Institute, Research Group for Genomic Epidemiology, Kilimanjaro Christian Medical Centre, Kilimanjaro Christian Medical University College, University of Copenhagen, East African Health Research Commission
Authors: Sonda, T. (Ekstern), Kumburu, H. (Ekstern), van Zwetselaar, M. (Ekstern), Alifrangis, M. (Ekstern), Mmbaga, B. T. (Ekstern), Lund, O. (Intern), Møller Aarestrup, F. (Intern), Kibiki, G. (Ekstern)
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BFI (2017): BFI-level 1
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BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.81 SJR 1.331 SNIP 1.134
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.232 SNIP 1.16 CiteScore 2.62
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.235 SNIP 1.212 CiteScore 2.68
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.106 SNIP 1.05 CiteScore 2.63
Multiplex PCR for detection of plasmid-mediated colistin resistance determinants, mcr-1, mcr-2, mcr-3, mcr-4 and mcr-5 for surveillance purposes

Background and aim: Plasmid-mediated colistin resistance mechanisms have been identified worldwide in the past years. A multiplex polymerase chain reaction (PCR) protocol for detection of all currently known transferable colistin resistance genes (mcr-1 to mcr-5, and variants) in Enterobacteriaceae was developed for surveillance or research purposes.

Methods: We designed four new primer pairs to amplify mcr-1, mcr-2, mcr-3 and mcr-4 gene products and used the originally described primers for mcr-5 to obtain a stepwise separation of ca 200 bp between ampli-cons. The primer pairs and amplification conditions allow for single or multiple detection of all currently described mcr genes and their variants present in Enterobacteriaceae. The protocol was validated testing 49 European Escherichia coli and Salmonella isolates of animal origin. Results: Multiplex PCR results in bovine and porcine isolates from Spain, Germany, France and Italy showed full concordance with whole genome sequence data. The method was able to detect mcr-1, mcr-3 and mcr-4 as singletons or in different combinations as they were present in the test isolates. One new mcr-4 variant, mcr-4.3, was also identified. Conclusions: This method allows rapid identification of mcr-positive bacteria and overcomes the challenges of phenotypic detection of colistin resistance. The multiplex PCR should be particularly interesting in settings or laboratories with limited resources for performing genetic analysis as it provides information on the mechanism of colistin resistance without requiring genome sequencing.

General information

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Authors: Rebelo, A. R. (Intern), Bortolaia, V. (Intern), Kjeldgaard, J. S. (Intern), Karlsmose Pedersen, S. (Intern), Leekitcharoenphon, P. (Intern), Hansen, I. M. (Intern), Guerra, B. (Ekstern), Malorny, B. (Ekstern), Borowiak, M. (Ekstern)
Occurrence of cyclic imines in European commercial seafood and consumers risk assessment

Cyclic imines constitute a quite recently discovered group of marine biotoxins that act on neural receptors and that bioaccumulate in seafood. They are grouped together due to the imino group functioning as their common pharmacore, responsible for acute neurotoxicity in mice. Cyclic imines (CIs) have not been linked yet to human poisoning and are not regulated in the European Union (EU), although the European Food Safety Authority (EFSA) requires more data to perform conclusive risk assessment for consumers. Several commercial samples of bivalves including raw and processed samples from eight countries (Italy, Portugal, Slovenia, Spain, Ireland, Norway, The Netherlands and Denmark) were obtained over 2 years. Emerging cyclic imine concentrations in all the samples were analysed on a LC-3200QTRAP and LC-HRMS QExactive mass spectrometer. In shellfish, two CIs, pinnatoxin G (PnTX-G) and 13-desmethylspirolide C (SPX-1) were found at low concentrations (0.1–12 µg/kg PnTX-G and 26–66 µg/kg SPX-1), while gymnodimines and pteriatoxins were not detected in commercial (raw and processed) samples. In summary, SPX-1 (n: 47) and PnTX-G (n: 96) were detected in 9.4% and 4.2% of the samples, respectively, at concentrations higher than the limit of quantification (LOQ), and in 7.3% and 31.2% of the samples at concentrations lower than the LOQ (25 µg/kg for SPX-1 and 3 µg/kg for PnTX-G), respectively. For the detected cyclic imines, the average exposure and the 95th percentile were calculated. The results obtained indicate that it is unlikely that a potential health risk exists through the seafood diet for CIs in the EU. However, further information about CIs is necessary in order to perform a conclusive risk assessment.

General information

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Organisations: National Food Institute, Research Group for Analytical Food Chemistry, IRTA - Institute of Agrifood Research and Technology, Norwegian Veterinary Institute, National Research Council of Canada, Ghent University, I.P. (IPMA), Aefioria s.r.l, University of Maribor, Wageningen University & Research, AquaTT
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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SJR 1.605 SNIP 1.413
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 4.12 SJR 1.413 SNIP 1.326
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.424 SNIP 1.317 CiteScore 3.71
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.794 SNIP 1.76 CiteScore 4.32
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.569 SNIP 1.597 CiteScore 3.75
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.541 SNIP 1.362 CiteScore 3.31
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Aberrant intestinal microbiota in individuals with prediabetes

Aims/hypothesis: Individuals with type 2 diabetes have aberrant intestinal microbiota. However, recent studies suggest that metformin alters the composition and functional potential of gut microbiota, thereby interfering with the diabetes-related microbial signatures. We tested whether specific gut microbiota profiles are associated with prediabetes (defined as fasting plasma glucose of 6.1–7.0 mmol/l or HbA1c of 42–48 mmol/mol [6.0–6.5%]) and a range of clinical biomarkers of poor metabolic health. Methods: In the present case–control study, we analysed the gut microbiota of 134 Danish adults with prediabetes, overweight, insulin resistance, dyslipidaemia and low-grade inflammation and 134 age- and sex-matched individuals with normal glucose regulation. Results: We found that five bacterial genera and 36 operational taxonomic units (OTUs) were differentially abundant between individuals with prediabetes and those with normal glucose regulation. At the genus level, the abundance of Clostridium was decreased (mean log₂ fold change −0.64 (SEM 0.23), p = 0.0497), whereas the abundances of Dorea, Ruminococcus, Sutterella and Streptococcus were increased (mean log₂ fold change 0.51 (SEM 0.12), padj = 5 × 10⁻⁴; 0.51 (SEM 0.11), padj = 1 × 10⁻⁴; 0.60 (SEM 0.21), padj = 0.0497; and 0.92 (SEM 0.21), padj = 4 × 10⁻⁴, respectively). The two OTUs that differed the most were a member of the order Clostridiales (OTU 146564) and Akkermansia muciniphila, which both displayed lower abundance among individuals with prediabetes (mean log₂ fold change −1.74 (SEM 0.41), padj = 2 × 10⁻³ and −1.65 (SEM 0.34), padj = 4 × 10⁻⁴, respectively). Faecal transfer from donors with prediabetes or screen-detected, drug-naive type 2 diabetes to germfree Swiss Webster or conventional C57BL/6 J mice did not induce impaired glucose regulation in recipient mice. Conclusions/interpretation: Collectively, our data show that individuals with prediabetes have aberrant intestinal microbiota characterised by a decreased abundance of the genus Clostridium and the mucin-degrading bacterium A. muciniphila. Our findings are comparable to observations in overt chronic diseases characterised by low-grade inflammation.

General information
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Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology, Department of Mechanical Engineering, University of Copenhagen, University of Gothenburg, Research Centre for Prevention and Health, Aalborg University, Novo Nordisk AS, Lund University, Umeå University, Harvard University, University of Southern Denmark, Aarhus University
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Akkermansia muciniphila, Clostridium, Faecal transfer, Gut microbiota, Hyperglycaemia, Intestinal microbiota, Low-grade inflammation, Prediabetes

DOIs:
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Publication: Research - peer-review › Journal article – Annual report year: 2018
A call for action: Improve reporting of research studies to increase the scientific basis for regulatory decision-making

This is a call for action to scientific journals to introduce reporting requirements for toxicity and ecotoxicity studies. Such reporting requirements will support the use of peer-reviewed research studies in regulatory decision-making. Moreover, this could improve the reliability and reproducibility of published studies in general and make better use of the resources spent in research.

General information
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BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.011 SJR 0.958
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.04 SJR 0.922 SNIP 0.944
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.008 SNIP 1.052 CiteScore 3.02
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.948 SNIP 1.015 CiteScore 2.85
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.812 SNIP 1.06 CiteScore 2.78
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.81 SNIP 1.04 CiteScore 2.61
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.82 SNIP 0.906 CiteScore 2.52
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.74 SNIP 0.955
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.579 SNIP 0.765
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.574 SNIP 0.757
Scopus rating (2007): SJR 0.599 SNIP 0.875
Scopus rating (2006): SJR 0.536 SNIP 0.92
Scopus rating (2005): SJR 0.52 SNIP 0.893
Scopus rating (2004): SJR 0.482 SNIP 0.722
A case report on inVALUABLE: insect value chain in a circular bioeconomy

The vision of inVALUABLE is to create a sustainable resource-efficient industry for animal production based on insects. inVALUABLE has focus on the R&D demand for scaling up production of insects in Denmark and assessing the application potential of particularly mealworms. The inVALUABLE consortium partners span the entire value chain and include entrepreneurs, experts in biology, biotechnology, automation, processing and food tech and safety. This paper provides an overview of the goal, activities and some preliminary results obtained during the first year of the project.

General information

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Organisations: National Food Institute, Research Group for Microbial Food Safety
Authors: Heckmann, L. (Ekstern), Andersen, J. (Ekstern), Eilenberg, J. (Ekstern), Fynbo, J. (Ekstern), Miklos, R. (Ekstern), Nygaard Jensen, A. (Intern), Nørgaard, J. V. (Ekstern), Roos, N. (Ekstern)
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Scopus rating (2017): SJR 0.699 SNIP 1.251
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): SNIP 0.53 SJR 0.446
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Source-ID: 2434931322
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Accuracy of food photographs for quantifying food servings in a lunch meal setting among Danish children and adults

Visual aids, such as food photographs, are widely used in estimating food quantities in dietary surveys. The present study aimed to assess how accurately Danish adults and children can estimate food portion sizes using 37 series of photographs illustrating four to six different portion sizes under real-life conditions; determine whether adults were more accurate than children; and estimate the error caused by using portion size photographs to estimate weights of foods consumed in macronutrient calculation. Six hundred and twenty-two adults and 109 children were recruited in three workplace canteens and in two schools, respectively, to estimate their lunchtime portions based on photographs. Participants were instructed to keep the foods separated on their plate when taking lunch. Participants thereafter estimated their own portions by looking at the relevant series of photographs. The actual food portions were then weighed. The proportion of correct estimations was 42% overall (range 19-77%). The mean difference (%) between estimated and actual weight was 17% (range 1-111%). Small portion size photographs were more often used correctly compared to larger portion photographs. Children had as many correct estimations as adults, although they overestimated portions
more. Participants using fractions of (or more than) one photograph to estimate the portion of a food had significantly larger errors. When calculating the macronutrient content of a weekly menu using the estimated portion sizes, protein had the largest error (29%). When used in a real-life situation, the portion size photographs validated in the present study showed a certain inaccuracy compared to the actual weights.

**General information**

- **State:** Published
- **Organisations:** National Food Institute, Division of Risk Assessment and Nutrition
- **Authors:** Biltoft-Jensen, A. P. (Intern), Nielsen, T. H. (Intern), Ygil, K. H. (Intern), Christensen, T. (Intern), Fagt, S. (Intern)
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  - Web of Science (2017): Indexed Yes
  - BFI (2016): BFI-level 1
  - Scopus rating (2016): CiteScore 2.51 SJR 1.157 SNIP 1.084
  - Web of Science (2016): Indexed yes
  - BFI (2015): BFI-level 1
  - Scopus rating (2015): SJR 0.988 SNIP 0.998 CiteScore 2.17
  - BFI (2014): BFI-level 1
  - Scopus rating (2014): SJR 0.676 SNIP 1.072 CiteScore 1.9
  - Web of Science (2014): Indexed yes
  - BFI (2013): BFI-level 1
  - Scopus rating (2013): SJR 0.939 SNIP 1.188 CiteScore 2.11
  - ISI indexed (2013): ISI indexed yes
  - BFI (2012): BFI-level 1
  - Scopus rating (2012): SJR 0.854 SNIP 1.003 CiteScore 1.94
  - ISI indexed (2012): ISI indexed yes
  - BFI (2011): BFI-level 1
  - Scopus rating (2011): SJR 0.734 SNIP 0.78 CiteScore 1.63
  - ISI indexed (2011): ISI indexed yes
  - BFI (2010): BFI-level 1
  - Scopus rating (2010): SJR 0.73 SNIP 1.05
  - BFI (2009): BFI-level 1
  - Scopus rating (2009): SJR 0.679 SNIP 0.874
  - BFI (2008): BFI-level 1
  - Scopus rating (2008): SJR 0.731 SNIP 0.828
  - Web of Science (2008): Indexed yes
  - Scopus rating (2007): SJR 0.929 SNIP 0.897
  - Scopus rating (2006): SJR 0.568 SNIP 0.868
  - Scopus rating (2005): SJR 0.531 SNIP 0.951
  - Scopus rating (2004): SJR 0.446 SNIP 0.804
  - Scopus rating (2003): SJR 0.29 SNIP 0.534
  - Scopus rating (2002): SJR 0.246 SNIP 0.393
  - Scopus rating (2001): SJR 0.268 SNIP 0.606
  - Scopus rating (2000): SJR 0.247 SNIP 0.414
  - Scopus rating (1999): SJR 0.304 SNIP 0.438
Adherence to the Danish food-based dietary guidelines and risk of myocardial infarction: a cohort study

A direct way to evaluate food-based dietary guidelines is to assess if adherence is associated with development of non-communicable diseases. Thus, the objective was to develop an index to assess adherence to the 2013 Danish food-based dietary guidelines and to investigate the association between adherence to the index and risk of myocardial infarction (MI). Population-based cohort study with recruitment of participants in 1993-1997. Information on dietary intake was collected at baseline using an FFQ and an index ranging from 0 to 6 points was created to assess adherence to the 2013 Danish food-based dietary guidelines. MI cases were identified by record linkage to the Danish National Patient Register and the Causes of Death Register. Cox proportional hazards models were used to estimate hazard ratios (HR) of MI. Greater areas of Aarhus and Copenhagen, Denmark. Men and women aged 50-64 years (n 55 021) from the Diet, Cancer and Health study. A total of 3046 participants were diagnosed with first-time MI during a median follow-up of 16·9 years. A higher Danish Dietary Guidelines Index score was associated with a lower risk of MI. After adjustment for potential confounders, the hazard of MI was 13 % lower among men with a score of 3-
Adipose tissue content of alpha-linolenic acid and the risk of ischemic stroke and ischemic stroke subtypes: A Danish case-cohort study

BACKGROUND: The plant-derived omega-3 fatty acid alpha-linolenic acid (ALA) may reduce the risk of cardiovascular disease. OBJECTIVE: We have investigated associations between the content of ALA in adipose tissue and the risk of ischemic stroke and its subtypes. METHODS: Incident cases of ischemic stroke among participants enrolled into the Danish Diet, Cancer and Health cohort (n = 57,053) were identified by linkage with the Danish National Patient Register. Subsequently, all potential cases were validated and classified into ischemic stroke subtypes. The fatty acid composition of adipose tissue was determined by gas chromatography in cases and in a randomly drawn sub-cohort (n = 3500). Statistical analyses were performed using weighted Cox regression. RESULTS: During a median of 13.4 years of follow-up, 1735 cases of total ischemic stroke were identified including 297 cases of large artery atherosclerosis, 772 cases of small-vessel occlusion, 99 cases of cardio-embolism, 91 cases with stroke of other etiology and 476 cases with stroke of undetermined etiology. The median content of ALA in adipose tissue within the sub-cohort was 0.84% (95% central range: 0.53-1.19%). Multivariable analyses showed a U-shaped association between adipose tissue content of ALA and the rate of total ischemic stroke, but this association was not statistically significant (p = 0.172). In analyses of ischemic stroke subtypes, we observed a statistically significant U-shaped association between ALA and the rate of large artery atherosclerosis (p = 0.017), whereas no appreciable association was observed between ALA and the rate of small-vessel occlusion (p = 0.427). A positive but statistically non-significant association was observed between ALA and the rate of ischemic stroke due to cardio-embolism (p = 0.162). CONCLUSIONS: The content of ALA in adipose tissue was statistically non-significantly U-shaped associated with risk of total ischemic stroke. For ischemic stroke subtypes a statistically significant, U-shaped association with large artery atherosclerosis was observed.
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Scopus rating (2017): SJR 1.164 SNIP 1.111
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.11 SJR 1.236 SNIP 1.101
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.427 SNIP 1.136 CiteScore 3.32
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.559 SNIP 1.148 CiteScore 3.54
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.772 SNIP 1.153 CiteScore 3.94
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.982 SNIP 1.156 CiteScore 4.15
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 2.425 SNIP 1.233 CiteScore 4.58
ISI indexed (2011): ISI indexed no
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 2.705 SNIP 1.178
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 2.614 SNIP 1.046
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 2.506 SNIP 1.006
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.379 SNIP 0.537
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Adipose tissue fatty acids present in dairy fat and risk of stroke: the Danish Diet, Cancer and Health cohort

The role of dairy fat for the risk of stroke is not yet clear. Adipose tissue reflects long-term fatty acid intake and metabolism. We, therefore, investigated associations for percentages of adipose tissue fatty acids, for which dairy products are a major source (12:0, 14:0, 14:1 cis-9, 15:0, 17:0, 18:1 trans-11 and 18:2 cis-9, trans-11), with incident total stroke and stroke subtypes. We conducted a case-cohort study within the Danish Diet, Cancer and Health cohort, including all incident stroke cases (n=2108) and a random sample of the total cohort (n=3186). The fatty acid composition of adipose tissue biopsies was determined by gas chromatography and specific fatty acids were expressed as percentage of total fatty acids. Stroke cases were identified in the Danish National Patient Registry and the diagnoses were individually verified. We recorded 2108 stroke cases of which 1745 were ischemic, 249 were intracerebral hemorrhages and 102 were subarachnoid hemorrhages. We observed a lower rate of ischemic stroke for a higher adipose tissue percentage of 12:0, 14:0, 15:0, 17:0, 18:1 trans-11 and 18:2 cis-9, trans-11. Adipose tissue percentages of 15:0 and 18:1 trans-11 were also inversely associated with intracerebral hemorrhage, whereas no associations between the adipose tissue fatty acids and subarachnoid hemorrhage were observed. No associations between 14:1 cis-9 and ischemic or hemorrhagic stroke were found. Our results suggest that a larger percentage in adipose tissue of fatty acids for which dairy products are a major source is associated with a lower rate of ischemic stroke.
Advancing food, nutrition, and health research in Europe by connecting and building research infrastructures in a DISH-RI: Results of the EuroDISH project

Background

Research infrastructures (RIs) are essential to advance research on the relationship between food, nutrition, and health. RIs will facilitate innovation and allow insights at the systems level which are required to design (public health) strategies that will address societal challenges more effectively.

Approach

In the EuroDISH project we mapped existing RIs in the food and health area in Europe, identified outstanding needs, and synthesised this into a conceptual design of a pan-European DISH-RI. The DISH model was used to describe and structure the research area: Determinants of food choice, Intake of foods and nutrients, Status and functional markers of nutritional health, and Health and disease risk.

Key findings

The need to develop RIs in the food and health domain clearly emerged from the EuroDISH project. It showed the necessity for a unique interdisciplinary and multi-stakeholder RI that overarches the research domains. A DISH-RI should bring services to the research community that facilitate network and community building and provide access to standardised, interoperable, and innovative data and tools. It should fulfill the scientific needs to connect within and between research domains and make use of current initiatives. Added value can also be created by providing services to policy makers and industry, unlocking data and enabling valorisation of research insights in practice through public-private partnerships. The governance of these services (e.g. ownership) and the centralised and distributed activities of the RI itself (e.g. flexibility, innovation) needs to be organised and aligned with the different interests of public and private partners.

General information

State: Published
Organisations: Research Group for Risk-Benefit, National Food Institute, Wageningen University, Maastricht University, National Institute of Public Health and the Environment, Universite Claude Bernard Lyon 1, University of Surrey, Universite Paris 13, EuroFIR AISBL, CREA-NUT, International Agency for Research on Cancer
Pages: 58-66
Publication date: 2018
Alterations in the transcription factors GntR1 and RamA enhance the growth and central metabolism of Corynebacterium glutamicum

Evolution, i.e. the change in heritable characteristics of biological populations over successive generations, has created the diversity of life that exists today. In this study we have harnessed evolution to create faster growing mutants of Corynebacterium glutamicum, i.e. to debottleneck growth rate of this highly important industrial workhorse. After approximately 1500 generations of Adaptive Laboratory Evolution (ALE) in defined minimal medium with glucose, we obtained faster growing mutants with specific growth rate as high as 0.64h⁻¹ as compared with 0.45h⁻¹ for the wild type, and this 42% improvement is the highest reported for C. glutamicum to date. By genome resequencing and inverse metabolic engineering, we were able to pinpoint two mutations contributing to most of the growth improvement, and these resided in the transcriptional regulators GntR1 (gntR1-E70K) and RamA (ramA-A52V). We confirmed that the two mutations lead to alteration rather than elimination of function, and their introduction in the wild-type background resulted in a specific growth rate of 0.62h⁻¹. The glycolytic and pentose phosphate pathway fluxes had both increased significantly, and a transcriptomic analyses supported this to be associated with increased capacity. Interestingly, the observed fast growth phenotype was not restricted to glucose but was also observed on fructose, sucrose and xylose, however, the effect of the mutations could only be seen in minimal medium, and not rich BHI medium, where growth was already fast. We also found that the mutations could improve the performance of resting cells, under oxygen-deprived conditions, where an increase in sugar consumption rate of around 30% could be achieved. In conclusion, we have demonstrated that it is feasible to reprogram C. glutamicum into growing faster and thus enhance its industrial potential.

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Biotechnology and Biorefining, Hamburg University of Technology, Technical University of Denmark
Authors: Wang, Z. (Intern), Liu, J. (Intern), Chen, L. (Intern), Zeng, A. (Ekstern), Solem, C. (Intern), Jensen, P. R. (Intern)
Pages: 1-12
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Journal: Metabolic Engineering
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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SJR 3.337 SNIP 1.787
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 8.33 SJR 3.626 SNIP 1.865
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 3.6 SNIP 1.809 CiteScore 8.2
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 3.395 SNIP 2.009 CiteScore 7.23
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 4.036 SNIP 2.164 CiteScore 8.43
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.989 SNIP 1.847 CiteScore 6.72
ISI indexed (2012): ISI indexed yes
An electroplated copper–silver alloy as antibacterial coating on stainless steel

Transfer and growth of pathogenic microorganisms must be prevented in many areas such as the clinical sector. One element of transfer is the adhesion of pathogens to different surfaces and the purpose of the present study was to develop and investigate the antibacterial efficacy of stainless steel electroplated with a copper-silver alloy with the aim of developing antibacterial surfaces for the medical and health care sector. The microstructural characterization showed a porous microstructure of electroplated copper-silver coating and a homogeneous alloy with presence of interstitial silver. The copper-silver alloy coating showed active corrosion behavior in chloride-containing environments. ICP-MS measurements revealed a selective and localized dissolution of copper ions in wet conditions due to its galvanic coupling with silver. No live bacteria adhered to the copper-silver surfaces when exposed to suspensions of S. aureus and E. coli at a level of 10⁹CFU/ml whereas 10⁴CFU/cm² adhered after 24h on the stainless steel controls. In addition, the Cu-Ag alloy caused a significant reduction of bacteria in the suspensions. The coating was superior in its antibacterial activity as compared to pure copper and silver electroplated surfaces. Therefore, the results showed that the electroplated copper-silver coating represents an effective and potentially economically feasible way of limiting surface spreading of pathogens.

General information
State: Accepted/In press
Organisations: Department of Biotechnology and Biomedicine, Bacterial Ecophysiology and Biotechnology, Department of Mechanical Engineering, Materials and Surface Engineering, National Food Institute, Research Group for Nano-Bio Science
Authors: Ciacotich, N. (Intern), Din, R. U. (Intern), Sloth, J. J. (Intern), Møller, P. (Intern), Gram, L. (Intern)
Publication date: 2018
Main Research Area: Technical/natural sciences

Publication information
Journal: Surface and Coatings Technology
Apple pomace improves gut health in Fisher rats independent of seed content
The mechanism behind the cholesterol lowering effects of apple pomace, a polyphenol- and fibre rich by-product in apple juice production, was investigated. Groups of male F344 rats were fed a control feed or the same feed with 2.1% or 6.5% dry apple pomace with or without seeds for 4 weeks. Effects on plasma cholesterol concentrations, excretion of bile acids, expression of genes involved in cholesterol- and bile acid synthesis, and other markers related to gut health were investigated. We found that pomace feeding decreased total-, LDL- and IDL-cholesterol concentrations compared to control. Higher production of SCFA, indicating elevated caecal fermentation, and increased excretion of total- and primary bile acids could explain the observed hypocholesterolemic effects of apple pomace, however, expression of selected genes involved in cholesterol and bile acid biosynthesis (Hmgcr and Cyp7a1) were not affected. We found no hepatotoxic or other effects of apple seeds. Altogether, our results indicate that apple pomace has beneficial effects on gut health, and that the cholesterol-lowering effect is linked to increased production of SCFA and excretion of bile acids. These effects are most likely linked to the fibre and other fruit constituents present in the pomace. Presence of apple seeds seems to impart no toxicity even at 6.5% pomace in the feed and seeds also had no influence on the biological effect of the pomace. In the future, apple pomace could potentially be used as a bioactive and possibly health promoting food ingredient.

General information
State: Published
Organisations: National Food Institute, Research Group for Risk-Benefit, Division of Risk Assessment and Nutrition, University of Copenhagen, Lodz University of Technology, Research Institute of Horticulture
Authors: Ravn-Haren, G. (Intern), Krath, B. N. (Ekstern), Markowski, J. (Ekstern), Poulsen, M. (Intern), Hansen, M. (Intern), Kołodziejczyk, K. (Ekstern), Kosmala, M. (Ekstern), Dragsted, L. O. (Ekstern)
Pages: 2931-2941
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Main Research Area: Technical/natural sciences

Publication information
Journal: Food & Function
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Ratings:
Web of Science (2018): Indexed yes
Scopus rating (2017): SJR 1.209 SNIP 1.07
Web of Science (2017): Indexed Yes
Scopus rating (2016): CiteScore 3.38 SJR 1.131 SNIP 1.024
Scopus rating (2015): SJR 1.013 SNIP 0.999 CiteScore 3.15
Web of Science (2015): Indexed yes
Scopus rating (2014): SJR 1.022 SNIP 1.072 CiteScore 3.04
Scopus rating (2013): SJR 1.128 SNIP 1.054 CiteScore 3.29
ISI indexed (2013): ISI indexed yes
Scopus rating (2012): SJR 0.979 SNIP 1.103 CiteScore 2.79
ISI indexed (2012): ISI indexed no
Scopus rating (2011): SJR 0.353 SNIP 0.378 CiteScore 1.14
ISI indexed (2011): ISI indexed no
Original language: English
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Source: Findit
Source-ID: 2434385450
Publication: Research - peer-review › Journal article – Annual report year: 2018

Approaches to assess IgE mediated allergy risks (sensitization and cross-reactivity) from new or modified dietary proteins
The development and introduction of new dietary protein sources has the potential to improve food supply sustainability. Understanding the potential allergenicity of these new or modified proteins is crucial to ensure protection of public health. Exposure to new proteins may result in de novo sensitization, with or without clinical allergy, or clinical reactions through cross-reactivity.

In this paper we review the potential of current methodologies (in silico, in vitro degradation, in vitro IgE binding, animal
models and clinical studies) to address these outcomes for risk assessment purposes for new proteins, and especially to identify and characterise the risk of sensitization for IgE mediated allergy from oral exposure. Existing tools and tests are capable of assessing potential crossreactivity. However, there are few possibilities to assess the hazard due to de novo sensitization. The only methods available are in vivo models, but many limitations exist to use them for assessing risk. We conclude that there is a need to understand which criteria adequately define allergenicity for risk assessment purposes, and from these criteria develop a more suitable battery of tests to distinguish between proteins of high and low allergenicity, which can then be applied to assess new proteins with unknown risks.

General information
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Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, TNO, Netherlands, University Medical Centre Utrecht, Bayer SAS, Medical University of Sofia, Norwegian Veterinary Institute, Monsanto Europe S.A., University of Athens, Monsanto Company, Nestec Ltd, Unilever, TNO Nutrition and Food Research Institute, Netherlands Organisation for Applied Scientific Research - TNO
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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SJR 1.144 SNIP 1.427
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.96 SJR 1.351 SNIP 1.58
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.202 SNIP 1.415 CiteScore 3.44
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.038 SNIP 1.369 CiteScore 3.12
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.02 SNIP 1.506 CiteScore 3.26
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.126 SNIP 1.748 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.124 SNIP 1.58 CiteScore 3.36
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.93 SNIP 1.221
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.833 SNIP 1.056
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
A quantitative method to measure and evaluate the peelability of shrimps (Pandalus borealis)
A novel, standardized method has been developed in order to provide a quantitative description of shrimp peelability. The peeling process was based on the measure of the strength of the shell-muscle attachment of the shrimp using a texture analyzer, and calculated into the peeling work. The self-consistent method, insensitive of the shrimp size, was proven valid for assessment of ice maturation of shrimps. The quantitative peeling efficiency (peeling work) and performance (degree of shell removal) showed that the decrease in peeling work correlated with the amount of satisfactory peeled shrimps, indicating an effective weakening of the shell-muscle attachment. The developed method provides the industry with a quantitative analysis for measurement of peeling efficiency and peeling performance of shrimps. It may be used for comparing different maturation conditions in relation to optimization of shrimps peeling.

General information
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Organisations: National Food Institute, Research Group for Food Production Engineering, University of Copenhagen, Royal Greenland A/S
Authors: Gringer, N. (Intern), Dang, T. T. (Ekstern), Orlien, V. (Ekstern), Olsen, K. (Ekstern), Bøknæs, N. (Ekstern), Jessen, F. (Intern)
Pages: 20-24
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Journal: LWT
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Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.31
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 3.11
Web of Science (2015): Indexed yes
A quantitative microbial risk assessment model for *Listeria monocytogenes* in RTE sandwiches

A Quantitative Microbial Risk Assessment (QMRA) was performed to estimate the expected number of listeriosis cases due to the consumption, on the last day of shelf life, of 20,000 servings of multi-ingredient sandwiches produced by a medium scale food producer in Italy, by different population strata, defined by infection susceptibility (healthy, susceptible, transplant recipients and total population). First, all the sandwich ingredients were analysed for pH, Aw, salt and organic acids content and submitted to challenge tests at three different temperatures (4, 6 and 10 °C) to evaluate their suitability for *L. monocytogenes* growth. Next, a stochastic model was constructed simulating the contamination of the ingredients that were the best (bean cream) and worst (cheese cream) growth substrates. For each substrate, an exposure assessment was performed, estimating the number of *L. monocytogenes* within each serving. Then, two dose-response models were alternatively applied: the first used a fixed r value for each of the three population groups, while the second considered a variable r value (lognormal distribution), taking into account the variability in strain virulence and different host subpopulations susceptibility. The stochastic model predicted zero cases for total population for both the substrates by using the fixed r approach, while 3 cases were expected when a higher variability (in virulence and susceptibility) was considered in the model; the number of cases increased to 45–52 in the worst scenario (bean cream contamination) assuming all servings would be consumed by transplant recipients. An uncertainty analysis was performed by considering alternative scenarios: a higher mean bacterial concentration (+ 0.5 Log CFU/g) or higher standard deviation (+ 0.5) determined evident increases in the expected number of cases, almost doubling the risk. A similar effect was also exerted by an extended storage time (from 72 to 96 h), in particular in the worst case scenario. Finally, different protective interventions were evaluated (70/30 N₂/CO₂ packaging, home cooking or their combination). Both the interventions resulted in a strong decrease of the risk; MAP packaging, should be regarded as the most promising one, as it can be performed by the producer, who can assure a strict control of the treatment performances.

**General information**

**State:** Accepted/In press

**Organisations:** National Food Institute, Research Group for Risk-Benefit, University of Milan, University of Copenhagen

**Authors:** Tirloni, E. (Ekstern), Stella, S. (Ekstern), de Knegt, L. (Intern), Gandolfi, G. (Ekstern), Bernardi, C. (Ekstern), Nauta, M. (Intern)

**DoIs:**

10.1016/j.lwt.2018.04.022

Source: Scopus

Source-ID: 85045564018

Publication: Research - peer-review › Journal article – Annual report year: 2018
A screening framework for pesticide substitution in agriculture

Farmers lack science-based tools to flexibly and rapidly identify more sustainable pesticides. To address this gap, we present a screening-level substitution framework to compare and rank pesticides using a consistent set of indicators including registration, pest resistance, human toxicity and aquatic ecotoxicity impact potentials, and market price. Toxicity-related damage costs and application costs were combined with application dosages to yield total costs per pesticide. We applied and tested our framework in a case study on pesticides applied to lettuce in Denmark. Our results indicate that by ranking pesticides within each target class (e.g. fungicides) the most suitable pesticide can be identified based on our set of indicators. As an example, in the insecticide scenario, pymetrozine performs best with total costs of 23 €/ha, while dimethoate and pirimicarb, which are also on the EU candidate substitution list, performed worst. Total costs across considered pesticides range from 23 to 302 €/ha. Our framework constitutes an operational starting point for identifying sustainable pesticides by farmers and other stakeholders and highlights (a) the need to consider various relevant aspects influencing the ranking of pesticides and (b) the importance of combining total cost performance per pesticide unit applied with respective application dosage per hectare as both may vary greatly. Future research should focus on considering additional indicators (e.g. terrestrial ecotoxicity), increasing resistance-related data, and reducing uncertainty that is mainly related to emission and toxicity impact estimates.
Assessing spatial correlations of sea surges around Copenhagen

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, National Food Institute, Research Group for Risk-Benefit, Department of Environmental Engineering, Urban Water Systems, Statistics and Data Analysis
Authors: Georgiadis, S. (Intern), Sørup, H. J. D. (Intern), Nielsen, B. F. (Intern), Arnbjerg-Nielsen, K. (Intern)
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Electronic versions:
Abstract book
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2018
Associations between adherence to the Danish Food-Based Dietary Guidelines and cardiometabolic risk factors in a Danish adult population: the DIPI study

Diet is recognised as one modifiable lifestyle factor for ischaemic heart disease (IHD). We aimed at investigating the associations between adherence to the Danish Food-Based Dietary Guidelines (FBDG) indicated by a Dietary Quality Index (DQI) and selected cardiometabolic risk factors in a cross-sectional study with 219 Danish adult participants (59 % women; age 31-65 years) with a minimum of one self-rated risk marker of IHD. Information regarding diet was obtained using web-based dietary assessment software and adherence to the Danish FBDG was expressed by a DQI calculated from 5 food and nutrient indicators (whole grain, fish, fruit and vegetables, energy from saturated fat and from added sugar). Background information, blood samples and anthropometrics were collected and blood pressure was measured. Linear regression analyses were used to evaluate the association between DQI and cardiometabolic risk factors. DQI was inversely associated with LDL:HDL ratio and TAG (-0.089 per unit; 95 % CI -0.177, -0.002 and -5 % per unit; 95 % CI -9, 0, respectively) and positively associated with HDL-cholesterol (0.047 mmol/l per unit; 95 % CI 0.007, 0.088). For men, DQI was inversely associated with BMI (-3 % per unit; 95 % CI -5, -1), trunk fat (-1 % per unit; 95 % CI -2, -1), highsensitivity C-reactive protein (-30 % per unit; 95 % CI -41, -16 %), HbA1c (-0.09 % per unit; 95 % CI -0.14, -0.04), insulin (-13 % per unit; 95 % CI -19, -7) and homoeostatic model assessment-insulin resistance (-14 % per unit; 95 % CI -21, -7). In women, DQI was positively associated with systolic blood pressure (2.6 mmHg per unit; 95 % CI 0.6, 4.6). In conclusion, higher adherence to the current Danish FBDG was associated with a more beneficial cardiometabolic risk profile in a Danish adult population with a minimum of one self-rated risk factor for IHD.

General information
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Organisations: National Food Institute, Research Group for Risk-Benefit, Danish Cancer Society, Aarhus University, University of Copenhagen
Authors: Arentoft, J. L. (Intern), Hoppe, C. (Intern), Andersen, E. W. (Ekstern), Overvad, K. (Ekstern), Tetens, I. (Ekstern)
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Main Research Area: Technical/natural sciences

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Volume: 119
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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.555 SJR 1.756
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.46 SJR 2.055 SNIP 1.535
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.583 SNIP 1.442 CiteScore 3.52
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.532 SNIP 1.273 CiteScore 3.18
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 2.746 SNIP 2.479 CiteScore 3.61
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 2.308 SNIP 2.427 CiteScore 3.12
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 2.085 SNIP 1.649 CiteScore 3.13
Behavior of silver nanoparticles and ions in food simulants and low fat cow milk under migration conditions

Research on the potential migration of nanoparticles (NPs) from nano-based food contact materials (FCMs) has often reached inconsistency in previous studies. Conventional food simulants and traditional migration tests, which are established for small molecules, have been used for studying the potential migration of NPs from nano-based FCMs. The suitability of conventional food simulants and migration tests was investigated by studying the behavior of 40nm polyethylene glycol (PEG) coated AgNPs and silver ions in food simulants (10% ethanol, 20% ethanol, 50% ethanol, 3% acetic acid, olive oil) under migration conditions. Particle mass and number concentrations, ionic concentration and particle size distributions were determined by single particle inductively coupled plasma-mass spectrometry (spICP-MS) before and after incubation for 4h or 10 days at 40°C. In agreement with similar studies, 50% ethanol preserved the AgNPs, while acetic acid induced dissolution of AgNPs. Dissolution of the PEG-AgNPs obeyed pseudo-first-order reaction kinetics. PEG-AgNPs showed similar behavior in low fat cow milk during storage at 4°C for 5 days as in the corresponding food simulant, 50% ethanol. Addition of sodium chloride to ultrapure water led to enhanced dissolution. The potential reduction of silver ions to NPs in food simulants, low fat milk and in alkaline conditions in the presence of reducing agents was studied. Based on the obtained results, it is unlikely that AgNPs are formed from Ag ions at the low concentration which are typically observed for the migration of Ag from polymeric FCMs.
Biochemistry: Production of High-Added Value Biomolecules for Industrial Uses

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, University of Sfax, Instituto de la Grasa-CSIC, Saint Joseph University
Authors: Karra-Chaabouni, M. (Ekstern), Trigui, M. (Ekstern), Yust, M. M. (Ekstern), Awad, M. K. (Ekstern), García Moreno, P. J. (Intern)
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Main Research Area: Technical/natural sciences

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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SJR 0.935 SNIP 0.984
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.32 SJR 0.885 SNIP 0.919
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.854 SNIP 0.799 CiteScore 1.77
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.797 SNIP 0.777 CiteScore 1.29
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.175 SNIP 0.973
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.084 SNIP 0.872
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.887 SNIP 0.704
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.526 SNIP 0.488
Web of Science (2010): Indexed yes
Microalgae have the ability to utilize nutrients from wastewater and use it for biomass production. The effluent from a biogas process was tested as a nutrient source for blue-green microalga Arthrospira platensis cultivation and compared with conventional synthetic medium. Cultivation was carried out in four different concentrations of industrial process water (25, 50, 75, and 100%). The biomass was then harvested by microfiltration, and centrifugation followed by freeze drying. Variations in biomass composition were studied, in order to investigate effects of industrial process water on A. platensis over 30 days of cultivation. Applied harvesting techniques were evaluated for their effect on physiochemical properties of the biomass. Arthrospira platensis was able to grow in all tested wastewater concentrations except 100%, however, increase of wastewater concentration in medium resulted in a decreased growth rate. Partial substitution of synthetic Zarrouk medium with 25% of wastewater showed no adverse effect on chemical composition of the biomass including high protein content (45-58% dry weight) and favorable fatty acid composition (42-45% PUFAs of total fatty acids). Evaluation by optical microscopy showed that microfiltration caused cell rupture at the moderate level while centrifugation had more severe effect on A. platensis. Effect of centrifugal forces and shear stress on A. platensis cells was confirmed by detecting lower lipid content in samples after applying both microfiltration and centrifugation due to cell content leakage.
Bladder biomechanics and the use of scaffolds for regenerative medicine in the urinary bladder

The urinary bladder is a complex organ with the primary functions of storing urine under low and stable pressure and micturition. Many clinical conditions can cause poor bladder compliance, reduced capacity, and incontinence, requiring bladder augmentation or use of regenerative techniques and scaffolds. To replicate an organ that is under frequent mechanical loading and unloading, special attention towards fulfilling its biomechanical requirements is necessary. Several biological and synthetic scaffolds are available, with various characteristics that qualify them for use in bladder regeneration in vitro and in vivo, including in the treatment of clinical conditions. The biomechanical properties of the native bladder can be investigated using a range of mechanical tests for standardized assessments, as well as mathematical and computational bladder biomechanics. Despite a large body of research into tissue engineering of the bladder wall, some features of the native bladder and the scaffolds used to mimic it need further elucidation. Collection of comparable reference data from different animal models would be a helpful tool for researchers and will enable comparison of different scaffolds in order to optimize characteristics before entering preclinical and clinical trials.
Bladder wall biomechanics: A comprehensive study on fresh porcine urinary bladder

Regenerative medicine for reconstructive urogenital surgery has been widely studied during the last two decades. One of the key factors affecting the quality of bladder regeneration is the mechanical properties of the bladder scaffold. Insight into the biomechanics of this organ is expected to assist researchers with functional regeneration of the bladder wall. Due to extensive similarities between human bladder and porcine bladder, and with regard to lack of comprehensive biomechanical data from the porcine bladder wall (BW), our main goal here was to provide a thorough evaluation on viscoelastic properties of fresh porcine urinary BW. Three testing modes including Uniaxial tensile, Ball-burst (BB) and Dynamic Mechanical Analyses (DMA) were applied in parallel. Uniaxial tests were applied to study how different circumferential and longitudinal cut-outs of lateral region of BW behave under load. DMA was used to measure the viscoelastic properties of the bladder tissue (storage and loss modulus) tested in a frequency range of 0.1 to 3 Hz. BB was selected as a different technique replicating normal physiological conditions where the BW is studied in whole. According to uniaxial tests, the anisotropic behavior of bladder was evident at strain loads higher than 200%. According to DMA, storage modulus was found to be consistently higher than loss modulus in both directions, revealing the elasticity of the BW. The stress-strain curves of both uniaxial and BB tests showed similar trends. However, the ultimate stress measured from BB was found to be around 5 times of the relevant stress from uniaxial loading. The ultimate strain in BB (389.9 ± 59.8) was interestingly an approximate average of longitudinal (358 ± 21) and circumferential (435 ± 69) rupture strains. Considering that each testing mode applied here reveals distinct information, outcomes from the combination of the three can be considered as a helpful data-base to refer to for researchers aiming to regenerate the bladder.

General information
State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science, Research Group for Food Production Engineering, University of Copenhagen
Authors: Sami Jokandan, M. (Intern), Ajalloueian, F. (Intern), Edinger, M. (Ekstern), Stubbe, P. R. (Intern), Baldursdottir, S. (Ekstern), Chronakis, I. S. (Intern)
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Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of the Mechanical Behavior of Biomedical Materials
Can stochastic consumer phase models in QMRA be simplified to a single factor?

In quantitative microbiological risk assessment (QMRA), the consumer phase covers the part of the food chain following production and retail, where the consumer transports, stores, prepares and consumes the food products considered. These consumer practices have a crucial impact on exposure, and a consumer phase model (CPM) needs to be included in a QMRA to allow an evaluation of the effectiveness of intervention measures in food production and processing in terms of human health risk. However, the development of a CPM is complex because consumer practices can be highly variable and data are scarce. So far, it is unclear to which extent CPMs need to include data on variability and detailed descriptions of the stochastic processes that may result in exposure. We therefore compared the performance of published stochastic CPMs with a simple surrogate CPM that assumes a proportional linear relation between concentration at retail and ingested dose, described by a constant factor. A comparative study was performed for different pathogens and different food products: Campylobacter in broiler meat, Salmonella in minced pork and pork cuts and Listeria in smoked salmon. Published stochastic CPMs were re-implemented and their equivalent surrogate models were derived, basing the value of the constant surrogate model factor on the absolute risk estimate from the stochastic model. The performances of the models were evaluated by comparing the effects of hypothetical intervention measures that reduce the mean or the standard deviation of the distribution of concentrations at retail. These effects were expressed in terms of relative risk estimates, as estimated in the risk assessments using the simplified and the stochastic CPMs. Results showed that after interventions that result in a reduction of the mean or standard deviation of the distribution of concentrations at retail, the relative risk estimates obtained for the simple surrogate models are always lower than those of the stochastic CPMs, which means that simplified models tend to overestimate the effects of interventions. The difference was largest in the Listeria model, where growth during storage is expected to be the dominant process. It was found that for interventions affecting the prevalence only, a simplified surrogate CPM performs similarly to a stochastic CPM. We concluded that the use of a simple surrogate CPM, which does not include the variability inherent to consumer practices, may lead to an overestimation of the effect of intervention measures in a QMRA, especially in these interventions affect the
concentrations. For adequate risk assessment, it may therefore be necessary to include the variation in consumer practices (e.g. variation in storage time and temperature, cooking time and temperature and cross-contamination), as described in more realistic and more complex CPMs, definitely if this variation is expected to be large.

General information
State: Published
Organisations: National Food Institute, Research Group for Risk-Benefit, Technical University of Denmark, Kenya Bureau of Standards
Authors: Neves, M. I. (Ekstern), Mungai, S. N. (Ekstern), Nauta, M. J. (Intern)
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Main Research Area: Technical/natural sciences

Cephalosporin-resistant Escherichia coli isolated from farm-workers and pigs in northern Vietnam
OBJECTIVE Antimicrobial-resistant bacteria may be transmitted between farm workers and livestock. This study aimed to determine and compare the prevalence and the genetic determinants of cefotaxime-resistant and ESBL-producing Escherichia coli in faecal isolates from workers and pigs at 100 farms in northern Vietnam.
METHODS Farmers were interviewed about antimicrobial usage in livestock. Escherichia coli isolated on MacConkey agar containing 2 mg/L of cefotaxime (CTX) were tested for susceptibility to different cephalosporins by disk diffusion and screened for occurrence of ESBL-encoding genes by PCR.
RESULTS Antimicrobial usage was widespread and included classes regarded of critical or high importance in human medicine. Dosages were 0.5-2 times higher than recommended and antimicrobials were often administered right until slaughter. Prevalence of CTX-resistant E. coli was 86% in farm workers and 89% in pigs at 100 farms in northern Vietnam. In 76% of farms, CTX-resistant E. coli were shared by pigs and farm workers. ESBL-producing E. coli were detected from pigs and workers at 66 and 69 farms, respectively. The ESBL phenotype was mainly mediated by CTX-M and to a lesser extent by TEM. Occurrence of blaCTX-M was similar in E. coli from pigs (66.7%) and humans (68.5%).
CONCLUSION The high occurrence of ESBL-producing E. coli in pig farmers and pigs could present a risk for spill-over of these bacteria from pig farms into the community. Genomic studies are needed to elucidate reservoirs and transmission routes of ESBL-producing E. coli at livestock farms.

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, University of Copenhagen, National Institute of Veterinary Research, Vietnamese Academy of Science and Technology
Authors: Dang, S. T. T. (Ekstern), Bortolaia, V. (Intern), Thi, N. T. (Ekstern), Quang, H. L. (Ekstern), Dalsgaard, A. (Ekstern)
Pages: 415-424
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BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 1.291 SJR 1.731
CHTyper, a Web Tool for Subtyping of Extraintestinal Pathogenic Escherichia coli based on the fumC and fimH Alleles

Escherichia coli can cause a variety of extra-intestinal infections, such as urinary tract infection, meningitis, peritonitis and septicemia......

General information
State: Accepted/In press
Organisations: Department of Bio and Health Informatics, Genomic Epidemiology, Research Group for Genomic Epidemiology, Statens Seruminstitute, University of Washington
Authors: Roer, L. (Ekstern), Johannesen, T. B. (Ekstern), Hansen, F. (Ekstern), Stegger, M. (Ekstern), Tchesnokova, V. (Ekstern), Sokurenko, E. (Ekstern), Garibay, N. (Ekstern), Allesøe, R. L. (Intern), Thomsen, M. C. F. (Intern), Lund, O. (Intern), Hasman, H. (Ekstern), Hammerum, A. M. (Ekstern)
Number of pages: 7
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Main Research Area: Technical/natural sciences
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BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.443 SJR 2.256
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.57 SJR 2.196 SNIP 1.4
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 2.206 SNIP 1.431 CiteScore 3.56
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 2.231 SNIP 1.528 CiteScore 3.84
Web of Science (2014): Indexed yes
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Scopus rating (2013): SJR 2.438 SNIP 1.63 CiteScore 4.18
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 2.148 SNIP 1.626 CiteScore 4.11
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 2.346 SNIP 1.699 CiteScore 4.27
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 2.343 SNIP 1.731
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 2.199 SNIP 1.691
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 2.265 SNIP 1.608
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 2.224 SNIP 1.688
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 2.212 SNIP 1.641
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 2.037 SNIP 1.65
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 1.699 SNIP 1.701
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 1.854 SNIP 1.853
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 1.976 SNIP 1.724
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 2.066 SNIP 1.804
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 1.783 SNIP 1.935
Climate change and the health impact of aflatoxins exposure in Portugal - an overview

Climate change has been indicated as a driver for food safety issues worldwide, mainly due to the impact on the occurrence of food safety hazards at various stages of food chain. Mycotoxins, natural contaminants produced by fungi, are among the most important of such hazards. Aflatoxins, which have the highest acute and chronic toxicity of all mycotoxins, assume particular importance. A recent study predicted aflatoxin contamination in maize and wheat crops in Europe within the next 100 years and aflatoxin B1 is predicted to become a food safety issue in Europe, especially in the most probable scenario of climate change (+2 °C). This review discusses the potential influence of climate change on the health risk associated to aflatoxins dietary exposure of Portuguese population. We estimated the burden of disease associated to the current aflatoxin exposure for Portuguese population in terms of Disability Adjusted Life Years (DALYs). It is expected that in the future the number of DALYs and the associated cases of hepatocellular carcinoma due to aflatoxins exposure will increase due to climate change. The topics highlighted through this review, including the potential impact on health of the Portuguese population through the dietary exposure to aflatoxins, should represent an alert for the potential consequences of an incompletely explored perspective of climate change. Politics and decision-makers should be involved and committed to implement effective measures to deal with climate change issues and to reduce its possible consequences. This review constitutes a contribution for the prioritisation of strategies to face the unequal burden of effects of weather-related hazards in Portugal and across Europe.

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Scopus rating (2017): SNIP 0.894 SJR 0.74
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.12 SJR 0.796 SNIP 0.95
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.778 SNIP 0.878 CiteScore 2.11
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.764 SNIP 0.978 CiteScore 2.07
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.041 SNIP 1.168 CiteScore 2.55
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
Scopus rating (2012): SJR 0.906 SNIP 1.123 CiteScore 2.12
ISI indexed (2012): ISI indexed yes
Combined effects of microplastics and chemical contaminants on the organ toxicity of zebrafish (Danio rerio)

Microplastics contamination of the aquatic environment is considered a growing problem. The ingestion of microplastics has been documented for a variety of aquatic animals. Studies have shown the potential of microplastics to affect the bioavailability and uptake route of sorbed co-contaminants of different nature in living organisms. Persistent organic pollutants and metals have been the co-contaminants majorly investigated in this field. The combined effect of microplastics and sorbed co-contaminants in aquatic organisms still needs to be properly understood. To address this, we have subjected zebrafish to four different feeds: A) untreated feed; B) feed supplemented with microplastics (LD-PE 125–250 µm of diameter); C) feed supplemented with 2% microplastics to which a mixture of PCBs, BFRs, PFCs and methylmercury were sorbed; and D) feed supplemented with the mixture of contaminants only. After 3 weeks of exposure fish were dissected and liver, intestine, muscular tissue and brain were extracted. After visual observation, evaluation of differential gene expression of some selected biomarker genes in liver, intestine and brain were carried out. Additionally, quantification of perfluorinated compounds in liver, brain, muscular tissue and intestine of some selected samples were performed. The feed supplemented with microplastics with sorbed contaminants produced the most evident effects especially on the liver. The results indicate that microplastics alone does not produce relevant effects on zebrafish in the experimental conditions tested; on the contrary, the combined effect of microplastics and sorbed contaminants altered significantly their organs homeostasis in a greater manner than the contaminants alone.
Communications of Staphylococcus aureus and non-aureus Staphylococcus species from bovine intramammary infections and teat apex colonization

The role of non-aureus staphylococci (NAS) in the risk of acquisition of intramammary infections with Staphylococcus aureus is vague and still under debate. The objectives of this study were to (1) investigate the distribution patterns of NAS species from milk and teat skin in dairy herds with automatic milking systems, and (2) examine if the isolated NAS influences the expression of S. aureus virulence factors controlled by the accessory gene regulator (agr) quorum sensing system. In 8 herds, 14 to 20 cows with elevated somatic cell count were randomly selected for teat skin swabbing and aseptic quarter foremilk samples from right hind and left front quarters. Teat skin swabs were collected using the modified wet-dry method and milk samples were taken aseptically for bacterial culture. Colonies from quarters with suspicion of having NAS in milk or teat skin samples (or both) were subjected to MALDI-TOF assay for species identification. To investigate the interaction between S. aureus and NAS, 81 isolates NAS were subjected to a qualitative β-galactosidase reporter plate assay. In total, 373 NAS isolates were identified representing 105 from milk and 268 from teat skin of 284 quarters (= 142 cows). Sixteen different NAS species were identified, 15 species from teat skin and 10 species from milk. The most prevalent NAS species identified from milk were Staphylococcus epidermidis (50%), Staphylococcus haemolyticus (15%), and Staphylococcus chromogenes (11%), accounting for 76%. Meanwhile, the most prevalent NAS species from teat skin were Staphylococcus equorum (43%), S. haemolyticus (16%), and Staphylococcus cohnii (14%), accounting for 73%. Using reporter gene fusions monitoring transcriptional activity of key virulence factors and regulators, we found that out of 81 supernatants of NAS isolates, 77% reduced expression of hla, encoding α-hemolysin, 70% reduced expression of RNAIII, the key effector molecule of agr, and 61% reduced expression of spa encoding protein A of S. aureus, respectively. Our NAS isolates showed 3 main patterns: (1) downregulation effect such as S. chromogenes (milk) and Staphylococcus xylosus (milk and teat), (2) no effect such as Staphylococcus sciuri (teat) and S. vitulinus (teat), and the third pattern (c) variable effect such as S. epidermidis (milk and teat) and S. equorum (milk and teat). The pattern of cross-talk between NAS species and S. aureus virulence genes varied according to the involved NAS species, habitat type, and herd factors. The knowledge of how NAS influences S. aureus virulence factor expression could explain the varying protective effect of NAS on S. aureus intramammary infections.

General information
State: Published
Organisations: National Veterinary Institute, Research Group for Genomic Epidemiology, Bacteriology & Parasitology, Universitat Autonoma de Barcelona, Zagazig University, DeLaval International AB, University of Copenhagen
Comparative genomics of quinolone-resistant and susceptible Campylobacter jejuni of poultry origin from major poultry producing European countries (GENCAMP)

A total of 502 Campylobacter jejuni isolates from poultry in 12 different European countries (10 of them the largest poultry production countries in Europe) were whole genome sequenced to examine the genomic diversity of fluoroquinolone resistant (FQ-R) and susceptible (FQ-S) C. jejuni across the poultry producing European countries and to determine whether the emergence of fluoroquinolone resistance among C. jejuni is related to the transmission through countries or to the selection through fluoroquinolone use in the individual countries. A high genomic diversity was observed. The isolates clustered in four main clusters. All trees revealed that the isolates were clustered according to the presence/absence of the gyrA mutations causing fluoroquinolone resistance and ST-types. The cgMLST trees of only FQ-R and FQ-S isolates showed that isolates from the same country of origin were distributed into multiple clusters similarly to the trees combining FQ-R and FQ-S isolates. The different phylogenetic methods, ranging from single nucleotide polymorphisms analysis to gene-by-gene approaches such as rMLST, cgMLST, wgMLST and core genome tree, provided concordant results, but it is not known which is the most accurate method for identifying the country of origin of the isolates. Allele frequency analysis of isolates under this study and a selection of previously published C. jejuni genomes in ENA showed association of geographical origin of poultry C. jejuni populations between Romania-Poland, Italy-Germany-England, Portugal-The Netherlands and USA-Luxemburg. Allele frequency and phylogenetic analysis indicated that the isolates from Finland were genetically different from C. jejuni populations from other European countries included in this study. Trade pattern and antimicrobial use in livestock were not significantly associated with allele frequency or populations of C. jejuni, but data available to investigate these associations were limited.

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Comparison of La\(^{3+}\) and mixed rare earths-loaded magnetic chitosan beads for fluoride adsorption

La\(^{3+}\) and mixed-rare earth magnetic chitosan beads (MCLB and MCLRB) were successfully prepared for fluoride removal, respectively. The adsorbents were characterized by scanning electron microscope and magnetic response. Batch experiments were carried out to investigate the adsorbent performance based on the influence of various factors such as adsorbent dosage, contact time, initial solution pH and co-existing anions on the fluoride adsorption. Results showed that MCLB and MCLRB followed the pseudo-second-order kinetic model with the correlation coefficient value of 0.9925 and 0.9985 respectively. The adsorption process was mainly chemical adsorption. The isotherm data was well fitted both Langmuir model and Freundlich model. The adsorption capacity of the adsorbents were 20.53 and 22.35 mg/g respectively. The optimum pH value for fluoride ion removal was 5.0. The effects of co-existing anions on the fluoride sorption followed the decreasing order of CO\(_3^{2-}\)\(\rightarrow\)HCO\(_3^{-}\)\(\rightarrow\)SO\(_4^{2-}\)\(\rightarrow\)NO\(_3^{-}\)\(\rightarrow\)Cl\(^{-}\). Fluoride adsorption on MCLB and MCLRB could be attributed to ion exchange between fluoride and OH groups with the FeO coordinate bond promotion. Our study revealed that MCLB and MCLRB performed strong adsorption capacity for fluoride ion. In particularly, MCLRB could be a more cost-effective adsorbent to remove fluoride from aqueous solution.

General information
State: Published
Organisations: National Food Institute, Fujian Agriculture and Forestry University, Ocean University of China
Authors: Liang, P. (Ekstern), An, R. (Ekstern), Li, R. (Intern), Wang, D. (Ekstern)
Pages: 255-263
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Journal: International Journal of Biological Macromolecules
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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.307 SJR 0.917
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.84 SJR 0.882 SNIP 1.294
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.808 SNIP 1.303 CiteScore 3.38
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.864 SNIP 1.32 CiteScore 3.13
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.848 SNIP 1.431 CiteScore 3.48
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.787 SNIP 1.302 CiteScore 2.77
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.692 SNIP 1.198 CiteScore 2.73
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.873 SNIP 1.201
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.806 SNIP 1.183
BFI (2008): BFI-level 1
Comparison of the acidification activities of commercial starter cultures in camel and bovine milk

Camel milk has been reported to be difficult to ferment due to anti-microbial properties. The present study tested eight commercial starter cultures for their ability to grow in camel milk. All investigated cultures were able to acidify camel milk and reached a final pH at a level similar to what was achieved in bovine milk, but the speed of acidification was generally lower in camel milk. This could be due to inhibitory substances in camel milk or due to reduced availability of nutrients. Experiments using mixtures of camel and bovine milk or supplementation with casein hydrolysates allowed us to distinguish between these possibilities. High acidification rates were obtained in camel milk mixed with bovine milk or supplemented with casein hydrolysate. This demonstrates that the cultures are not inhibited by camel milk and we conclude that the growth rates of these cultures in pure camel milk are limited by the rate of proteolysis.

General information

State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, University of Copenhagen, University of Botswana, Haramaya University
Authors: Berhe, T. (Ekstern), Ipsen, R. (Ekstern), Seifu, E. (Ekstern), Kurtu, M. Y. (Ekstern), Eshetu, M. (Ekstern), Hansen, E. B. (Intern)
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Scopus rating (2016): CiteScore 3.31
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Scopus rating (2015): CiteScore 3.11
Web of Science (2015): Indexed yes
Scopus rating (2014): CiteScore 3.12
Web of Science (2014): Indexed yes
Scopus rating (2013): CiteScore 3.11
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
Scopus rating (2012): CiteScore 3.12
Comparison of the suitability of alkaline or enzymatic sample pre-treatment for characterization of silver nanoparticles in human tissue by single particle ICP-MS

To understand potential harmful effects of silver nanoparticles (AgNPs) for the growing fetus, studies dealing with the translocation and accumulation of NPs across the placental barrier are of great importance. Quantitative methods for determination of NP mass and number concentration and their size are required for studying NP accumulation in placental tissue. In the present study, we applied and compared two sample preparation techniques, alkaline and enzymatic treatment, followed by single particle ICP-MS (spICP-MS) analysis, for characterizing AgNPs spiked to human placental tissue. Both sample preparation approaches are currently used for AgNPs in biological tissues but have not been directly compared yet. We showed that the method using enzymatic tissue treatment followed by spICP-MS is efficient for determination of mass and number concentration and size distribution of AgNPs in human placental tissues. Properties of the AgNPs were preserved during enzymatic digestion and comparable with the primary particles. The matrix effect on the determination of Ag sensitivity and transport efficiency in spICP-MS analysis was systematically evaluated as well. The method was applied to human placenta, exposed to AgNPs with two different surface modifications: 27 nm polyethylene glycol (AgPEG NPs) or 34 nm sodium carboxylate groups (AgCOONa NPs) in an ex vivo human placental perfusion model. The Ag mass concentration obtained with spICP-MS following enzymatic sample pretreatment was not significantly different from the Ag concentration obtained by conventional ICP-MS analysis of acid digested tissue. With this we confirmed the ability of the procedure to quantitatively characterize AgNPs accumulated in human tissue under realistic exposure scenario.

General information
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Organisations: National Food Institute, Research Group for Nano-Bio Science, Josef Stefan Institute, Swiss Federal Laboratories for Materials Science and Technology (Empa)
Authors: Vidmar, J. (Ekstern), Buerki-Thurnherr, T. (Ekstern), Löschner, K. (Intern)
Pages: 752-761
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Main Research Area: Technical/natural sciences

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Journal: Journal of Analytical Atomic Spectrometry
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Ratings:
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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SJR 1.066 SNIP 1.198
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.3 SJR 1.005 SNIP 1.197
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Composite nanofibers/water photosplitting and photocatalytic degradation of dairy effluent

Photocatalytic removal of Dairy effluent (DE) was studied by using TiO2-GeO2 and TiO2-CdO nanofibers (NFs), produced by electrospinning method. These NFs were characterized by SEM, TEM and XRD studies. The TiO2-GeO2 and TiO2-CdO NFs were smooth and continuous, with an average diameter of about 273 nm and 256 nm respectively, and held their nanofibrous morphology even after more than 9 h of photocatalytic removal of DE under visible light irradiation. TiO2-GeO2 and TiO2-CdO NFs were effective materials for removal of DE, even after many runs and cycles. TiO2-GeO2 and TiO2-CdO NFs showed a maximum removal of 65% and 75%, respectively, after 3 h. The TiO2-GeO2 and TiO2-CdO NFs also showed excellent results in hydrogen release.
General information
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Organisations: Research Group for Nano-Bio Science, National Food Institute, Hong Kong Polytechnic University
Authors: Kanjwal, M. A. (Ekstern), Leung, W. W. (Ekstern), Chronakis, I. S. (Intern)
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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 1.475 SJR 1.093
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.78 SJR 1.024 SNIP 1.4
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.07 SNIP 1.499 CiteScore 3.75
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.261 SNIP 1.532 CiteScore 3.5
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.327 SNIP 1.674 CiteScore 3.62
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.394 SNIP 1.718 CiteScore 3.2
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.352 SNIP 1.633 CiteScore 3.48
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 1.386 SNIP 1.58
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 1.386 SNIP 1.536
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 1.108 SNIP 1.426
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.959 SNIP 1.439
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.218 SNIP 1.657
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 1.006 SNIP 1.432
Scopus rating (2004): SJR 1.035 SNIP 1.343
Scopus rating (2003): SJR 0.85 SNIP 1.092
Scopus rating (2002): SJR 0.919 SNIP 1.022
Compressed collagen constructs with optimized mechanical properties and cell interactions for tissue engineering applications

In this study, we are introducing a simple, fast and reliable add-in to the technique of plastic compression (PC) to obtain collagen sheets with decreased fibrillar densities, representing improved cell-interactions and mechanical properties. Collagen hydrogels with different initial concentrations (1.64mg/mL-0.41mg/mL) were compressed around an electrospun sheet of PLGA. The scaffolds were then studied as non-seeded, or seeded with 3T3 fibroblast cells and cultured for 7 days. Confocal microscopy and TEM imaging of non-seeded scaffolds showed that by decreasing the share of collagen in the hydrogel formula, collagen sheets with similar thickness but lower fibrous densities were achieved. Nanomechanical characterization of compressed collagen sheets by AFM showed that Young's modulus was inversely proportional to the final concentration of collagen. Similarly, according to SEM, MTS, and cell nuclei counting, all the scaffolds supported cell adhesion and proliferation, whilst the highest metabolic activities and proliferation were seen in the scaffolds with lowest collagen content in hydrogel formula. We conclude that by decreasing the collagen content in the formula of collagen hydrogel for plastic compression, not only a better cell environment and optimum mechanical properties are achieved, but also the application costs of this biopolymer is reduced.

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Organisations: National Food Institute, Research Group for Nano-Bio Science, Department of Mechanical Engineering, Materials and Surface Engineering, Isfahan University of Technology, Karolinska Institutet
Authors: Ajalloueian, F. (Intern), Nikogeorgos, N. (Intern), Ajalloueian, A. (Ekstern), Fossum, M. (Ekstern), Lee, S. (Intern), Chronakis, I. S. (Intern)
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Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.84 SJR 0.882 SNIP 1.294
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.808 SNIP 1.303 CiteScore 3.38
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.864 SNIP 1.32 CiteScore 3.13
Web of Science (2014): Indexed yes
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ISI indexed (2013): ISI indexed yes
Corrigendum to "Rheological properties of agar and carrageenan from Ghanaian red seaweeds" [Food Hydrocolloids 63 (2017) 50–58]

The authors regret that the <data published in Table 3> in the paper report slightly too high values for the 3,6-anhydrogalactose, which in some cases infer that the level of anhydro-galactose is higher than the level of galactose in the hydrocolloids. This is in fact not correct. The corrected data differ by only 1–3% from the ones published, but show that in no case is the anhydro-galactose level higher than the level of galactose in the hydrocolloids. The 3,6-anhydro-galactopyranosyl moieties were initially determined by HPAEC-PAD using a CarboPac™ PA20 column following the reducing acid hydrolysis using TFA and MMB, as described by Jol et al. (1999). The procedure for the reducing acid hydrolysis includes three additions of the reducing agent MMB. To improve the subsequent HPAEC-PAD quantification, the third addition of MMB was initially left out, as it resulted in better retention and resolution in the HPAEC-PAD quantification. The experiments have since been repeated following the exact procedure for the reducing acid hydrolysis (Jol et al., 1999). Carbohydrate compositions have been determined using the CarboPac™ PA1 column with accompanying guard column. Elution was performed using 500 mM NaOH and an isocratic flow on 0.4 mL/min. Quantification was performed with glucose, galactose, and 3,6-anhydro-galactose as sugar standards that had been reduced by the reductive acid hydrolysis as well. The new data are presented in the corrected Table 3 below. Reference: Jol, C. N., Neiss, T. G., Penninkhof, B., Rudolph, B., & De Ruiter, G. A. (1999). A novel high-performance anion-exchange chromatographic method for the analysis of carrageenans and agars containing 3,6-anhydrogalactose. Analytical Biochemistry, 268, 213-222. Table 3 Overview of seaweed type (hydrocolloid source), hydrocolloid extraction method (direct water-extraction or after alkali treatment), hydrocolloid and monomer1 yields, and sulfate levels [data given as means±SD]. Different roman superscript letters indicate significant differences (P<0.05) column-wise for carrageenans and agar yields, monosaccharides, and sulfate content by one-way ANOVA.
Critical review of methods for risk ranking of food related hazards, based on risks for human health

This study aimed to critically review methods for ranking risks related to food safety and dietary hazards on the basis of their anticipated human health impacts. A literature review was performed to identify and characterize methods for risk ranking from the fields of food, environmental science and socio-economic sciences. The review used a predefined search protocol, and covered the bibliographic databases Scopus, CAB Abstracts, Web of Sciences, and PubMed over the period 1993-2013. All references deemed relevant, on the basis of predefined evaluation criteria, were included in the review, and the risk ranking method characterized. The methods were then clustered - based on their characteristics - into eleven method categories. These categories included: risk assessment, comparative risk assessment, risk ratio method, scoring method, cost of illness, health adjusted life years, multi-criteria decision analysis, risk matrix, flow charts/decision trees, stated preference techniques and expert synthesis. Method categories were described by their characteristics, weaknesses and strengths, data resources, and fields of applications. It was concluded there is no single best method for risk ranking. The method to be used should be selected on the basis of risk manager/assessor requirements, data availability, and the characteristics of the method. Recommendations for future use and application are provided.
Crosslinking of milk proteins by microbial transglutaminase: Utilization in functional yogurt products

Key modifying roles of microbial transglutaminase (MTGase) in the development of innovative probiotic and non-probiotic yogurts with improved functional and quality characteristics have been comprehensively reviewed. MTGase crosslinking reactions with milk proteins stabilize the three-dimensional structure of yogurt. Yoghurts treated with MTGase showed decreased syneresis, increased water-holding capacity and viscosity, homogeneous structure, desired texture, and physicochemical high stability during storage time. The utilization of MTGase does not affect negatively the sensory attributes of yoghurt. Inclusion of MTGase into acidified yoghurt drinks reduces the serum separation with an improved viscoelasticity. This multi-functional enzyme also protects the viable starter and probiotic cells in yogurts. Further studies are required to assess the viability of probiotics in yogurts protected using MTGase-mediated microcapsules.

General information
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Authors: Gharibzahedi, S. M. T. (Ekstern), Chronakis, I. S. (Intern)
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BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 4.85 SJR 1.731 SNIP 2.095
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.582 SNIP 1.946 CiteScore 4.31
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.557 SNIP 2.01 CiteScore 3.92
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.554 SNIP 2.056 CiteScore 3.87
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.762 SNIP 2.342 CiteScore 3.98
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.911 SNIP 2.383 CiteScore 4.17
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 1.981 SNIP 2.253
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 1.789 SNIP 2.023
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 1.47 SNIP 1.706
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.475 SNIP 2.087
Web of Science (2007): Indexed yes
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 1.028 SNIP 1.526
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 1.077 SNIP 1.438
Scopus rating (2003): SJR 0.876 SNIP 1.248
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 0.966 SNIP 1.235
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 0.785 SNIP 0.975
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 0.588 SNIP 0.961
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Original language: English
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Detection and characterisation of aluminium-containing nanoparticles in Chinese noodles by single particle ICP-MS

This study investigated Chinese noodles for the presence of aluminium-containing nanoparticles by using inductively coupled plasma mass spectrometry in single particle mode (spICP-MS) after enzymatic digestion by α-amylase. The aluminium concentrations in the noodle samples, determined by conventional ICP-MS without or with the use of hydrofluoric acid for digestion, were 5.4 ± 1.9 µg/g and 10.1 ± 2.2 µg/g (N = 21), respectively. Aluminium-containing nanoparticles were detected by spICP-MS in all 21 samples. Depending on the assumed particle composition, Al2O3 or Al2O3·2SiO2·2H2O, the median particle diameters were either below or above 100 nm, respectively. The minimum detectable particle diameter by spICP-MS was between 54 and 83 nm. The mass recovery of aluminium in the form of particles was between 5% and 18%. The presented work reports for the first time the detection of Al-containing particles in food by spICP-MS.

General information
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Authors: Löschner, K. (Intern), Correia, M. (Intern), López Chaves, C. (Ekstern), Rokkjær, I. (Ekstern), Sloth, J. J. (Intern)
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  Scopus rating (2017): SNIP 0.894 SJR 0.74
  Web of Science (2017): Indexed yes
  BFI (2016): BFI-level 1
  Scopus rating (2016): CiteScore 2.12 SJR 0.796 SNIP 0.95
  Web of Science (2016): Indexed yes
  BFI (2015): BFI-level 1
  Scopus rating (2015): SJR 0.778 SNIP 0.878 CiteScore 2.11
  Web of Science (2015): Indexed yes
  BFI (2014): BFI-level 1
  Scopus rating (2014): SJR 0.764 SNIP 0.978 CiteScore 2.07
  Web of Science (2014): Indexed yes
  BFI (2013): BFI-level 1
  Scopus rating (2013): SJR 1.041 SNIP 1.168 CiteScore 2.55
  ISI indexed (2013): ISI indexed yes
  Web of Science (2013): Indexed yes
  Scopus rating (2012): SJR 0.906 SNIP 1.123 CiteScore 2.12
  ISI indexed (2012): ISI indexed yes
  Web of Science (2012): Indexed yes
  Scopus rating (2011): SJR 0.912 SNIP 1.099 CiteScore 2.06
  ISI indexed (2011): ISI indexed no
  Scopus rating (2010): SJR 0.816 SNIP 1.029
  Web of Science (2010): Indexed yes
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Detection of nanoplastics in food by asymmetric flow field-flow fractionation coupled to multi-angle light scattering: possibilities, challenges and analytical limitations

We tested the suitability of asymmetric flow field-flow fractionation (AF4) coupled to multi-angle light scattering (MALS) for detection of nanoplastics in fish. A homogenized fish sample was spiked with 100 nm polystyrene nanoparticles (PSNPs) (1.3 mg/g fish). Two sample preparation strategies were tested: acid digestion and enzymatic digestion with proteinase K. Both procedures were found suitable for degradation of the organic matrix. However, acid digestion resulted in large PSNPs aggregates/agglomerates (> 1 μm). The presence of large particulates was not observed after enzymatic digestion, and consequently it was chosen as a sample preparation method. The results demonstrated that it was possible to use AF4 for separating the PSNPs from the digested fish and to determine their size by MALS. The PSNPs could be easily detected by following their light scattering (LS) signal with a limit of detection of 52 μg/g fish. The AF4-MALS method could also be exploited for another type of nanoplastics in solution, namely polyethylene (PE). However, it was not possible to detect the PE particles in fish, due to the presence of an elevated LS background. Our results demonstrate that an analytical method developed for a certain type of nanoplastics may not be directly applicable to other types of nanoplastics and may require further adjustment. This work describes for the first time the detection of nanoplastics in a food matrix by AF4-MALS. Despite the current limitations, this is a promising methodology for detecting nanoplastics in food and in experimental studies (e.g., toxicity tests, uptake studies). [Figure not available: see fulltext.]

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Authors: Correia, M. (Intern), Löschner, K. (Intern)
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Web of Science (2018): Indexed yes
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Scopus rating (2017): SNIP 0.921 SJR 0.978
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.03 SJR 0.99 SNIP 1.044
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.059 SNIP 1.072 CiteScore 3.07
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.126 SNIP 1.212 CiteScore 3.26
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.236 SNIP 1.279 CiteScore 3.55
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.354 SNIP 1.279 CiteScore 3.51
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.37 SNIP 1.27 CiteScore 3.47
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.364 SNIP 1.233
Development of electrosprayed mucoadhesive chitosan microparticles

The efficacy of chitosan (CS) to be used as drug delivery carrier has previously been reported. However, limited work has been pursued to produce stable and mucoadhesive CS electrosprayed particles for oral drug delivery, which is the aim of this study. Various CS types with different molecular weight (MW), degree of deacetylation (DD), and degree of polymerization (DP) were assessed. In addition, the effect of the solvent composition was also investigated. Results showed that stable CS electrosprayed particles can be produced by dissolving 3% w/v of low MW CS in mixtures of aqueous acetic acid and ethanol (50/50% v/v). The stable CS particles displayed diameters of approximately 1 μm as determined by dynamic light scattering. The zeta potential of these particles was found to be approximately 40 mV confirming the mucoadhesion properties of these CS electrosprayed particles and its potential to be used as drug delivery carrier.

General information
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Organisations: National Food Institute, Research Group for Nano-Bio Science, Department of Micro- and Nanotechnology, Nanoprobes, University of Munster
Authors: Moreno, J. A. S. (Intern), Mendes, A. C. (Intern), Stephansen, K. (Intern), Engwer, C. (Ekstern), Goycoolea, F. M. (Ekstern), Boisen, A. (Intern), Nielsen, L. H. (Intern), Chronakis, I. S. (Intern)
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Scopus rating (2017): SNIP 1.733 SJR 1.428
Web of Science (2017): Indexed yes
Dietary Fat Intake and Fecundability in 2 Preconception Cohort Studies

The association between dietary fat and fertility is not well studied. We evaluated intakes of total fat, saturated fatty acids, monounsaturated fatty acids, polyunsaturated fatty acids, trans fatty acids (TFA), ω-3 fatty acids, and ω-6 fatty acids in relation to fecundability in Danish and North American preconception cohort studies. Women who were attempting to become pregnant completed a validated food frequency questionnaire at baseline. Pregnancy status was updated bimonthly for 12 months or until pregnancy. Fecundability ratios (FR) and 95% confidence intervals were estimated using multivariable proportional probabilities regression. Intakes of total fat and saturated, monounsaturated, polyunsaturated, and ω-6 fatty acids were not appreciably associated with fecundability. TFA intake was associated with reduced...
fecundability in North American women (for the fourth quartile vs. the first, FR = 0.86, 95% confidence interval (CI): 0.71, 1.04) but not Danish women (for the fourth quartile vs. the first, FR = 1.04, 95% CI: 0.86, 1.25), though intake among Danish women was low. In North America, ω-3 fatty acid intake was associated with higher fecundability, but there was no dose-response relationship (among persons who did not use fish oil supplements: for the fourth quartile vs. the first, FR = 1.40, 95% CI: 1.13, 1.73); no association was found in Danish women, among whom low intake was rare. In the present study, high TFA intake and low ω-3 fatty acid intake were associated with reduced fecundity.
Differential bacterial capture and transport preferences facilitate co-growth on dietary xylan in the human gut

Metabolism of dietary glycans is pivotal in shaping the human gut microbiota. However, the mechanisms that promote competition for glycans among gut commensals remain unclear. *Roseburia intestinalis*, an abundant butyrate-producing Firmicute, is a key degrader of the major dietary fibre xylan. Despite the association of this taxon to a healthy microbiota, insight is lacking into its glycan utilization machinery. Here, we investigate the apparatus that confers *R. intestinalis* growth on different xylans. *R. intestinalis* displays a large cell-attached modular xylanase that promotes multivalent and dynamic association to xylan via four xylan-binding modules. This xylanase operates in concert with an ATP-binding cassette transporter to mediate breakdown and selective internalization of xylan fragments. The transport protein of *R. intestinalis* prefers oligomers of 4-5 xylosyl units, whereas the counterpart from a model xylan-degrading *Bacteroides* commensal targets larger ligands. Although *R. intestinalis* and the *Bacteroides* competitor co-grew in a mixed culture on xylan, *R. intestinalis* dominated on the preferred transport substrate xylotetraose. These findings highlight the differentiation of capture and transport preferences as a possible strategy to facilitate co-growth on abundant dietary fibres and may offer a unique route to manipulate the microbiota based on glycan transport preferences in therapeutic interventions to boost distinct taxa.

**General information**

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**Organisations:** Department of Biotechnology and Biomedicine, National Food Institute, Protein Glycoscience and Biotechnology, Regulatory Genomics, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology, Norwegian University of Science and Technology, Norwegian University of Life Sciences, Technical University of Denmark  
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**Draft Genome Sequences of Enterococcus mundtii Strains Isolated from Beef Slaughterhouses in Kenya**

We present here draft genome sequences of *Enterococcus mundtii* strains K7-EM, P2-EM, C11-EM, and H18-EM, which were isolated from slaughterhouse equipment, carcasses, and personnel of small- and medium-sized beef slaughterhouses in Kenya.
Early metastatic colorectal cancers show increased tissue expression of miR-17/92 cluster members in the invasive tumor front

Accurate prediction of regional lymph node metastases (LNM) in endoscopically resected pT1 colorectal cancer (CRC) is crucial in treatment stratification for subsequent radical surgery. Several miRNAs have been linked to CRC invasion and metastasis, including the oncogenic miR-17/92 cluster, and expression levels might have predictive value in the risk assessment of early metastatic progression in CRC. We performed global miRNA microarray using tissue samples from the invasive front of pT1 CRC and investigated associations of the miR-17/92 cluster and presence of LNM.

In total, 56 matched pT1 CRCs were thoroughly clinico-pathologically characterized and miRNA microarrays were performed on invasive front tissue samples. Global miRNA intensities were screened using paired t-tests between pT1pN+ and pT1pN0. Associations between miR-17/92 and histopathological features were analyzed using general linear models and tumor cell adjusted expression intensities.

miR-17-3p and miR-92a were significantly higher expressed in the invasive front of tumors with LNM compared to those without, corresponding to 1.53 fold higher expression of miR-17-3p (95%CI: 1.04–2.24, P = .030) and 1.28 fold higher expression of miR-92a (95%CI: 1.01–1.68, P = .042). An inverse association between miR-19a and presence of high grade tumor budding was observed (1.55 fold, 95%CI: 1.13–2.12, P = .008). We provide evidence for associations between early regional LNM and high expression levels of the miR-17/92 cluster members: miR-17-3p and miR-92a, in the invasive front of CRC. Our results support a role for the miR-17/92 cluster in early metastatic progression of CRC and calls for further investigation.
EDC IMPACT: Reduced sperm counts in rats exposed to human relevant mixtures of endocrine disrupters

Human semen quality is declining in many parts of the world, but the causes are ill defined. In rodents, impaired sperm production can be seen with early life exposure to certain endocrine-disrupting chemicals, but the effects of combined exposures are not properly investigated. In this study, we examined the effects of early exposure to the painkiller paracetamol and mixtures of human relevant endocrine-disrupting chemicals in rats. One mixture contained four estrogenic compounds; another contained eight anti-androgenic environmental chemicals and a third mixture contained estrogens, anti-androgens and paracetamol. All exposures were administered by oral gavage to time-mated Wistar dams rats (n=16-20) throughout gestation and lactation. In the postnatal period, testicular histology was affected by the total mixture, and at the end of weaning, male testis weights were significantly increased by paracetamol and the high doses of the total and the anti-androgenic mixture, compared to controls. In all dose groups, epididymal sperm counts were reduced several months after end of exposure, i.e. at 10 months of age. Interestingly, the same pattern of effects was seen for paracetamol as for mixtures with diverse modes of action. Reduced sperm count was seen at a dose level reflecting human therapeutic exposure to paracetamol. Environmental chemical mixtures affected sperm count at the lowest mixture dose indicating an insufficient margin of safety for the most exposed humans. This causes concern for exposure of pregnant women to paracetamol as well as environmental endocrine disrupters.
Effect of ultrasound treatments on functional properties and structure of millet protein concentrate

In this study, the effect of high power ultrasound (US) probe in varying intensities and times (18.4, 29.58, and 73.95W/cm² for 5, 12.5 and 20min respectively) on functional properties of millet protein concentrate (MPC) was investigated, and also the structural properties of best modified treatment were evaluated by FTIR, DSC, Zeta potential and SDS-PAGE techniques. The results showed the solubility in all US treated MPC was significantly (p<.05) higher than those of the native MPC. Foaming capacity of native MPC (271.03±4.51ml) was reduced after US treatments at low intensities (82.37±5.51ml), but increased upon US treatments at high intensities (749.7±2ml). In addition, EAI and ES increased after US treatments. One of the best US treatments that can improve the functional properties of MPC was 73.95W/cm² for 12.5min that resulted in reduction of molecular weight and increase nearly 36% in the negative surface charge that was confirmed by SDS-page and Zeta potential results, respectively.

General information
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Organisations: National Food Institute, Research Group for Food Production Engineering, Shahid Beheshti University of Medical Sciences
Authors: Nazari, B. (Ekstern), Mohammadifar, M. A. (Intern), Shojaei-Aliabadi, S. (Ekstern), Feizollahi, E. (Ekstern), Mirmoghaddas, L. (Ekstern)
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Scopus rating (2015): SJR 1.451 SNIP 2.081 CiteScore 4.77
Scopus rating (2014): SJR 1.543 SNIP 2.104 CiteScore 4.59
Scopus rating (2013): SJR 1.429 SNIP 1.946 CiteScore 4.13
Scopus rating (2012): SJR 1.413 SNIP 1.878 CiteScore 3.63
Scopus rating (2011): SJR 1.63 SNIP 1.833 CiteScore 3.91
Scopus rating (2010): SJR 1.604 SNIP 1.657
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Scopus rating (2008): SJR 1.245 SNIP 1.738
Scopus rating (2007): SJR 1.1 SNIP 1.756
Scopus rating (2006): SJR 0.925 SNIP 1.793
Scopus rating (2005): SJR 0.943 SNIP 1.559
Scopus rating (2004): SJR 1.367 SNIP 1.749
Scopus rating (2003): SJR 0.918 SNIP 1.236
Scopus rating (2002): SJR 1.139 SNIP 1.062
Scopus rating (2001): SJR 0.799 SNIP 1.541
Scopus rating (2000): SJR 1.561 SNIP 1.086
Scopus rating (1999): SJR 1.561 SNIP 1.392
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DOIs:
Effects of steaming on contaminants of emerging concern levels in seafood

Seafood consumption is a major route for human exposure to environmental contaminants of emerging concern (CeCs). However, toxicological information about the presence of CeCs in seafood is still insufficient, especially considering the effect of cooking procedures on contaminant levels. This study is one among a few who evaluated the effect of steaming on the levels of different CeCs (toxic elements, PFCs, PAHs, musk fragrances and UV-filters) in commercially relevant seafood in Europe, and estimate the potential risks associated with its consumption for consumers. In most cases, an increase in contaminant levels was observed after steaming, though varying according to contaminant and seafood species (e.g. iAs, perfluorobutanoate, dibenzo(ah)anthracene in Mytilus edulis, HHCB-Lactone in Solea sp., 2-Ethylhexyl salicylate in Lophius piscatorius). Furthermore, the increase in some CeCs, like Pb, MeHg, iAs, Cd and carcinogenic PAHs, in seafood after steaming reveals that adverse health effects can never be excluded, regardless contaminants concentration. However, the risk of adverse effects can vary. The drastic changes induced by steaming suggest that the effect of cooking should be integrated in food risk assessment, as well as accounted in CeCs regulations and recommendations issued by food safety authorities, in order to avoid over/underestimation of risks for consumer health.
Effects on metabolic parameters in young rats born with low birth weight after exposure to a mixture of pesticides

Pesticide exposure during fetal life can lead to low birth weight and is commonly observed in reproductive toxicology studies. Associations have also been found in low birth weight babies born from pesticide-exposed gardeners. Since low birth weight is also linked to metabolic disorders, it can be speculated that early life exposure to pesticides could increase the risk of becoming obese or developing diabetes later in life. We have analyzed potential long-term effects of gestational and lactational exposure to a low dose mixture of six pesticides that individually can cause low birth weight: Cyromazine, MCPB, Pirimicarb, Quinoclamine, Thiram, and Ziram. Exposed male offspring, who were smaller than controls, displayed some degree of catch-up growth. Insulin and glucagon regulation was not significantly affected, and analyses of liver and pancreas did not reveal obvious histopathological effects. Efforts towards identifying potential biomarkers of metabolic disease-risk did not result in any strong candidates, albeit leptin levels were altered in exposed animals. In fat tissues, the key genes Lep, Nmb and Nmbr were altered in high dosed offspring, and were differentially expressed between sexes. Our results suggest that early-life exposure to pesticides may contribute to the development of metabolic disorders later in life.

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Publication information
Journal: Scientific Reports
Effekt af at reducere befolkningens indtag af salt

General information
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Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Fødevarestyrelsen, Dansk Hypertensionsselskab
Authors: Lassen, A. D. (Intern), Høberg Hansen, H. (Ekstern), Lykke Jeppesen, J. (Ekstern), Toft, U. (Ekstern)
Pages: 12-13
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Source: PublicationPreSubmission
Electrospun Xanthan gum-Chitosan nanofibers as delivery carrier of hydrophobic bioactives

Viscoelastic gels of xanthan gum-chitosan (X-Ch) were electrospun to produce nanofibers, stable in aqueous media, for the encapsulation and release of curcumin (Cu). After 120h, the nanofibers released lower amount of curcumin (∼20%) at pH 2.2 comparatively to the release in neutral media (∼50%), suggesting that X-Ch nanofibers could be used as a carrier for the encapsulation of hydrophobic bioactive compounds with long-term pH-stimulated release properties.
Emerging and potential technologies for facilitating shrimp peeling: A review

Ready-to-eat shrimp processing is challenging due to the complex biological design with the shell tightly connected to the meat. Several techniques have been developed to weaken or loosen this connection, thus facilitating the subsequent peeling. The loosening process is typically undertaken by maturing the shrimps on ice or in brine, which requires several days, consequently risking loss in food quality and safety. To overcome those issues, developing novel technologies that not only assist the shell loosening but also retain the meat quality, safety and yield, is of paramount importance. This article reviews some essential characteristics of shrimp, the current methods of maturation, the use of the emerging technologies (high pressure, microwave, ultrasound, and enzyme) to facilitate the peeling of foods and clarify the potential of using them in shrimp shell removal. Industrial relevance During the production of peeled products, the shrimp processing industry has suffered from drawbacks of the traditional ice/brine maturations - a step facilitating the peeling. The drawbacks include yield loss, reduction of organoleptic quality, risk of microorganisms, time consuming issue and discontinuous process due to a long time soaking in maturing tanks. Therefore the need for seeking alternative methods to replace the traditional long maturations has grown, that address the future trends in sustainable processing of ready-to-eat shrimps. Emerging technologies e.g. high pressure, enzyme, ultrasound and microwave can potentially become the alternatives since they have strong peeling effects on lobsters, crabs, bivalve mollusks, eggshells, human skin, fruits and vegetables. Also these technologies offer benefits such as short process time, retained nutritional and sensorial characteristics, energy and water efficiency which all promise higher profits for the shrimp industry.

General information

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Organisations: National Food Institute, Research Group for Food Production Engineering, University of Copenhagen, Royal Greenland A/S
Authors: Dang, T. T. (Ekstern), Gringer, N. (Intern), Jessen, F. (Intern), Olsen, K. B. (Ekstern), Bøknæs, N. (Ekstern), Nielsen, P. L. (Ekstern), Orlien, V. (Ekstern)
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Web of Science (2018): Indexed yes
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Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.54 SJR 1.431 SNIP 1.386
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Environmental sustainable decision making – The need and obstacles for integration of LCA into decision analysis

Decision analysis is often used to help decision makers choose among alternatives, based on the expected utility associated to each alternative as function of its consequences and potential impacts. Environmental impacts are not always among the prioritized concerns of traditional decision making. This has fostered the development of several environmental problems and is nowadays a reason of concern. Life Cycle Assessment (LCA) can assess an extensive range of environmental impacts associated with a product or service system and support a life cycle perspective on the alternative products or service systems, revealing potential problem shifting between life cycle stages. Through the integration with traditional risk based decision analysis, LCA may thus facilitate a better informed decision process. In this study we explore how environmental impacts are taken into account in different fields of interest for decision makers to identify the need, potential and obstacles for integrating LCA into conventional approaches to decision problems. Three application areas are used as examples: transportation planning, flood management, and food production and consumption. The analysis of these cases shows that environmental impacts are considered only to a limited extent in traditional evaluation of transport and food projects. They are rarely, if at all, addressed in flood risk management. Hence, in each of the three cases studied, there is a clear need for the inclusion of a better and systematic assessment of environmental impacts. Some LCA studies have been conducted in all three research areas, mainly on infrastructures and production systems. The three cases show the potential of integrating LCA into existing decision analysis by providing the environmental profiles of the alternatives. However, due to different goals and scopes of LCA and other decision analysis
approaches, there is a general lack of consistency in study system scoping in terms of considered elements and boundaries, in uncertainty treatment, and in applied metrics. In the present paper, we discuss the obstacles arising when trying to integrate LCA with conventional evaluation tools and we propose a research agenda to eventually make such integration feasible and consistent.

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Organisations: Department of Management Engineering, Quantitative Sustainability Assessment, Department of Civil Engineering, Transport DTU, Transport Modelling, National Food Institute, Research Group for Risk-Benefit, Department of Applied Mathematics and Computer Science, Department of Environmental Engineering, Urban Water Systems, Research Group for Genomic Epidemiology, Section for Structural Engineering

Authors: Dong, Y. (Intern), Miraglia, S. (Intern), Manzo, S. (Intern), Georgiadis, S. (Intern), Sørup, H. J. D. (Intern), Boriani, E. (Intern), Hald, T. (Intern), Thöns, S. (Intern), Hauschild, M. Z. (Intern)

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Main Research Area: Technical/natural sciences

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Web of Science (2018): Indexed yes

BFI (2017): BFI-level 2

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Web of Science (2017): Indexed Yes

BFI (2016): BFI-level 2

Scopus rating (2016): CiteScore 3.9 SJR 1.677 SNIP 1.581

Web of Science (2016): Indexed yes

BFI (2015): BFI-level 2

Scopus rating (2015): SJR 1.613 SNIP 1.467 CiteScore 3.83

BFI (2014): BFI-level 2

Scopus rating (2014): SJR 1.812 SNIP 1.814 CiteScore 4.02

BFI (2013): BFI-level 2

Scopus rating (2013): SJR 1.687 SNIP 1.957 CiteScore 4.08

ISI indexed (2013): ISI indexed yes

BFI (2012): BFI-level 2

Scopus rating (2012): SJR 1.505 SNIP 1.647 CiteScore 3.35

ISI indexed (2012): ISI indexed yes

BFI (2011): BFI-level 2

Scopus rating (2011): SJR 1.3 SNIP 1.632 CiteScore 3.06

ISI indexed (2011): ISI indexed yes

BFI (2010): BFI-level 2

Scopus rating (2010): SJR 1.283 SNIP 1.34

BFI (2009): BFI-level 2

Scopus rating (2009): SJR 1.165 SNIP 1.538

BFI (2008): BFI-level 2

Scopus rating (2008): SJR 0.998 SNIP 1.093

Scopus rating (2007): SJR 0.951 SNIP 1.567

Web of Science (2007): Indexed yes

Scopus rating (2006): SJR 0.692 SNIP 1.457

Scopus rating (2005): SJR 0.606 SNIP 1.108

Web of Science (2005): Indexed yes

Scopus rating (2004): SJR 0.599 SNIP 1.195

Scopus rating (2003): SJR 0.392 SNIP 0.693

Scopus rating (2002): SJR 0.459 SNIP 0.582
Environmental Toxicology: Pesticides

Pesticides are toxic substances that are deliberately released into our environment to kill or control living organisms. They have many beneficial qualities with regards to their intended use, but also carry with them potential harmful side effects for other living organisms that are inadvertently exposed, including humans. In this article, we will discuss some of the possible toxic effects they can have on male reproductive health. Of particular concern are pesticides with endocrine disrupting properties, which have been shown to interfere with male reproductive development. Early life exposure can prevent proper masculinization, having permanent consequences for the offspring.

Environmental Toxicology: Plastics

Plastic is a general term for a diverse group of polymeric materials that are used in a plethora of products. They represent a major source of human exposure to endocrine disrupting chemicals, including phthalates, bisphenols and persistent organic pollutants (POPs). For humans, foods represent the main source of exposure, but common house dust can also be a significant source of exposure in small children.

Phthalates and bisphenol A can interfere with male reproductive development by inducing reproductive organ malformations and impaired sperm production. Also persistent halogenated chemicals may be intentionally or unintentionally present in plastics and migrate/leak to foods or the environment causing concern for male reproductive function.
Erratum to: The OECD validation program of the H295R steroidogenesis assay: Phase 3. Final inter-laboratory validation study


https://doi-org.proxy.findit.dtu.dk/10.1007/s11356-010-0396-x

In the original article wrong unites were quoted in Table 3 (page 508) and Table 4 (page 510) as well as in the paragraph 3.2 Core chemical exposure experiments on page 509. Also in paragraph 2.3 Selection and testing of chemicals the link to the Supplemental Materials (ESM) was missing. The correct versions of the tables and the paragraph as well as the ESM link are provided below.

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State: Published
Organisations: Copenhagen Center for Health Technology, National Food Institute, Research Group for Molecular and Reproductive Toxicology, ENTRIX, Inc., RWTH Aachen University, U.S. Environmental Protection Agency, Chemicals Evaluation and Research Institute, City University of Hong Kong, University of Saskatchewan, Senior Environmental Employment Program, National Caucus on Black Aged, University of Heidelberg
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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SJR 0.858 SNIP 0.942
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.66 SJR 0.891 SNIP 1.109
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.906 SNIP 1.049 CiteScore 2.5
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.99 SNIP 1.199 CiteScore 2.57
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.942 SNIP 1.179 CiteScore 2.34
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.127 SNIP 1.246 CiteScore 2.29
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
Evaluation of air samplers and filter materials for collection and recovery of airborne norovirus

The aim of this study was to identify the most efficient sampling method for quantitative PCR-based detection of airborne human norovirus (NoV). Methods and Results: A comparative experiment was conducted in an aerosol chamber using aerosolised murine norovirus (MNV) as a surrogate for NoV. Sampling was performed using a nylon (NY) filter in conjunction with four kinds of personal samplers; Gesamtstaubprobenahme sampler (GSP), Triplex-cyclone sampler (TC), 3-piece closed-faced Millipore cassette (3P) and a 2-stage NIOSH cyclone sampler (NIO). In addition, sampling was performed using the GSP sampler with four different filter types; NY, polycarbonate (PC), polytetrafluoroethylene (PTFE) and gelatine (GEL). The sampling efficiency of MNV was significantly influenced by both sampler and filter type. The GSP sampler was found to give significantly (P<0.05) higher recovery of aerosolised MNV than 3P and NIO. A higher recovery was also found for GSP compared with TC, albeit not significantly. Finally, recovery of aerosolised MNV was significantly (P<0.05) higher using NY than PC, PTFE and GEL filters. Conclusions: The GSP sampler combined with a nylon filter was found to be the best method for personal filter-based sampling of airborne NoV. Significance and Impact of the Study. The identification of a suitable NoV air sampler is an important step towards studying the association between exposure to airborne NoV and infection.

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Food Safety, National Research Center for Working Environment
Authors: Uhrbrand, K. (Intern), Kalevi Koponen, I. (Ekstern), Schultz, A. C. (Intern), Madsen, A. M. (Ekstern)
Pages: 990-1000
Publication date: 2018
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Applied Microbiology
Volume: 124
Expanded cardinal parameter model with terms for phosphate salts to predict growth of *Listeria monocytogenes* in spreadable cheeses

Absence of *L. monocytogenes* growth in ready-to-eat foods at the consumer phase is estimated to reduce listeriosis cases per year by 37% (EFSA, 16, 1-173, 2018). Spreadable cheeses are ready-to-eat foods with products characteristics including pH of 5.6-6.4 and NaCl of 0.7-1.6% w/w that may support growth of *L. monocytogenes* if contaminated by consumers after opening of packed products that are typically hot filled. To reduce growth of *L. monocytogenes* in spreadable cheeses at the consumer phase recipes and the content of phosphate salts is important. These salts are known to inhibit growth of some microorganisms; however, their anti-listerial effect remains little studied. Product reformulation and recipe optimization can be assisted by challenge testing but the use of validated predictive models is faster and more cost effective. The objective was to develop and validate an extensive model to predict growth of *L.
monocytogenes in spreadable cheese containing phosphate salts. The new model was developed by expanding an existing cardinal parameter-type model that included 12 environmental parameters (IJFM, 141, 137-150, 2010). MIC-values for orthophosphate, pyrophosphate and triphosphate salts were determined in broth and terms modelling their antimicrobial and interactive effects were added to the existing model. The new model has been evaluated; so far, under constant temperature using a total of 48 growth/no growth responses in well characterized spreadable cheeses. Average bias and accuracy factor values were 1.02 and 1.20 for 24 growth curves. The model predicted growth/no growth correctly for 87.5% of the responses with 12.5% being fail-safe. The new model can be used to facilitate product reformulation as shown here for spreadable cheese at 8 °C, pH 6.3, aw 0.972 and water phase organic acid concentrations of 0.8 % (factic), 0.3 % (citric), 0.1 % (acetic) and phosphate salt of 1.9 % (orthophosphate). If this product is contaminated with 1-10 cfu/g by the consumer it will take 3-6 days for L. monocytogenes to reach the critical limit of 2 log cfu/g. However, by substituting the orthophosphate with 1.9% triphosphate the reformulated product prevents growth of L. monocytogenes from exceeding the critical limit for 11-22 days. The high number of environmental factors included in the new model makes it a flexible tool to support product development where the anti-listerial effect of phosphate salt can be taken into account when recipes are optimized.

General information
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Organisations: National Food Institute, Research Group for Analytical and Predictive Microbiology, Technical University of Denmark
Authors: Martinez Rios, V. (Intern), Østergaard Jørgensen, M. (Ekstern), Koukou, I. (Intern), Dalgaard, P. (Intern)
Number of pages: 1
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Main Research Area: Technical/natural sciences
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Source-ID: 148264146
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2018

Exploring the chemistry of complex samples by tentative identification and semi-quantification: a food contact material case
In fields such as food safety and environmental chemistry, ensuring safety is greatly challenged by large numbers of unknown substances occurring. Even with current state of the art mass spectrometers, dealing with non-identified substances is a very laborious process as it includes structure elucidation of a vast number of unknowns, of which only a fraction may be relevant. Here, we present an exploration and prioritization approach based on high resolution mass spectrometry. The method uses algorithm-based precursor/product-ion correlations on Quadrupole-Time of Flight (Q-TOF) MS/MS data to retrieve the most likely chemical match from a structure database. In addition, TOF-only data is used to estimate analyte concentration via semi-quantification. The method is demonstrated in recycled paper food contact material (FCM). Here, 585 chromatographic peaks were discovered, of which 117 were unique to the sample and could be tentatively elucidated via accurate mass, isotopic pattern, and precursor/product-ion correlations. Nearly 85% of these 117 peaks were matched with database entries, which provided varying certainty of information about the analyte structure. Semi-quantitative concentration ranges of investigated compounds were between 0.7 μg dm-2 and 1600 μg dm-2. With this data, a subgroup of chemicals was risk-categorized and prioritized using the most likely candidate structure(s) obtained. Prioritization based on expected health impact was possible using the tentatively assigned data. Overall, the described method is a valuable chemical exploration tool for non-identified substances, but also may be used as a preliminary prioritization tool for substances expected to have the highest health impact, for example in FCMs.

General information
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Organisations: National Food Institute, Research Group for Analytical Food Chemistry
Authors: Pieke, E. N. (Intern), Smedsgaard, J. (Intern), Granby, K. (Intern)
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ISSN (Print): 1076-5174
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BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
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<td>2004</td>
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<td>SJR 1.216 SNIP 1.172</td>
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**Extensive literature search for studies related to fumonisins and their modified forms**

The present document has been produced and adopted by the bodies identified above as authors. This task has been carried out exclusively by the authors in the context of a contract between the European Food Safety Authority and the authors, awarded following a tender procedure. The present document is published complying with the transparency principle to which the Authority is subject. It may not be considered as an output adopted by the Authority. The European Food Safety Authority reserves its rights, view and position as regards the issues addressed and the conclusions reached in the present document, without prejudice to the rights of the authors.

**General information**

- **State:** Published
- **Organisations:** National Food Institute, Division of Risk Assessment and Nutrition, Research Group for Analytical Food Chemistry, Research Group for Risk-Benefit
- **DoIs:** 10.1002/jms.4052
Extraction of unsaturated fatty acid-rich oil from common carp (Cyprinus carpio) roe and production of defatted roe hydrolysates with functional, antioxidant, and antibacterial properties

Common carp roe is a rich protein and oil source, which is usually discarded with no specific use. The aims of this study were to extract oil from the discarded roe and examine functional, antioxidant, and antibacterial properties of defatted roe hydrolysates (CDRHs) at various degrees of hydrolysis (DH). Gas chromatography (GC) of fatty acid methyl esters (FAMEs) revealed that common carp roe oil contained high level of unsaturated fatty acids. The results of high-performance liquid chromatography-mass spectrometry (HPLC-MS) indicated that enzymatic hydrolysis of defatted roe yielded higher content of essential amino acids. CDRHs displayed higher solubility than untreated defatted roe, which increased with DH. Better emulsifying and foaming properties were observed at lower DH and non-isoelectric points. Furthermore, water and oil binding capacity decreased with DH. CDRHs exhibited antioxidant activity both in vitro and in 5% roe oil-in-water emulsions and inhibited the growth of certain bacterial strains. Common carp roe could be a promising source of unsaturated fatty acids and functional bioactive agents. Unsaturated fatty acid-rich oil extracted from common carp roe can be delivered into food systems by roe oil-in-water emulsions fortified by functional, antioxidant, and antibacterial hydrolysates from the defatted roe.

General information
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Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Gorgan University of Agricultural Sciences and Natural Resources, Technical University of Denmark
Authors: Ghelichi, S. (Ekstern), Shabanpour, B. (Ekstern), Pourashouri, P. (Ekstern), Hajfathalian, M. (Ekstern), Jacobsen, C. (Intern)
Pages: 1407-1415
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Scopus rating (2017): SJR 0.822 SNIP 1.276
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.48 SJR 0.906 SNIP 1.244
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.809 SNIP 1.088 CiteScore 2.11
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.814 SNIP 1.153 CiteScore 2.1
Facilitating shrimp (Pandalus borealis) peeling by power ultrasound and proteolytic enzyme

The potential of power ultrasound (24-kHz frequency) as an individual treatment and in combination with proteolytic enzyme to promote the shell-loosening of cold-water shrimp (Pandalus borealis) was investigated. Textural properties of shrimp were highly dependent on temperature control during the ultrasonic process (27.6-μm amplitude, 120 min duration and 0.9-s pulse), while the peelability of shrimp monitored as peeling work, meat yield and proportion of completely peeled shrimp were less dependent on the temperature. Increasing amplitude (0–46 μm) and time (0–45 min) of ultrasound prior to enzymatic maturation (0.5% Endocut-03L, 6 h, and 3°C) increased the peelability of shrimp. The parallel combination of ultrasound and enzyme (18.4-μm amplitude, 0.9-s pulse, 0.5% Endocut-3L, 3-h and 4-h duration, and Ts≤5°C) considerably improved the shrimp peelability without detrimental effect on the texture and color of shrimp. Ultrasound was found to inactivate proteolytic enzyme in solution and to modify the structural properties of shrimp shells. From scanning electron micrographs (SEM), we proposed a mechanism for the ultrasound-enzyme-induced shell-loosening based on ultrasonic
shell surface erosion and enzyme diffusion. Cavitation bubbles generated from sound waves pitted the surface of shrimp shell, generating pathways for enzyme diffusion into the muscle-shell attachment.

**General information**

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Organisations: National Food Institute, Research Group for Food Production Engineering, Royal Greenland A/S, University of Copenhagen
Authors: Thi Dang, T. (Ekstern), Gringer, N. (Intern), Jessen, F. (Intern), Olsen, K. (Ekstern), Bøknæs, N. (Ekstern), Nielsen, P. L. (Ekstern), Orlilen, V. (Ekstern)

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Scopus rating (2017): SJR 1.201 SNIP 1.194
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.54 SJR 1.431 SNIP 1.386
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.675 SNIP 1.495 CiteScore 3.48
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.583 SNIP 1.672 CiteScore 3.67
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.374 SNIP 1.649 CiteScore 3.16
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.718 SNIP 1.902 CiteScore 3.45
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.711 SNIP 1.853 CiteScore 3.65
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.555 SNIP 1.482
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.252 SNIP 1.13
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 1.146 SNIP 1.213
Scopus rating (2007): SJR 0.968 SNIP 1.307
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 0.936 SNIP 1.28
Scopus rating (2005): SJR 0.794 SNIP 1.314
Scopus rating (2004): SJR 0.635 SNIP 0.967
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 0.696 SNIP 1.021
Scopus rating (2002): SJR 0.789 SNIP 1.142
Scopus rating (2001): SJR 0.293 SNIP 0.706
Fiskeprodukter af høj kvalitet og med lavt indhold af salt

General information
State: Published
Organisations: National Food Institute, Research Group for Analytical and Predictive Microbiology, Royal Greenland Seafood Ltd
Authors: Mejlholm, O. (Ekstern), Soinjoki, J. (Ekstern), Bøknæs, N. (Ekstern), Koukou, L. (Intern), Dalgaard, P. (Intern)
Pages: 16-19
Publication date: 2018
Main Research Area: Technical/natural sciences

Publication Information
Journal: Plus Proces
Volume: 2018
Issue number: 3
ISSN (Print): 0902-5057
Ratings:
BFI (2018): BFI-level 1
BFI (2017): BFI-level 1
BFI (2016): BFI-level 1
BFI (2015): BFI-level 1
BFI (2014): BFI-level 1
BFI (2013): BFI-level 1
ISI indexed (2013): ISI indexed no
BFI (2012): BFI-level 1
ISI indexed (2012): ISI indexed no
BFI (2011): BFI-level 1
ISI indexed (2011): ISI indexed no
BFI (2010): BFI-level 1
BFI (2009): BFI-level 1
BFI (2008): BFI-level 1
Original language: Danish
Electronic versions:
GUDP_LAV_SALT_Plus_Proces_Farver.pdf

Bibliographical note
Source: PublicationPreSubmission
Source-ID: 148950892
Publication: Communication › Journal article – Annual report year: 2018

Foodborne viruses: Detection, risk assessment, and control options in food processing
In a recent report by risk assessment experts on the identification of food safety priorities using the Delphi technique, foodborne viruses were recognized among the top rated food safety priorities and have become a greater concern to the food industry over the past few years. Food safety experts agreed that control measures for viruses throughout the food chain are required. However, much still needs to be understood with regard to the effectiveness of these controls and how to properly validate their performance, whether it is personal hygiene of food handlers or the effects of processing of at risk foods or the interpretation and action required on positive virus test result. This manuscript provides a description of foodborne viruses and their characteristics, their responses to stress and technologies developed for viral detection and control. In addition, the gaps in knowledge and understanding, and future perspectives on the application of viral detection and control strategies for the food industry, along with suggestions on how the food industry could implement effective control strategies for viruses in foods. The current state of the science on epidemiology, public health burden, risk assessment and management options for viruses in food processing environments will be highlighted in this review.
Food groups for allergen risk assessment: Combining food consumption data from different countries in Europe

To prevent allergic reactions, food producers have to be able to make a knowledge based decision on whether to label their products with precautionary labelling. As many manufactured food products are sold in different countries across Europe, the allergen risk assessment should be estimated at the European levels. As currently, there are no pan-European food data suitable for food allergy risk assessment. The aim of this paper is to investigate if consumption data, at a meal level, from National Food Consumption Surveys, can be combined to form a common Food Consumption database. In this first attempt we developed a procedure to investigate, if national food consumption data can be combined and grouped using data from Netherlands, France and Denmark. The homogeneity of consumption patterns and the relevance of difference in risk of allergic reaction were compared, using a fixed framework of allergen concentration levels and threshold distribution. Thus, the relevance of using common consumption data across countries was verified. The food groups formed were subsequently evaluated and adjusted based on practical considerations. It resulted in designing 61 food groups that can be used for allergen risk assessment. The summary statistics and descriptive names for each food group are included.

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, National Food Institute, Research Group for Gut Microbiology and Immunology, Division of Risk Assessment and Nutrition, The Netherlands Organization for Applied Scientific Research, ANSES - French Agency for Food, Environmental and Occupational Health & Safety
Authors: Birot, S. (Intern), Madsen, C. B. (Intern), Kruizinga, A. G. (Ekstern), Crépet, A. (Ekstern), Christensen, T. (Intern), Brockhoff, P. B. (Intern)
Pages: 371-381
Publication date: 2018
Main Research Area: Technical/natural sciences

Publication information
Journal: Food and Chemical Toxicology
Volume: 118
ISSN (Print): 0278-6915
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SJR 1.144 SNIP 1.427
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.96 SJR 1.351 SNIP 1.58
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.202 SNIP 1.415 CiteScore 3.44
Fremme af sunde mad- og måltidsvaner blandt børn og unge: Vidensrådsrapport

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Research Group for Risk-Benefit, Københavns Universitet, Aarhus University Hospital, University of Copenhagen, Aarhus University, University of Southern Denmark, Region Hovedstaden
Authors: Tetens, I. (Ekstern), Biltoft-Jensen, A. P. (Intern), Hermansen, K. (Ekstern), Mølgaard, C. (Ekstern), Nyvad, B. (Ekstern), Rasmussen, M. (Ekstern), Sabinsky, M. (Intern), Toft, U. (Ekstern), Wistoft, K. (Ekstern)

Original language: English
Food allergy, Food groups, National food consumption surveys, Risk assessment

DOI: 10.1016/j.fct.2018.05.042
Source: FindIt
Source-ID: 2434586131
Publication: Research - peer-review › Journal article – Annual report year: 2018
Genomics-Based Identification of Microorganisms in Human Ocular Body Fluid

Advances in genomics have the potential to revolutionize clinical diagnostics. Here, we examine the microbiome of vitreous (intraocular body fluid) from patients who developed endophthalmitis following cataract surgery or intravitreal injection. Endophthalmitis is an inflammation of the intraocular cavity and can lead to a permanent loss of vision. As controls, we included vitreous from endophthalmitis-negative patients, balanced salt solution used during vitrectomy and DNA extraction blanks. We compared two DNA isolation procedures and found that an ultraclean production of reagents appeared to reduce background DNA in these low microbial biomass samples. We created a curated microbial genome database (>5700 genomes) and designed a metagenomics workflow with filtering steps to reduce DNA sequences originating from: (i) human hosts, (ii) ambiguousness/contaminants in public microbial reference genomes and (iii) the environment. Our metagenomic read classification revealed in nearly all cases the same microorganism that was determined in cultivation- and mass spectrometry-based analyses. For some patients, we identified the sequence type of the microorganism and antibiotic resistance genes through analyses of whole genome sequence (WGS) assemblies of isolates and metagenomic assemblies. Together, we conclude that genomics-based analyses of human ocular body fluid specimens can provide actionable information relevant to infectious disease management.
Geographic and socioeconomic diversity of food and nutrient intakes: a comparison of four European countries

Purpose
Public health policies and actions increasingly acknowledge the climate burden of food consumption. The aim of this study is to describe dietary intakes across four European countries, as baseline for further research towards healthier and environmentally-friendlier diets for Europe.

Methods
Individual-level dietary intake data in adults were obtained from nationally-representative surveys from Denmark and France using a 7-day diet record, Italy using a 3-day diet record, and Czech Republic using two replicates of a 24-h recall. Energy-standardised food and nutrient intakes were calculated for each subject from the mean of two randomly selected days.

Results
There was clear geographical variability, with a between-country range for mean fruit intake from 118 to 199 g/day, for vegetables from 95 to 239 g/day, for fish from 12 to 45 g/day, for dairy from 129 to 302 g/day, for sweet beverages from 48 to 224 ml/day, and for alcohol from 8 to 15 g/day, with higher intakes in Italy for fruit, vegetables and fish, and in Denmark for dairy, sweet beverages and alcohol. In all countries, intakes were low for legumes (<20 g/day), nuts and seeds (<5 g/day), but high for red and processed meat (>80 g/day). Within countries, food intakes also varied by socio-economic factors such as age, gender, and educational level, but less pronounced by anthropometric factors such as overweight status. For nutrients, intakes were low for dietary fibre (15.8–19.4 g/day) and vitamin D (2.4–3.0 µg/day) in all countries, for potassium (2288–2938 mg/day) and magnesium (268–285 mg/day) except in Denmark, for vitamin E in Denmark (6.7 mg/day), and for folate in Czech Republic (212 µg/day).

Conclusions
There is considerable variation in food and nutrient intakes across Europe, not only between, but also within countries. Individual-level dietary data provide insight into the heterogeneity of dietary habits beyond per capita food supply data, and this is crucial to balancing healthy and environmentally-friendly diets for European citizens.
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.36 SNIP 1.143 CiteScore 3.13
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.271 SNIP 1.213 CiteScore 3.28
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.031 SNIP 1.138 CiteScore 3.2
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.983 SNIP 1.056 CiteScore 2.91
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.15 SNIP 1.106 CiteScore 3.02
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.224 SNIP 1.21
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.054 SNIP 1.165
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 0.812 SNIP 0.862
Scopus rating (2007): SJR 0.967 SNIP 1.088
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.082 SNIP 1.116
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 1.001 SNIP 1.109
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 0.764 SNIP 0.901
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 0.78 SNIP 0.748
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 0.327 SNIP 0.637
Scopus rating (2001): SJR 0.295 SNIP 0.627
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 0.191 SNIP 0.322
Scopus rating (1999): SJR 0.145 SNIP 0.184
Original language: English
Diet, Dietary guidelines, Europe, Foods, Nutrients, SUSFANS
Electronic versions:
10.1007/s00394-018-1673-6.pdf
DOIs:
10.1007/s00394-018-1673-6
Source: FindIt
Source-ID: 2398201840
Publication: Research - peer-review › Journal article – Annual report year: 2018

Håndbog i opklaring af fødevare- eller vandbårne sygdomsudbrud: Publikation nr.: 2017-28-800-06947

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, Fødevarestyrelsen, Statens Seruminstitute
Authors: Jensen, T. (Ekstern), Müller, L. (Ekstern), Sørensen, G. (Ekstern), Kjeldgaard, J. S. (Intern)
Number of pages: 43
Publication date: 2018
Hospital Epidemiology of Methicillin-Resistant Staphylococcus aureus in a Tertiary Care Hospital in Moshi, Tanzania, as Determined by Whole Genome Sequencing

Objective. To determine molecular epidemiology of methicillin-resistant S. aureus in Tanzania using whole genome sequencing. Methods. DNA from 33 Staphylococcus species was recovered from subcultured archived Staphylococcus isolates. Whole genome sequencing was performed on IlluminaMiseq using paired-end 2x250 bp protocol. Raw sequence data were analyzed using online tools. Results. Full susceptibility to vancomycin and chloramphenicol was observed. Thirteen isolates (43.3%) resisted cefoxitin and other antimicrobials tested. Multilocus sequence typing revealed 13 different sequence types among the 30 S. aureus isolates, with ST-8 (n = seven, 23%) being the most common. Gene detection in S. aureus stains were as follows: meca, 10 (33.3%); pvl, 5 (16.7%); tst, 2 (6.7%). The SNP difference among the six Tanzanian ST-8MRSA isolates ranged from 24 to 196 SNPs and from 16 to 446 SNPs when using the USA300_FPR3757 or the USA500 2395 as a reference, respectively. The mutation rate was 1.38 x 10(-11) SNPs/site/year or 1.4 x 10(-6) SNPs/site/year as estimated by USA300 FPR3757 or the USA500 2395, respectively. Conclusion. S. aureus isolates causing infections in hospitalized patients in Moshi are highly diverse and epidemiologically unrelated. Temporal phylogenetic analysis provided better resolution on transmission and introduction of MRSA and it may be important to include this in future routines.
Improved Enantioselectivity of Subtilisin Carlsberg towards Secondary Alcohols by Protein Engineering

Generally, the catalytic activity of subtilisin Carlsberg (SC) for transacylation reactions with secondary alcohols in organic solvent is low. Enzyme immobilization and protein engineering was performed to improve the enantioselectivity of SC towards secondary alcohols. Possible amino-acid residues for mutagenesis were found by combining available literature data with molecular modeling. SC variants were created by site-directed mutagenesis and were evaluated for a model transacylation reaction containing 1-phenylethanol in THF. Variants showing high E values (>100) were found. However, the conversions were still low. A second mutation was made, and both the E values and conversions were increased. Relative to that shown by the wild type, the most successful variant, G165L/M221F, showed increased conversion (up to 36%), enantioselectivity (E values up to 400), substrate scope, and stability in THF.

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Biotechnology and Biorefining, Stockholm University, Pharem Biotech AB
Interplay between genetic predisposition, macronutrient intake and type 2 diabetes incidence: analysis within EPIC-InterAct across eight European countries

Aims/hypothesis: Gene–macronutrient interactions may contribute to the development of type 2 diabetes but research evidence to date is inconclusive. We aimed to increase our understanding of the aetiology of type 2 diabetes by investigating potential interactions between genes and macronutrient intake and their association with the incidence of type 2 diabetes. Methods: We investigated the influence of interactions between genetic risk scores (GRSs) for type 2 diabetes, insulin resistance and BMI and macronutrient intake on the development of type 2 diabetes in the European Prospective Investigation into Cancer and Nutrition (EPIC)-InterAct, a prospective case-cohort study across eight European countries (N = 21,900 with 9742 incident type 2 diabetes cases). Macronutrient intake was estimated from diets reported in questionnaires, including proportion of energy derived from total carbohydrate, protein, fat, plant and animal protein, saturated, monounsaturated and polyunsaturated fat and dietary fibre. Using multivariable-adjusted Cox regression, we estimated country-specific interaction results on the multiplicative scale, using random-effects meta-analysis. Secondary analysis used isocaloric macronutrient substitution. Results: No interactions were identified between any of the three GRSs and any macronutrient intake, with low-to-moderate heterogeneity between countries (I² range 0–51.6%). Results were similar using isocaloric macronutrient substitution analyses and when weighted and unweighted GRSs and individual SNPs were examined. Conclusions/interpretation: Genetic susceptibility to type 2 diabetes, insulin resistance and BMI did not modify the association between macronutrient intake and incident type 2 diabetes. This suggests that macronutrient intake recommendations to prevent type 2 diabetes do not need to account for differences in genetic predisposition to these three metabolic conditions.

General information

State: Published
Organisations: National Food Institute, Research Group for Risk-Benefit, University of Cambridge, German Institute of Human Nutrition, German Center for Diabetes Research (DZD), Institute Catala Oncologia, Navarre Public Health Institute, Centros de Investigacion Biomedica en Red - CIBER, Imperial College London, Bjerknes University College, Public Health Division of Gipuzkoa, Basque Government, ComUE Paris-Saclay, Fondazione IRCCS - Istituto Nazionale dei Tumori, Milan, International Agency for Research on Cancer, IMIB-Arrikaca, German Cancer Research Center (DKFZ), University of Oxford, Danish Cancer Society, University of Granada, Lund University, Utrecht University, Centro Per Lo Studio E La Prevenzione Oncologica, University of Naples Federico II, Umeå University, Public Health Directorate, University of Turin, Regional Health Service ASL TO3, National Institute of Public Health and the Environment, Azienda Sanitaria Provinciale, Associazione Iblea per la Ricerca Epidemiologica (AIRE-ONLUS), University of Gothenburg, Aarhus University


Pages: 1325-1332
Publication date: 2018

Main Research Area: Technical/natural sciences

Publication information

Journal: Diabetologia
Volume: 61
Issue number: 6
ISSN (Print): 0012-186X
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SJR 3.228 SNIP 1.619
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Investigation of Lipid Oxidation in the Raw Materials of a Topical Skin Formulation: A Topical Skin Formulation Containing a High Lipid Content

Several studies have demonstrated that lipid oxidation often occurs in topical skin formulations which can affect product odor (both positively and negatively). Furthermore, odor detection threshold values and odor descriptors of identified volatile oxidation products in cleansing and skin cream formulation prototypes were recently determined by a trained sensory panel at the Technical University of Denmark in the Division of Food Technology. In this study, we investigated lipid oxidation in a prototype skin cream formulation as well as in selected cosmetic skin care raw materials. Lipid oxidation was measured regularly over a six-month period for the product and over a three-month period for the raw materials by headspace gas chromatography–mass spectrometry. The volatile compound present in the highest initial concentration, and which increased most during storage, was 3-methyl-1-butanol (medicinal, chemical/cleaning agent odor), and its
formation was linked to the raw material isoamyl p-methoxycinnamate. The odor character of the product after storage was assessed and informally deemed acceptable for consumer usage and typical of topical dermocosmetic products. A potential pathway for its formation was also identified. In addition, the concentrations of several well-known lipid oxidation products increased during storage and were suggested to originate primarily from rice bran wax, which oxidized more readily than other raw materials due to its unsaturated nature.

**General information**

State: Published
Organisations: National Food Institute, Department of Chemistry, Organic Chemistry, Research Group for Bioactives – Analysis and Application, GlaxoSmithKline
Authors: Thomsen, B. R. (Intern), Taylor, R. (Ekstern), Madsen, R. (Intern), Hyldig, G. (Intern), Blenkiron, P. (Ekstern), Jacobsen, C. (Intern)
Pages: 185-196
Publication date: 2018
Main Research Area: Technical/natural sciences

**Publication information**
Journal: Journal of the American Oil Chemists' Society
Volume: 95
Issue number: 2
ISSN (Print): 0003-021X
Ratings:
- BFI (2018): BFI-level 1
- Web of Science (2018): Indexed yes
- BFI (2017): BFI-level 1
- Scopus rating (2017): SNIP 1.004 SJR 0.641
- Web of Science (2017): Indexed Yes
- BFI (2016): BFI-level 1
- Scopus rating (2016): CiteScore 1.64 SJR 0.706 SNIP 0.916
- Web of Science (2016): Indexed yes
- BFI (2015): BFI-level 1
- Scopus rating (2015): SJR 0.678 SNIP 0.991 CiteScore 1.66
- Web of Science (2015): Indexed yes
- BFI (2014): BFI-level 1
- Scopus rating (2014): SJR 0.768 SNIP 1.053 CiteScore 1.68
- BFI (2013): BFI-level 1
- Scopus rating (2013): SJR 0.812 SNIP 1.069 CiteScore 1.71
- ISI indexed (2013): ISI indexed yes
- Web of Science (2013): Indexed yes
- BFI (2012): BFI-level 1
- Scopus rating (2012): SJR 0.852 SNIP 1.233 CiteScore 1.81
- ISI indexed (2012): ISI indexed yes
- Web of Science (2012): Indexed yes
- BFI (2011): BFI-level 1
- Scopus rating (2011): SJR 0.851 SNIP 1.31 CiteScore 1.98
- ISI indexed (2011): ISI indexed yes
- Web of Science (2011): Indexed yes
- BFI (2010): BFI-level 1
- Scopus rating (2010): SJR 0.765 SNIP 1.08
- Web of Science (2010): Indexed yes
- BFI (2009): BFI-level 1
- Scopus rating (2009): SJR 0.879 SNIP 1.192
- Web of Science (2009): Indexed yes
- BFI (2008): BFI-level 1
- Scopus rating (2008): SJR 0.661 SNIP 1.032
- Web of Science (2008): Indexed yes
- Scopus rating (2007): SJR 0.687 SNIP 0.891
Kainic acid in the seaweed Palmaria palmata (Dulse)
Twenty samples of the seaweed Palmaria palmata (dulse) purchased mainly from commercial internet shops on the European market were analysed by a liquid chromatograph coupled with a tandem mass spectrometer (LC-MS/MS) method for the content of kainic acid, a naturally occurring neurotoxic compound in P. palmata. Kainic acid levels in the samples ranged widely from trace levels to approximately 560 μg g⁻¹ dry weight.

General information
State: Accepted/In press
Organisations: National Food Institute, Research Group for Analytical Food Chemistry, Division of Risk Assessment and Nutrition
Authors: Jørgensen, K. (Intern), Olesen, P. T. (Intern)
Publication date: 2018
Main Research Area: Technical/natural sciences

Publication information
Journal: Food Additives & Contaminants. Part B. Surveillance Communications
ISSN (Print): 1939-3210
Ratings:
Web of Science (2018): Indexed yes
Scopus rating (2017): SNIP 1.104 SJR 0.82
Web of Science (2017): Indexed Yes
Scopus rating (2016): CiteScore 1.58 SJR 0.664 SNIP 0.842
Scopus rating (2015): SJR 0.566 SNIP 0.684 CiteScore 1.34
Scopus rating (2014): SJR 0.405 SNIP 0.599 CiteScore 0.95
Scopus rating (2013): SJR 0.508 SNIP 0.761 CiteScore 1.17
ISI indexed (2013): ISI indexed yes
Scopus rating (2012): SJR 0.459 SNIP 0.699 CiteScore 1.07
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
Scopus rating (2011): SJR 0.395 SNIP 0.462 CiteScore 0.81
ISI indexed (2011): ISI indexed yes
Scopus rating (2010): SJR 0.292 SNIP 0.365
Scopus rating (2009): SJR 0.267 SNIP 0.409
Levels of perchlorate and chlorate in foods available in Denmark

General information
State: Published
Organisations: National Food Institute, Research Group for Analytical Food Chemistry
Authors: Herrmann, S. S. (Intern), Poulsen, M. E. (Intern)
Number of pages: 1
Publication date: 2018
Event: Poster session presented at 12th European Pesticide Residue Workshop, München, Germany.
Main Research Area: Technical/natural sciences
Electronic versions:
Source: PublicationPreSubmission
Source-ID: 148420593
Publication: Research - peer-review › Poster – Annual report year: 2018

Macro and trace elements in Paracentrotus lividus gonads from South West Atlantic areas
Sea urchin represents one of the most valuable seafood product being harvested and explored for their edible part, the gonads or roe. This species is generally considered a sentinel organism for ecotoxicological studies being widely used in monitoring programs to assess coastal aquatic environments quality, because is directly exposed to anthropogenic contaminants in their habitat. In this context, the aim of this study is to evaluate the concentrations of macro (Cl, K, P, Ca, S) and trace (Zn, Br, Fe, Sr, I, Se, Rb, Cu, Cr, Ni, As, iAs, Cd, Pb, Hg) elements in Paracentrotus lividus gonads from three South West Atlantic production areas subjected to distinct environmental and anthropogenic pressures. In all studied areas, the elements profile in sea urchin gonads was Cl > K > P > Ca > S > Zn > Br > Fe > Sr > I > Rb > Cu > Se > Cr > Ni, suggesting an element guide profile with special interest for sea urchin farming development. Concerning toxic elements, the profile was the following: As > Cd > Pb > Hg > iAs. The results evidenced higher levels of Pb and Hg in open areas. Distinct area characteristics and anthropogenic pressures of production areas evidence the importance of biomonitoring contaminants, particularly toxic elements. In general, the levels of these elements were below maximum levels in foodstuffs (MLs) which pose a minimal health risk to consumers.

General information
State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science, New University of Lisbon, University of Porto, Portuguese Institute for the Sea and Atmosphere
Authors: Camacho, C. (Ekstern), Rocha, A. C. (Ekstern), Barbosa, V. L. (Ekstern), Anacleto, P. (Ekstern), Carvalho, M. L. (Ekstern), Rasmussen, R. R. (Intern), Sloth, J. J. (Intern), Almeida, M. (Ekstern), Nunes, N. L. (Ekstern)
Pages: 297-307
Publication date: 2018
Main Research Area: Technical/natural sciences

Publication information
Journal: Environmental Research
Volume: 162
ISSN (Print): 0013-9351
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SJR 1.605 SNIP 1.413
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 4.12 SJR 1.413 SNIP 1.326
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.424 SNIP 1.317 CiteScore 3.71
Meeting the challenges in the development of risk-benefit assessment of foods

Background
Risk-benefit assessment (RBA) of foods aims to assess the combined negative and positive health effects associated with food intake. RBAs integrate chemical and microbiological risk assessment with risk and benefit assessment in nutrition.

Scope and Approach
Based on the past experiences and the methodological differences between the underlying research disciplines, this paper aims to describe the recent progress in RBAs, identifying the key challenges that need to be addressed for further development, and making suggestions for meeting these challenges.

Key Findings and Conclusions
Ten specific challenges are identified and discussed. They include the variety of different definitions and terminologies used in the underlying research disciplines, the differences between the "bottom-up" and the "top-down" approaches and the need for clear risk-benefit questions. The frequent lack of data and knowledge with their consequential uncertainties is considered, as well as the imbalance in the level of scientific evidence associated with health risks and benefits. The challenges that are consequential to the need of considering substitution issues are discussed, as are those related to the inclusion of microbiological hazards. Further challenges include the choice of the integrative health metrics and the potential scope of RBAs, which may go beyond the health effect. Finally, the need for more practical applications of RBA is stressed. Suggestions for meeting the identified challenges include an increased interdisciplinary consensus, reconsideration of methodological approaches and health metrics based on a categorisation of risk-benefit questions, and the performance of case studies to experience the feasibility of the proposed approaches.
Microfluidic devices for sample preparation and rapid detection of foodborne pathogens

Rapid detection of foodborne pathogens at an early stage is imperative for preventing the outbreak of foodborne diseases, known as serious threats to human health. Conventional bacterial culturing methods for foodborne pathogen detection are time consuming, laborious, and with poor pathogen diagnosis competences. This has prompted researchers to call the current status of detection approaches into question and leverage new technologies for superior pathogen sensing outcomes. Novel strategies mainly rely on incorporating all the steps from sample preparation to detection in miniaturized devices for online monitoring of pathogens with high accuracy and sensitivity in a time-saving and cost effective manner. Lab on chip is a blooming area in diagnosis, which exploits different mechanical and biological techniques to detect very low concentrations of pathogens in food samples. This is achieved through streamlining the sample handling and concentrating procedures, which will subsequently reduce human errors and enhance the accuracy of the sensing methods. Integration of sample preparation techniques into these devices can effectively minimize the impact of complex food matrix on pathogen diagnosis and improve the limit of detections. Integration of pathogen capturing bio-receptors on microfluidic devices is a crucial step, which can facilitate recognition abilities in harsh chemical and physical conditions, offering a great commercial benefit to the food-manufacturing sector. This article reviews recent advances in current state-of-the-art of sample preparation and concentration from food matrices with focus on bacterial capturing methods and sensing technologies, along with their advantages and limitations when integrated into microfluidic devices for online rapid detection of pathogens in foods and food production line.

General information
State: Accepted/In press

Microfluidic devices for sample preparation and rapid detection of foodborne pathogens

Rapid detection of foodborne pathogens at an early stage is imperative for preventing the outbreak of foodborne diseases, known as serious threats to human health. Conventional bacterial culturing methods for foodborne pathogen detection are time consuming, laborious, and with poor pathogen diagnosis competences. This has prompted researchers to call the current status of detection approaches into question and leverage new technologies for superior pathogen sensing outcomes. Novel strategies mainly rely on incorporating all the steps from sample preparation to detection in miniaturized devices for online monitoring of pathogens with high accuracy and sensitivity in a time-saving and cost effective manner. Lab on chip is a blooming area in diagnosis, which exploits different mechanical and biological techniques to detect very low concentrations of pathogens in food samples. This is achieved through streamlining the sample handling and concentrating procedures, which will subsequently reduce human errors and enhance the accuracy of the sensing methods. Integration of sample preparation techniques into these devices can effectively minimize the impact of complex food matrix on pathogen diagnosis and improve the limit of detections. Integration of pathogen capturing bio-receptors on microfluidic devices is a crucial step, which can facilitate recognition abilities in harsh chemical and physical conditions, offering a great commercial benefit to the food-manufacturing sector. This article reviews recent advances in current state-of-the-art of sample preparation and concentration from food matrices with focus on bacterial capturing methods and sensing technologies, along with their advantages and limitations when integrated into microfluidic devices for online rapid detection of pathogens in foods and food production line.

General information
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Organisations: Department of Micro- and Nanotechnology, BioLabChip, National Food Institute, Research Group for Analytical and Predictive Microbiology, Technical University of Denmark
Authors: Kant, K. (Intern), Shahbazi, M. (Intern), Dave, V. P. (Intern), Ngo, T. A. (Intern), Aayda Chidambara, V. (Intern), Than Linh, Q. (Intern), Bang, D. D. (Intern), Wolff, A. (Intern)
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Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 11.05 SJR 2.747 SNIP 3.141
Web of Science (2016): Indexed yes
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Scopus rating (2015): SJR 2.915 SNIP 3.396 CiteScore 10.56
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.941 SNIP 3.738 CiteScore 10.24
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Scopus rating (2011): SJR 3.118 SNIP 4.667 CiteScore 10.75
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Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.938 SNIP 3.925
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
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Scopus rating (2008): SJR 2.267 SNIP 3.153
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Scopus rating (2005): SJR 1.615 SNIP 2.919
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 1.073 SNIP 2.201
Scopus rating (2003): SJR 1.219 SNIP 2.097
Scopus rating (2002): SJR 0.929 SNIP 1.821
Scopus rating (2001): SJR 0.566 SNIP 1.009
Scopus rating (2000): SJR 0.123 SNIP 1.025
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Acoustophoresis, DNA amplification, Electrochemical biosensor, Foodborne pathogen, Immunological detection, Lab-on-a-chip, Magnetophoresis, Microfluidic device, Optical biosensor, Point of care detection
Modelling of adequate and safe vitamin D intake in Danish women using different fortification and supplementation scenarios to inform fortification policies

Fortification of foods with vitamin D may be a population-based solution to low vitamin D intake. We performed modelling of vitamin D from diet, fortified foods and supplements in a population of Danish women 18-50 years, a risk group of vitamin D deficiency, to inform fortification policies on safe and adequate levels. Based on individual habitual dietary vitamin D intake of female participants from the Danish National Survey of Dietary Habits and Physical Activity (DANSDA) (n=855), we performed graded intake modelling to predict the intake in six scenarios increasing the vitamin D intake from a habitual diet without fish to habitual diet including fish, fortified foods and supplements (40/80 µg). Four different foods were used as potential foods to fortify with vitamin D. The vitamin D intake was below the Average Requirement (AR) of 7.5 µg/day for 88% of the assessed women. Safe levels of intake (}
Modelling the transport phenomena and texture changes of chicken breast meat during the roasting in a convective oven

A numerical 3D model of coupled transport phenomena and texture changes during the roasting of chicken breast meat in a convection oven was developed. The model is based on heat and mass transfer coupled with the kinetics of temperature induced texture changes of chicken breast meat. The partial differential equations of heat and mass transfer as well as the ordinary differential equations that describe the kinetics of the texture changes were solved using COMSOL Multiphysics® 5.2a. The predicted temperature, moisture and texture (hardness, chewiness and gumminess) profiles were validated using experimentally values. The developed model enables the prediction of the texture development inside the chicken meat as function of the process parameters. The model predictions and measured values show the clear effect of changing process settings on the texture profiles during the roasting process. Overall, the developed model provides deep insights into the local and spatial texture changes of chicken breast meat during the roasting process that cannot be gained by experimentation alone.

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Organisations: National Food Institute, Research Group for Food Production Engineering
Authors: Rabeler, F. (Intern), Feyissa, A. H. (Intern)
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Web of Science (2017): Indexed yes
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Scopus rating (2016): CiteScore 3.71 SJR 1.476 SNIP 1.837
Modermælkserstatninger til forebyggelse og behandling af komælksallergi

Resumé
Komælksallergi er et voksende problem på verdensplan. Derfor er der et stigende behov for modermælkserstatninger til forebyggelse, håndtering og behandling af denne sygdom. Projektet ’Allergene

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Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology
Authors: Bøgh, K. L. (Intern)
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New term for effect of temperature on pHMIN–values in cardinal parameter growth models for Listeria monocytogenes

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Organisations: National Food Institute, Research Group for Analytical and Predictive Microbiology
Authors: Martinez Rios, V. (Intern), Dalgaard, P. (Intern)
Number of pages: 1
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Main Research Area: Technical/natural sciences
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FOODMICRO2018_pHmin_model_12032018_vmr.pdf
Odour Detection Threshold Determination of Volatile Compounds in Topical Skin Formulations

Several studies have shown that lipid oxidation can occur in topical skin formulations, but the impact of the individual volatile compounds on off-odour has not yet been determined. In this study, lipid oxidation was investigated in prototype skin care formulations. Firstly, lipid oxidation volatile compounds that increased in concentration during storage were identified. The results showed that the concentration of six volatile compounds increased above previously reported odour detection threshold values in water. These volatile compounds were selected for odour detection threshold value determination and also odour description by a trained sensory panel.

In one case, the odour detection threshold value was 50 times higher (less detectable) in skin care products than in water, whereas for other volatile compounds the odour detection threshold value was only 1.5 times higher. The odour description of the volatile compounds was, in most cases, different from that reported in literature. The observed differences are hypothesised to be due to a masking effect of the base odour of the skin care product(s), a volatile-retaining power of the base matrix and to a cocktail effect of the combined odours from different volatile oxidation products.

Practical applications: In this study, the impact of volatile compounds on off-odour was explored in prototype skin care formulations. The odour detection threshold value and odour description were determined for butanal, pentanal, 3-methyl-1-butanol, 2-ethyl furan, 2-pentyl furan and 1-heptanol in prototype skin care formulations.

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Department of Management Engineering, Engineering Systems, GlaxoSmithKline, Glaxo Smith Kline; Brentford UK
Authors: Thomsen, B. R. (Intern), Hyldig, G. (Intern), Taylor, R. (Intern), Blenkiron, P. (Ekstern), Jacobsen, C. (Intern)
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Scopus rating (2016): CiteScore 2.06 SJR 0.712 SNIP 1.042
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.643 SNIP 0.878 CiteScore 1.85
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.742 SNIP 1.052 CiteScore 1.98
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.863 SNIP 1.122 CiteScore 2.16
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Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.864 SNIP 1.221 CiteScore 2.06
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
Operational Limitations of Arctic Waste Stabilization Ponds: Insights from Modeling Oxygen Dynamics and Carbon Removal

Presented here is a mechanistic model of the biological dynamics of the photic zone of a single-cell arctic waste stabilization pond (WSP) for the prediction of oxygen concentration and the removal of oxygen-demanding substances. The model is an exploratory model to assess the limiting environmental factors affecting treatment performance in arctic WSPs. A sensitivity analysis was used to provide a quantification of the relative uncertainties of parameters that exist within the described modeling framework. The model was able to quantitatively reproduce mesocosm experiment trends in phytoplankton growth, dissolved oxygen concentration, and the reduction of carbonaceous biochemical oxygen demand on Day 5 (CBOD$_5$). These results demonstrated that CBOD$_5$ reduction and oxygen state are very sensitive to organic loading regimes at low temperatures (5-15°C). The sensitivity analysis identified that it was the difference in phytoplankton growth rates, and the associated change in photosynthetic oxygen production, that mainly contribute to creating differences in CBOD$_5$ removal rates and the development of aerobic conditions. The model was also sensitive to atmospheric aeration rates at low temperature, providing further evidence that low oxygen availability limits the treatment of CBOD$_5$ in cold-climate WSPs. During the development process, it was discovered that common formulations of depth-integrated phytoplankton growth performed poorly for the arctic system to be modeled, which was a quiescent eutrophic environment. This paper presents a new phytoplankton growth formula within the paradigm of a poorly mixed eutrophic system that may find utilization in other eutrophic, colored, or turbid systems. The novel aspect of the approach is that the depth-integrated phytoplankton growth function was formulated upon the premise that the phytoplankton would be capable of orienting themselves to optimize their growth under poorly mixed conditions, and the average growth rate of the phytoplankton population must decrease as crowding puts pressure on shared resources. The general agreement of the model with the experiments, combined with the simplicity of the depth-integrated box model, suggests there is potential for further development of the model as a tool for assessing proposed arctic WSP designs. The sensitivity analysis highlighted the uncertainty and importance of the parameterization of bacterial and phytoplankton physiology and metabolism in WSP models.
Optimization of ohmic heating parameters for polyphenoloxidase inactivation in not-from-concentrate elstar apple juice using RSM

In this study, optimization of ohmic heating (OH) process parameters (temperature and voltage gradient) to inactivate polyphenoloxidase (PPO) of not-from-concentrate (NFC) apple juice was conducted. Response surface methodology was used for optimization of OH parameters, where the voltage gradient and temperature on the PPO activity in the NFC apple juice was evaluated. Then the optimized condition was used to produce the NFC apple juice and the quality parameters were evaluated and compared to NFC apple juice prepared by conventional heating (CH). The studied parameters were: PPO activity, total phenolic, total carotenoids, ascorbic acid, cloud value, color as well as physical properties (i.e., TSS, acidity, electric conductivity and viscosity). The reduction of PPO activities was 97 and 91% for OH (at 40 V/cm and 80 °C) and CH (at 90 °C and 60 s), respectively. The reduction of the ascorbic acid was 66.8% for OH significantly lower than the 80% for CH treated samples. The total extracted phenolic content was increased by 5.4 and 2.5% with OH and CH treatments, respectively. The decrease in the concentration of total carotenoids for OH (13.17%) was significantly lower than for CH (34.23%). The color values (L*, a*, b* and ΔE) were only significantly increased in the OH treatment. OH is a potential mild thermal treatment in the production of apple juice with improved functional properties instead of conventional methods.
Scopus rating (2011): SJR 0.345 SNIP 0.667 CiteScore 0.51
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.32 SNIP 0.535
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.271 SNIP 0.461
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.204 SNIP 0.378
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Scopus rating (2005): SJR 0.231 SNIP 0.371
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Scopus rating (2003): SJR 0.254 SNIP 0.694
Scopus rating (2002): SJR 0.265 SNIP 0.598
Scopus rating (2001): SJR 0.292 SNIP 0.442
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ORION - one health surveillance initiative on harmonization of data collection and interpretation

General information
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Authors: Dorea, F. (Ekstern), Ellis-Iversen, J. (Intern), Boone, I. (Ekstern), Gethmann, J. (Ekstern), Lagesen, K. (Ekstern), Filter, M. (Ekstern)
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Pathology and bacteria related to digital dermatitis in dairy cattle in all year round grazing system in Brazil

Digital dermatitis (DD) is one of the main causes of lameness in dairy cattle worldwide, and it is frequently reported in high-yielding, free stall dairy herds from regions with a temperate climate. However, DD is also observed with high prevalence in grazing cattle with a low milk yield in tropical regions. To clarify whether these differences have an impact on the etiology of the disease, we studied DD lesions from all year round grazing cattle of mixed breed in Brazil using high-throughput 16S rRNA gene sequencing and fluorescent in situ hybridization. The study included samples from 66 skin lesions and 5 healthy skins collected from five farms. Both techniques showed Treponema spp. to be the most abundant bacteria, present in all but one of the samples with minimal epidermal alterations. We identified eleven different Treponema strains belonging to the six major phylotypes of Treponema which have all previously been identified in DD lesions. Furthermore, we identify Dichelobacter nodosus in DD lesions by gene sequencing and also by fluorescent in situ hybridization in almost half of biopsy specimens in areas with mild epithelial damage and together with Treponema. The present data support the hypothesis that Treponema constitutes the main pathogen responsible for DD, independent of the environment and region where cows are kept, and it further suggests D. nodosus as another potentially important pathogen.
Perfluorohexane Sulfonate (PFHxS) and a Mixture of Endocrine Disrupters Reduce Thyroxine Levels and Cause Anti-Androgenic Effects in Rats

The developmental toxicity of perfluorohexane sulfonate (PFHxS) is largely unknown despite widespread environmental contamination and presence in human serum, tissues and milk. To thoroughly investigate PFHxS toxicity in developing rats and to mimic a realistic human exposure situation, we examined a low dose close to human relevant PFHxS exposure, and combined the dose-response studies of PFHxS with a fixed dose of twelve environmentally relevant endocrine disrupting chemicals (EDmix). Two reproductive toxicity studies in time-mated Wistar rats exposed throughout gestation and lactation were performed. Study 1 included control, two doses of PFHxS and two doses of PFHxS+EDmix (n=5-7). Study 2 included control, 0.05, 5 or 25 mg/kg body weight/day PFHxS, EDmix-only, 0.05, 5 or 25 mg PFHxS/kg plus EDmix (n=13-20). PFHxS caused no overt toxicity in dams and offspring but decreased male pup birth weight and slightly increased liver weights at high doses and in combination with the EDmix. A marked effect on T4 levels was seen in both dams and offspring, with significant reductions from 5 mg/kg/day. The EDmix caused anti-androgenic effects in male offspring, manifested as slight decreases in anogenital distance, increased nipple retention and reductions of the weight of epididymides, ventral prostrate and vesicular seminalis. PFHxS can induce developmental toxicity and in addition results of the co-exposure studies indicated that PFHxS and the EDmix potentiate the effect of each other on various endpoints, despite their different modes of action. Hence, risk assessment may underestimate toxicity when mixture toxicity and background exposures are not taken into account.

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Organisations: National Food Institute, Research Group for Molecular and Reproductive Toxicology, University of Southern Denmark, Brunel University London
Authors: Ramhøj, L. (Intern), Hass, U. (Intern), Boberg, J. (Intern), Scholze, M. (Ekstern), Christiansen, S. (Intern), Nielsen, F. (Ekstern), Axelstad Petersen, M. (Intern)
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Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 2
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Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.681 SNIP 1.224 CiteScore 4.06
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.813 SNIP 1.35 CiteScore 4.24
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.738 SNIP 1.358 CiteScore 4.45
ISI indexed (2013): ISI indexed yes
Phenotypic and genotypic comparison of salmonellae from diarrhoeic and healthy humans and cattle, Nigeria

The sources and modes of transmission of non-typhoidal Salmonella particularly zoonotic transmission are poorly understood in Africa. This study compared phenotypic and genotypic characteristics of Salmonellae isolated from cattle and humans. Faecal samples of diarrhoeic patients (n = 234), and a healthy population (n = 160), beef cattle at slaughter (n = 250), farms (n = 72) and market (n = 100) were cultured for salmonellae and serotyping and antimicrobial susceptibility were determined. Whole-genome sequence typing (WGST) of selected isolates and bioinformatic analysis were used to identify the multilocus sequence type (MLST), plasmid replicons, antimicrobial resistance genes and genetic relatedness by single nucleotide polymorphism (SNP) analysis. The Salmonella isolates, diarrhoeic patients (n = 17), healthy population (n = 13), cattle (abattoir, n = 67; farms, n = 10; market n = 5), revealed 49 serovars; some serovars were common to humans and cattle. Rare serovars were prevalent: Colindale (cattle and humans); Rubislaw and Bredeney (humans); and Dublin, Give, Eastbourne, Hadar, Marseille, Sundsvall, Bergen, Ekotedo, Carno and Ealing (cattle). The sequence types (ST) include ST 584, ST 198, ST 562 and ST 512 for S. Colindale, S. Kentucky S. Rubislaw and S. Urbana, respectively. Clonal cluster shared by cattle and human WGST isolates was not found. Antimicrobial resistance rates were generally low and towards only chloramphenicol, ampicillin, gentamicin, ciprofloxacin, tetracycline and streptomycin, range 2.7% (chloramphenicol) to 8.9% (streptomycin). Multiply resistant isolates included serovars Kentucky, 4,5,12:i:- and Typhimurium. The study presents a baseline description of the prevalence, serotypes, antimicrobial resistance phenotypes and genetic relatedness of Salmonella isolated from healthy and diarrhoeic humans, and cattle at harvest, on farm and at market. Cattle are a reservoir of diverse salmonellae with shared serovars with humans, but WGST does not support zoonotic transmission. Further study with larger samples is recommended to determine whether epidemiological link exists between cattle and humans.
Phospholipids composition and molecular species of large yellow croaker (Pseudosciaena crocea) roe

The research aims to study phospholipids (PL) classes and molecular species of large yellow croaker (Pseudosciaena crocea) roe. Both gas chromatography-mass spectroscopy (GC-MS) and high-performance liquid chromatography with evaporative light-scattering detection (HPLC-ELSD) were utilized to analyze and identify the PLs fatty acids compositions and classes in the P. crocea roe, respectively. Docosahexaenoic acid (DHA, C22:6) and eicosapentaenoic acid (EPA, C20:5) account for 35.0% and 8.9% of the PLs. Phosphatidylcholines (PC), lysophosphatidylcholines (LPC), phosphatidylethanolamines (PE) and phosphatidylinositolos (PI) account for 76.36±0.62%, 12.30±0.55%, 9.12±0.02% and 1.09±0.01% of the total PLs, respectively. In addition, the PLs molecular species were characterized by ultra-high performance liquid chromatography-electrospray ionization-quadruple-time of flight-mass spectrometry (UPLC-Q-TOF-MS). A total of 92 PLs molecular species was identified, including 49 PCs, 13 PEs, 10 phosphatidic acids (PAs), 13 phosphatidylserines (PSs), 3 phosphatidylglycerols (PGs), 2 sphingomyelins (SMs), and 2 PIs of the P. crocea roe.

General information
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Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Fuzhou University, Technical University of Denmark
Authors: Liang, P. (Ekstern), Li, R. (Ekstern), Sun, H. (Ekstern), Zhang, M. (Ekstern), Cheng, W. (Ekstern), Chen, L. (Ekstern), Cheng, X. (Ekstern), Akoh, C. C. (Intern)
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Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 4.85 SJR 1.731 SNIP 2.095
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.582 SNIP 1.946 CiteScore 4.31
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.557 SNIP 2.01 CiteScore 3.92
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.554 SNIP 2.056 CiteScore 3.87
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.762 SNIP 2.342 CiteScore 3.98
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.911 SNIP 2.383 CiteScore 4.17
Photosensitizer-induced cross-linking: A novel approach for improvement of physicochemical and structural properties of gelatin edible films

This study investigated a novel method of photosensitizer-induced cross-linking (using riboflavin as a sensitizer) to improve the structural and physicochemical properties of gelatin-based edible films with different glycerol concentrations (25% and 50%) during different UV exposure times (2, 4 and 6h). The films' tensile strength was enhanced significantly for both glycerol concentrations with increasing UV exposure times compared to the control film, so that the highest tensile strength was observed for films with 25% glycerol and 6h of UV exposure (25%-6h). The films' tensile strength declined and the elongation at break increased about three times when the glycerol concentration was increased to 50% with 6h exposure. The photosensitizer-induced cross-linking significantly reduced the films' solubility and permeability. The UV-treated films exhibited very good barrier properties against UV, with zero light transmission at a wavelength of 200 to 350nm. Moreover, no toxicity was found in any of the films. In addition, Fourier transform infrared spectroscopy and differential scanning calorimetry findings revealed a good interaction between functional groups of riboflavin (as the sensitizer) and gelatin in the 25%-6h film. Therefore, this new method can be a suitable alternative to chemical methods of cross-linking biopolymers.

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Organisations: National Food Institute, Research Group for Food Production Engineering, Kermanshah University of Medical Sciences
Authors: Taghizadeh, M. (Ekstern), Mohammadifar, M. A. (Intern), Sadeghi, E. (Ekstern), Rouhi, M. (Ekstern), Mohammadi, R. (Ekstern), Askari, F. (Ekstern), Mortazavian, A. M. (Ekstern), Kariminejad, M. (Ekstern)
Publication date: 2018
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Publication information
Physicochemical characterization and oxidative stability of fish oil-loaded electrosprayed capsules: Combined use of whey protein and carbohydrates as wall materials

The encapsulation of fish oil in electrosprayed capsules using whey protein and carbohydrates (pullulan and dextran or glucose syrup) mixtures as glassy wall materials was studied. Capsules with fish oil emulsified by using only a rotor-stator emulsification exhibited higher oxidative stability than capsules where the oil was emulsified by high-pressure homogenization. Moreover, glucose syrup capsules (with a peroxide value, PV, of 19.7±4.4 meq/kg oil and a content of 1-penten-3-ol of 751.0±69.8ng/g oil) were less oxidized than dextran capsules after 21 days of storage at 20°C (PV of 24.9±0.4 meq/kg oil and 1-penten-3-ol of 1161.0±222.0ng/g oil). This finding may be attributed to differences in oxygen permeability between both types of capsules. These results indicated the potential of both combinations of whey protein, pullulan, and dextran or glucose syrup as shell materials for the encapsulation of omega-3 PUFA in nano-microcapsules obtained by electrospraying.

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Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Research Group for Nano-Bio Science, Technical University of Denmark, Bioinicia
Authors: García Moreno, P. J. (Intern), Pelayo, A. (Ekstern), Yu, S. (Ekstern), Busolo, M. (Ekstern), Chronakis, I. S. (Intern), Jacobsen, C. (Intern)
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Scopus rating (2017): SJR 1.279 SNIP 1.671
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
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Scopus rating (2015): SJR 1.475 SNIP 1.858 CiteScore 3.58
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.496 SNIP 1.96 CiteScore 3.44
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.348 SNIP 1.891 CiteScore 3.1
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.36 SNIP 1.978 CiteScore 2.84
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.334 SNIP 1.911 CiteScore 2.84
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.447 SNIP 1.795
BFI (2009): BFI-level 1
Physico-mechanical and structural properties of eggshell membrane gelatin-chitosan blend edible films

This study investigated the physico-mechanical and structural properties of composite edible films based on eggshell membrane gelatin (G) and chitosan (Ch) (75G:25Ch, 50G:50Ch, 25G:75Ch). The results demonstrated that the addition of Ch increased elongation at break significantly (p<0.05), but resulted in no significant change in tensile strength (TS) using 75G:25Ch, 50G:50Ch mixtures in comparison with gelatin-based film. The water solubility and water vapor permeability of the 50G:50Ch film decreased significantly compared to plain films (100G:0Ch and 0G:100Ch) and other composite films (p<0.05). Fourier transform infrared spectroscopy evaluation of structural properties showed that both polymers are totally miscible. Scanning electron microscopy was used to study the morphology of the composite films; it revealed a homogenous and compact structure in 75G:25Ch and 50G:50 Ch. Also, the chemical interactions introduced by the addition of chitosan to eggshell membrane gelatin as new resources could improve the films' functional properties.

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Authors: Mohammadi, R. (Ekstern), Mohammadifar, M. A. (Intern), Rouhi, M. (Ekstern), Kariminejad, M. (Ekstern), Mortazavian, A. M. (Ekstern), Sadeghi, E. (Ekstern), Hasanvand, S. (Ekstern)
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Scopus rating (2017): SNIP 1.307 SJR 0.917
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Phytase-mediated enzymatic mineralization of chitosan-enriched hydrogels

Hydrogels mineralized with calcium phosphate (CaP) are increasingly popular bone regeneration biomaterials. Mineralization can be achieved by phosphatase enzyme incorporation and incubation in calcium glycerophosphate (CaGP). Gellan gum (GG) hydrogels containing the enzyme phytase and chitosan oligomer were mineralized in CaGP solution and characterized with human osteoblast-like MG63 cells and adipose tissue-derived stem cells (ADSC). Phytase induced CaP formation. Chitosan concentration determined mineralization extent and hydrogel mechanical reinforcement. Phytase-induced mineralization promoted MG63 adhesion and proliferation, especially in the presence of chitosan, and was non-toxic to MG63 cells (with and without chitosan). ADSC adhesion and proliferation were poor without mineralization. Chitosan did not affect ADSC osteogenic differentiation.
Preparation and characterization of biocomposite film based on chitosan and kombucha tea as active food packaging

An active film composed of chitosan and kombucha tea (KT) was successfully prepared using the solvent casting technique. The effect of incorporation of KT at the levels 1%–3% w/w on the physical and functional properties of chitosan film was investigated. The antimicrobial activity of chitosan/KT film against Escherichia coli and Staphylococcus aureus was evaluated using agar diffusion test, and its antioxidant activity was determined using DPPH assay. The results revealed that incorporation of KT into chitosan films improved the water vapor permeability (from 256.7 to 132.1 g cm⁻² h⁻¹ KPa⁻¹ mm) and enhanced the antioxidant activity of the latter up to 59% DPPH scavenging activity. Moreover, the incorporation of KT into the chitosan film increased the protective effect of the film against ultra violet (UV). Fourier transform infrared spectroscopic analysis revealed the chemical interactions between chitosan and the polyphenol groups of KT. In a minced beef model, chitosan/KT film effectively served as an active packaging and extended the shelf life of the minced beef as manifested in the retardation of lipid oxidation and microbial growth from 5.36 to 2.11 log cfu gr⁻¹ in 4 days storage. The present work demonstrates that the chitosan/KT film not only maintains the quality of the minced beef but also, retards microbial growth significantly, extending the shelf life of the minced beef meat up to 3 days; thus, chitosan/KT film is a potential material for active food packaging.

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Authors: Ashrafi, A. (Ekstern), Jokar, M. (Intern)
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Scopus rating (2016): CiteScore 3.84 SJR 0.882 SNIP 1.294
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BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.808 SNIP 1.303 CiteScore 3.38
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.864 SNIP 1.32 CiteScore 3.13
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.848 SNIP 1.431 CiteScore 3.48
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.787 SNIP 1.302 CiteScore 2.77
Prevalence of *Listeria monocytogenes* in European cheeses - A systematic review and meta-analysis

Both in Europe and worldwide cheese has caused important outbreaks of listeriosis and can be a vehicle for transmission of *Listeria monocytogenes* to consumers. A systematic review and meta-analysis were conducted using scientific literature and European Food Safety Authority (EFSA) reports to summarize available data on the prevalence of *L. monocytogenes* in different types of cheeses produced in Europe. Meta-analysis models were used to estimate mean prevalence of the pathogen and to compare prevalence among types of cheeses (fresh, ripened, veined, smear and brined) and cheeses produced using, respectively, pasteurized or un-pasteurized milk. Data from a total of 130,604 samples were analysed. Mean prevalence for presence during 2005-2015 estimated from scientific literature (2.3% with confidence interval (CI): 1.4-3.8%) was more than three times higher than results from EFSA reports (0.7%; CI: 0.5-1.1%). The prevalence differed among types of cheeses including fresh (0.8%; CI: 0.3-1.9%), ripened (2.0%; CI: 0.8-4.9%), veined (2.4%; CI: 0.9-6.3%), smear (5.1%; CI: 1.9-13.1%) and brined (11.8%; CI: 3.5-33.3%). Mean prevalence of *L. monocytogenes* in soft/semi-soft cheeses were not significantly different (P > 0.05) for cheeses produced from pasteurized (0.9%; CI: 0.4-1.9%) or un-pasteurized (1.0%; CI: 0.4-2.2%) milk. For cheese samples reported by EFSA 0.2% CI: 0.1-0.4% had concentration of *L. monocytogenes* above the critical European limits of 100 cfu/g. In addition, this systematic review focused on groups/species of microorganisms suitable as indicator organisms for *L. monocytogenes* in cheeses to reflect the level of production hygiene or as index organisms to assess the prevalence of *L. monocytogenes* in cheeses. However, no suitable indicator or index organisms were identified. The performed meta-analyses improved our understanding of *L. monocytogenes* prevalence in different types of cheeses and provided results that can be useful as input for quantitative microbiological risk assessment modelling.

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**General information**

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  Scopus rating (2016): CiteScore 3.86 SJR 1.492 SNIP 1.709
  Web of Science (2016): Indexed yes
  BFI (2015): BFI-level 1
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  Scopus rating (2014): SJR 1.38 SNIP 1.717 CiteScore 3.27
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  Scopus rating (2013): SJR 1.278 SNIP 1.728 CiteScore 3.14
  ISI indexed (2013): ISI indexed yes
  Web of Science (2013): Indexed yes
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  Scopus rating (2012): SJR 1.245 SNIP 1.931 CiteScore 3.1
  ISI indexed (2012): ISI indexed yes
  Web of Science (2012): Indexed yes
  BFI (2011): BFI-level 1
  Scopus rating (2011): SJR 1.209 SNIP 1.723 CiteScore 2.9
  ISI indexed (2011): ISI indexed yes
  Web of Science (2011): Indexed yes
  BFI (2010): BFI-level 1
  Scopus rating (2010): SJR 1.23 SNIP 1.708
  Web of Science (2010): Indexed yes
  BFI (2009): BFI-level 1
  Scopus rating (2009): SJR 1.213 SNIP 1.691
  Web of Science (2009): Indexed yes
  BFI (2008): BFI-level 1
  Scopus rating (2008): SJR 1.076 SNIP 1.44
  Web of Science (2008): Indexed yes
  Scopus rating (2007): SJR 0.9 SNIP 1.558
  Web of Science (2007): Indexed yes
  Scopus rating (2006): SJR 0.788 SNIP 1.299
  Scopus rating (2005): SJR 0.596 SNIP 1.266
  Scopus rating (2004): SJR 0.568 SNIP 1.066
  Scopus rating (2003): SJR 0.43 SNIP 0.665
  Scopus rating (2002): SJR 0.334 SNIP 0.847
  Scopus rating (2001): SJR 0.44 SNIP 0.831
  Web of Science (2001): Indexed yes
  Scopus rating (2000): SJR 0.366 SNIP 0.58
  Web of Science (2000): Indexed yes
  Scopus rating (1999): SJR 0.382 SNIP 0.485
Prevotella-to-Bacteroides ratio predicts body weight and fat loss success on 24-week diets varying in macronutrient composition and dietary fiber: results from a post-hoc analysis

Background/objectives: Individuals with high pre-treatment bacterial Prevotella-to-Bacteroides (P/B) ratio have been reported to lose more body weight on diets high in fiber than subjects with a low P/B ratio. Therefore, the aim of the present study was to examine potential differences in dietary weight loss responses between participants with low and high P/B. Subjects/methods: Eighty overweight participants were randomized (52 completed) to a 500 kcal/d energy deficit diet with a macronutrient composition of 30 energy percentage (E%) fat, 52 E% carbohydrate and 18 E% protein either high (â‰³1500 mg calcium/day) or low (â‰¤ 600 mg calcium/day) in dairy products for 24 weeks. Body weight, body fat, and dietary intake (by 7-day dietary records) were determined. Individuals were dichotomized according to their pre-treatment P/B ratio derived from 16S rRNA gene sequencing of collected fecal samples to test the potential modification of dietary effects using linear mixed models. Results: Independent of the randomized diets, individuals with high P/B lost 3.8 kg (95%CI, 1.8,5.8; P <0.001) more body weight and 3.8 kg (95% CI, 1.1, 6.5; P = 0.005) more body fat compared to individuals with low P/B. After adjustment for multiple covariates, individuals with high P/B ratio lost 8.3 kg (95% CI, 5.8;10.9, P <0.001) more body weight when consuming above compared to below 30 g fiber/10MJ whereas this weight loss was 3.2 kg (95% CI, 0.8;5.5, P = 0.008) among individuals with low P/B ratio [Mean difference: 5.1 kg (95% CI, 1.7;8.6, P = 0.003)]. Partial correlation coefficients between fiber intake and weight change was 0.90 (P <0.001) among individuals with high P/B ratio and 0.25 (P = 0.29) among individuals with low P/B ratio. Conclusions: Individuals with high P/B lost more body weight and body fat compared to individuals with low P/B, confirming that individuals with a high P/B are more susceptible to weight loss on a diet rich in fiber.
Primary genotoxicity in the liver following pulmonary exposure to carbon black nanoparticles in mice

Background
Little is known about the mechanism underlying the genotoxicity observed in the liver following pulmonary exposure to carbon black (CB) nanoparticles (NPs). The genotoxicity could be caused by the presence of translocated particles or by circulating inflammatory mediators released during pulmonary inflammation and acute-phase response. To address this, we evaluated induction of pulmonary inflammation, pulmonary and hepatic acute-phase response and genotoxicity following exposure to titanium dioxide (TiO2), cerium oxide (CeO2) or CB NPs. Female C57BL/6 mice were exposed by intratracheal instillation, intravenous injection or oral gavage to a single dose of 162 μg NPs/mouse and terminated 1, 28 or 180 days post-exposure alongside vehicle control.

Results
Liver DNA damage assessed by the Comet Assay was observed after intravenous injection and intratracheal instillation of CB NPs but not after exposure to TiO2 or CeO2. Intratracheal exposure to NPs resulted in pulmonary inflammation in terms of increased neutrophils influx for all NPs 1 and 28 days post-exposure. Persistent pulmonary acute phase response was detected for all NPs at all three time points while only a transient induction of hepatic acute phase response was observed. All 3 materials were detected in the liver by enhanced darkfield microscopy up to 180 days post-exposure. In contrast to TiO2 and CeO2 NPs, CB NPs generated ROS in an acellular assay.

Conclusions
Our results suggest that the observed hepatic DNA damage following intravenous and intratracheal dosing with CB NPs was caused by the presence of translocated, ROS-generating, particles detected in the liver rather than by the secondary effects of pulmonary inflammation or hepatic acute phase response.

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Production and Application of Lysozyme-Gum Arabic Conjugate in Mayonnaise as a Natural Preservative and Emulsifier

Nowadays demand for food products made by natural sources is rising so fast. In this work Lysozyme (Lyz) was conjugated with gum Arabic (GA) in order to be applied in mayonnaise, at which the presence of both preservative and emulsifier is essential. Interestingly, the Lyz-GA conjugate exhibited improved functional properties and antibacterial activity. In order to approve the results of this study, the Lyz-GA conjugate was applied to mayonnaise as a natural preservative and emulsifier. Application of the Lyz-GA conjugate in mayonnaise expedited the death rate of both S. aureus and E. coli K-12. The observation proved that conjugations of Lyz with GA increased the spectrum of its application in food products with improved antibacterial activity. Surprisingly, investigation of emulsion stability and rheological properties confirmed the improved emulsification role of Lyz-GA conjugate with a higher elasticity in the mayonnaise. Mayonnaise
including conjugates showed a linear rheological response and shear-thinning behavior. Sensory analysis of the mayonnaise with Lyz-GA conjugate was completely consistent with the commercial one. Taken together, our results suggest that conjugation of Lyz with GA made possible the application of a natural preservative and emulsifier in food and pharmaceutical industries, whereas Lyz alone does not have a broad-spectrum antibacterial activity or emulsifying properties.

**Production method and cost of commercial-scale offshore cultivation of kelp in the Faroe Islands using multiple partial harvesting**

The current work aimed to develop a cultivation method for macroalgae that can be applicable and economically profitable in the Atlantic Ocean. An offshore long-line macroalgal cultivation rig was designed by Ocean Rainforest Spff, tested in the Faroe Islands from 2010, and found suitable for cultivation in exposed and deep-water locations (water depth>50m). The economic risk related to lost cultivation structures was hereafter considered to be low. Saccharina latissima and Alaria esculenta were cultivated in commercial scale (5km of growth lines). A high cost of seeding material and cost of
deployment was reduced by testing multiple partial harvesting. Four non-destructive harvests were carried out in a two-year growth period without re-seeding of lines. In total, 3.2t dry weight (dw) biomass was harvested and sold to customers within the food and cosmetic industries. The productivity was 1437.5kgdwha−1yr−1 (including handling space). The 10-meter vertical growth lines had an average yield of 0.29kgdwm−1 per harvest and four partial harvests were made over a 2-year period. An economic analysis showing the cost structure of important aspects of offshore macroalgae cultivation was conducted. The total cost per kg dw of cultivated S. latissima decreased when the number of possible harvests without re-seeding was increased (from € 36.73 to € 9.27). This work has demonstrated that large-scale kelp cultivation is possible using multiple partial harvesting in the Faroe Islands, and highlighted the need for further innovation to lower the cost per unit macroalgal produced.

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Authors: Grandorf Bak, U. (Intern), Mols-Mortensen, A. (Ekstern), Gregersen, O. (Ekstern)
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Scopus rating (2017): SJR 1.142 SNIP 1.171
Web of Science (2017): Indexed Yes
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Scopus rating (2016): CiteScore 4.45 SJR 1.465 SNIP 1.141
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Scopus rating (2015): SJR 1.963 SNIP 1.618 CiteScore 5.53
Scopus rating (2014): SJR 1.902 SNIP 1.598 CiteScore 4.96
Scopus rating (2013): SJR 1.424 SNIP 1.119 CiteScore 4.17
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Quantitative risk assessment of hemolytic uremic syndrome associated with consumption of bulk milk sold directly from producer to consumer in South Africa
This study was conducted to estimate the hemolytic uremic syndrome (HUS) risk associated with consumption of producer-distributor bulk milk (PDBM) contaminated with Shiga toxin-producing Escherichia coli (STEC) in South Africa. Data were obtained from recently completed studies in South Africa taking into account prior collected prevalence data of STEC in raw and pasteurized PDBM and survey information from producer-distributor outlets and households. Inputs for the models were complemented with data from published and unpublished literature. A probabilistic exposure model was developed with Monte Carlo simulation in Excel add-in software using @Risk software. Hazard characterization was based on an exponential dose-response model to calculate the probability of illness from STEC infection in individuals 5 years and younger and individuals older than 5 years. The estimated mean STEC level was 0.12 CFU/mL (95% confidence interval [CI]: 0 to 1.2; r Åâ% 0.34) for raw PDBM and 0.08 CFU/mL (95% CI: 0 to 1; r Åâ% 0.27) for pasteurized PDBM. A higher risk of HUS cases per year was recorded in raw than in pasteurized PDBM and also in individuals younger than 5 years of age. For every 100,000 servings consumed, the expected median numbers of HUS cases per year from raw PDBM were 52 for 5 years and younger and 3.2 for older than 5 years. The median numbers of cases per year for pasteurized PDBM were 47 for 5 years and younger and 2.9 for older than 5 years. Sensitivity analysis revealed that serving volume and time taken to sell PDBM at producer-distributor outlets were the factors with the greatest impact on probability of illness. The models developed in this study are an example of risk assessments for milk produced and marketed from similar scenarios across the globe.
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Authors: Ntuli, V. (Ekstern), Njage, P. M. K. (Intern), Bonilauri, P. (Ekstern), Serraino, A. (Ekstern), Buys, E. M. (Ekstern)
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BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.954 SNIP 1.024 CiteScore 2.03
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.914 SNIP 0.953 CiteScore 1.94
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Scopus rating (2012): SJR 1.083 SNIP 0.981 CiteScore 2.03
ISI indexed (2012): ISI indexed yes
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BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.994 SNIP 0.958 CiteScore 1.96
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.011 SNIP 0.949
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.119 SNIP 1.147
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 1.064 SNIP 0.996
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.043 SNIP 1.143
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.151 SNIP 1.198
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 1.098 SNIP 1.118
Web of Science (2005): Indexed yes
Redox reactions in food fermentations

Food fermentations are typically performed without actively supplying air. Except for possible surface microorganisms, oxygen will only be transiently available and the redox reactions during the fermentation need to be in balance. Production of ATP from fermentation of carbohydrates typically involves oxidative steps in the early part of the pathways whereas a multitude of different reactions are used as compensating reductions. Much of the diversity seen between food fermentations arise from the different routes and the different electron acceptors used by microorganisms to counterbalance the initial oxidative steps.

This review gives a short overview of the routes employed by microorganisms in food fermentations to find ultimate electron acceptors allowing them to balance their fermentative metabolism.

The diversity of acceptors used leads to diversity of metabolic end products and this contributes to the diversity in flavor, color, texture, and shelf life. The review concludes that these reactions are still only incompletely understood and that they represent an interesting area for fundamental research and also represent a fertile field for product development through a more conscious use of the redox properties of strains used to compose food cultures.

Relative validity of a web-based food frequency questionnaire for Danish adolescents

With increased focus on dietary intake among youth and risk of diseases later in life, it is of importance, prior to assessing diet-disease relationships, to examine the validity of the dietary assessment tool. This study's objective was to evaluate the relative validity of a self-administered web-based FFQ among Danish children aged 12 to 15 years. From a nested sub-cohort within the Danish National Birth Cohort, 124 adolescents participated. Four weeks after completion of the FFQ, adolescents were invited to complete three telephone-based 24HRs; administered 4 weeks apart. Mean or median intakes of nutrients and food groups estimated from the FFQ were compared with the mean of 3x24HRs. To assess the level of ranking we calculated the proportion of correctly classified into the same quartile, and the proportion of misclassified (into
the opposite quartile). Spearman's correlation coefficients and de-attenuated coefficients were calculated to assess agreement between the FFQ and 24HRs. The mean percentage of all food groups, for adolescents classified into the same and opposite quartile was 35 and 7.5%, respectively. Mean Spearman's correlation was 0.28 for food groups and 0.35 for nutrients, respectively. Adjustment for energy and within-person variation in the 24HRs had little effect on the magnitude of the correlations for food groups and nutrients. We found overestimation by the FFQ compared with the 24HRs for fish, fruits, vegetables, oils and dressing and underestimation by the FFQ for meat/poultry and sweets. Median intake of beverages, dairy, bread, cereals, the mean total energy and carbohydrate intake did not differ significantly between the two methods. The relative validity of the FFQ compared with the 3x24HRs showed that the ranking ability differed across food groups and nutrients with best ranking for estimated intake of dairy, fruits, and oils and dressing. Larger variation was observed for fish, sweets and vegetables. For nutrients, the ranking ability was acceptable for fatty acids and iron. When evaluating estimates from the FFQ among Danish adolescents these findings should be considered.

**General information**

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Scopus rating (2015): SJR 1.165 SNIP 1.149 CiteScore 2.87
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BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.055 SNIP 1.227 CiteScore 2.68
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Scopus rating (2011): SJR 1.087 SNIP 1.286 CiteScore 2.97
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.994 SNIP 1.103
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.996 SNIP 1.175
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 0.873 SNIP 1.163
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.796 SNIP 1.11
Scopus rating (2006): SJR 0.772 SNIP 1.182
Rheological and sensory properties and aroma compounds formed during ripening of soft brined cheese made from camel milk

Protein degradation, rheological properties, sensory properties and the aroma profile of soft brined cheese made from camel milk using two levels of coagulant (camel chymosin) [55 and 85 International Milk Clotting Units (IMCU) L⁻¹] and two levels of brine (2% or 5% NaCl, w/w) were investigated over a ripening period of 60 d. Casein degradation in soft brined camel milk cheese significantly (p <0.05) increased during ripening and with increase of coagulant level. Young's modulus and stress at fracture significantly (p <0.05) increased with increasing level of salt in moisture in the cheese during ripening. However, cheese made with 85 IMCU L⁻¹ coagulant resulted in softening of cheese texture and higher salt uptake. Using descriptive sensory analysis, the experimental cheeses were described as salty, sour and firm. The volatile aroma compounds formed in soft ripened camel milk cheese are affected by ripening time, and coagulant and NaCl levels.

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, University of Copenhagen, University of Botswana, Haramaya University
Authors: Hailu, Y. (Ekstern), Hansen, E. B. (Intern), Seifu, E. (Ekstern), Eshetu, M. (Ekstern), Petersen, M. A. (Ekstern), Lametsch, R. (Ekstern), Rattray, F. (Ekstern), Ipsen, R. (Ekstern)
Pages: 122-130
Publication date: 2018
Main Research Area: Technical/natural sciences

Publication information
Journal: International Dairy Journal
Volume: 81
ISSN (Print): 0958-6946
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 1.031 SJR 1.051
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 2.34 SJR 1.124 SNIP 1.272
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 0.961 SNIP 1.15 CiteScore 2.18
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.06 SNIP 1.174 CiteScore 2.24
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.239 SNIP 1.394 CiteScore 2.79
Rheological behaviour, sensory properties and syneresis of probiotic yoghurt supplemented with various prebiotics

The main aim of this study was to investigate the effects of addition of six different prebiotic compounds (inulin, lactulose, lactitol, Hi-maize, maltodextrin and β-glucan) on syneresis, sensory attributes and rheological characteristics (elastic modulus, viscous modulus, loss tangent, complex modules) of probiotic yoghurt. The results revealed that the inclusion of the prebiotic compounds into the probiotic yoghurt profoundly affected the products’ syneresis, as well as the sensory and rheological characteristics of the probiotic yoghurts compared with control samples. On the whole, production of probiotic yoghurts supplemented with 1.5% Hi-maize or 1.5% β-glucan is strongly recommended because these additions provided products with satisfactory rheological, syneresis and sensory properties.

General information
State: Published
Organisations: National Food Institute, Research Group for Food Production Engineering, Islamic Azad University, Tarbiat Modares University, Shahid Beheshti University of Medical Sciences
Authors: Heydari, S. (Ekstern), Amiri-Rigi, A. (Ekstern), Ehsani, M. R. (Ekstern), MohammadiFar, M. A. (Intern), Khoshidian, N. (Ekstern), Koushki, M. R. (Ekstern), Mortazavian, A. M. (Ekstern)
Pages: 175-184
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Main Research Area: Technical/natural sciences

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Journal: International Journal of Dairy Technology
Volume: 71
Issue number: S1
ISSN (Print): 1364-727X
Ratings:
Risikovurdering af rabarberblade som fødevare

General information
State: Published
Organisations: National Food Institute, Research Group for Risk-Benefit, Division of Risk Assessment and Nutrition
Authors: Pilegaard, K. (Intern), Eriksen, F. D. (Intern), Ravn-Haren, G. (Intern), Bredsdorff, L. (Intern), Egebjerg, M. M. (Intern), Olesen, P. T. (Intern)
Number of pages: 7
Publication date: 2018
Main Research Area: Technical/natural sciences
SCCmecFinder, a Web-Based Tool for Typing of Staphylococcal Cassette Chromosome mec in Staphylococcus aureus Using Whole-Genome Sequence Data

Typing of methicillin-resistant Staphylococcus aureus (MRSA) is important in infection control and surveillance. The current nomenclature of MRSA includes the genetic background of the S. aureus strain determined by multilocus sequence typing (MLST) or equivalent methods like spa typing and typing of the mobile genetic element staphylococcal cassette chromosome mec (SCCmec), which carries the mecA or mecC gene. Whereas MLST and spa typing are relatively simple, typing of SCCmec is less trivial because of its heterogeneity. Whole-genome sequencing (WGS) provides the essential data for typing of the genetic background and SCCmec, but so far, no bioinformatic tools for SCCmec typing have been available. Here, we report the development and evaluation of SCCmecFinder for characterization of the SCCmec element from S. aureus WGS data. SCCmecFinder is able to identify all SCCmec element types, designated I to XIII, with subtyping of SCCmec types IV (2B) and V (5C2). SCCmec elements are characterized by two different gene prediction approaches to achieve correct annotation, a Basic Local Alignment Search Tool (BLAST)-based approach and a k-mer-based approach. Evaluation of SCCmecFinder by using a diverse collection of clinical isolates (n = 93) showed a high typeability level of 96.7%, which increased to 98.9% upon modification of the default settings. In conclusion, SCCmecFinder can be an alternative to more laborious SCCmec typing methods and is freely available at https://cge.cbs.dtu.dk/services/SCCmecFinder. IMPORTANCE SCCmec in MRSA is acknowledged to be of importance not only because it contains the mecA or mecC gene but also for staphylococcal adaptation to different environments, e.g., in hospitals, the community, and livestock. Typing of SCCmec by PCR techniques has, because of its heterogeneity, been challenging, and whole-genome sequencing has only partially solved this since no good bioinformatic tools have been available. In this article, we describe the development of a new bioinformatic tool, SCCmecFinder, that includes most of the needs for infection control professionals and researchers regarding the interpretation of SCCmec elements. The software detects all of the SCCmec elements accepted by the International Working Group on the Classification of Staphylococcal Cassette Chromosome Elements, and users will be prompted if diverging and potential new elements are uploaded. Furthermore, SCCmecFinder will be curated and updated as new elements are found and it is easy to use and freely accessible.
Sensory, Digestion and Texture Quality of Commercial Gluten-Free Bread: Impact of Broken Rice Flour Type

This research investigated the effects of two varieties of broken rice (Khouzestan and Lenjan) from warm and dry regions, and two (Hashemi and Tarom) from mild and humid regions on different parameters including dough rheology, digestibility and quality (color, specific volume, textural properties and sensorial properties) of a commercial gluten-free bread. Furthermore, the rice varieties' hydration properties, gelatinization temperatures and starch-granule morphology were assessed. Significant differences were observed in the varieties' proximate composition and hydration properties from both climate zones. The granules' average size was 3.17-4.9 µm. The specific volume of the breads showed no correlation with either the damaged starch content or the amylose content, but had a significant negative correlation with hardness (r = -0.923, P<0.05). The crumb hardness of bread was positively correlated with water-binding capacity and was affected by elastic modulus of dough. Results of predicted glycemic index were in accordance with total carbohydrates. Khouzestan received the highest score in sensory evaluation test. Based on the outcomes for bread-quality attributes, Khouzestan from the warm and dry region, which is a cheaper rice variety in Iran, was the most appropriate variety for gluten-free bread production. Moreover, it was determined that the rice varieties currently used in commercial manufacture of gluten-free bread do not necessarily yield the highest-quality bread.
Soil Fertility Dynamics of Ultisol as influenced by greengram and mucuna green manures

Synchronisation between supply of plant available nutrients to crops’ needs and uptake is a major challenge in Sub-Saharan Africa. Experiments were set to evaluate release patterns and availability of nutrients by leguminous green manures in soil. Mucuna and greengram materials were buried 10 cm in mesh bags. Replicated bags removed weekly and analysed to determine decomposition rates and quantities of nutrients released into soil. Mucuna decomposition was faster compared to greengram, from third to twelve weeks of incubation. This implies that greengram has relatively more resistant materials to decomposition compared to mucuna. Maximum effect on soil nutrient content occurred in sixth and seventh weeks after application of green manures. Total organic C in soils increased by a factor of 2.3 to 3.2. Total N increased significantly from 1.28% to 2.64% at sixth week in soil with greengram and 2.83% at seventh week in soil with mucuna. Available P content of soil increased from 0.03 to 0.39 and 0.37 mg kg⁻¹ in soil treated with greengram and mucuna. Optimum microbial population was attained from fifth to seventh week after manure application, with 2.3 × 10⁸ in soil with greengram and 3.08 × 10⁸ with mucuna, significantly improved compared to original population.
Sorption of fluorescent polystyrene microplastic particles to edible seaweed Fucus vesiculosus

Increased global demands for food have raised interest for seaweed as a healthy and sustainable food source. At the same time, the large amounts of microplastic in the oceans have raised concern in relation to pollution of seafood including sea vegetables. The aim of this study was to examine sorption of fluorescent polystyrene (PS) microplastic particles to edible macroalgae (seaweed) Fucus vesiculosus, and to investigate to what extent adsorbed PS particles could be washed off, using an industrial relevant method. PS microplastic particles (diameter of 20 μm) were used in a concentration of 2.65 mg L⁻¹ (corresponding to 597 particles per mL) in filtrated seawater (50 mL) to treat F. vesiculosus distal tips in blue cap flasks (100 mL) placed in a rotary box for 2 h. Results showed sorption of PS microplastic particles to F. vesiculosus analysed by microscopy and a significant reduction of 94.5% by washing. These results were based on high microplastic concentrations, not comparable to natural conditions/concentrations. Nonetheless, this study provides methodological and mechanistic insights into procedures for investigating the sorption of microplastics to seaweed, for which there is currently no established standardised method.

General information
State: Accepted/In press
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Department of Environmental Engineering, Technical University of Denmark
Authors: Sundbæk, K. B. (Ekstern), Due Würtzner Koch, I. (Ekstern), Greve Villaro, C. (Ekstern), Rasmussen, N. S. (Ekstern), Løvstad Holdt, S. (Intern), Hartmann, N. B. (Intern)
Number of pages: 5
Publication date: 2018
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Applied Phycology
ISSN (Print): 0921-8971
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.46
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 2.32
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 2.88
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 2.78
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 2.68
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 2.29
Sources of Antibiotic Resistance Genes in a Rural River System

**General information**

State: Accepted / In press  
Organisations: National Food Institute, Research Group for Analytical and Predictive Microbiology, Dalhousie University, University of Regina, Acadia University  
Authors: McConnell, M. M. (Ekstern), Hansen, L. T. (Intern), Neudorf, K. D. (Ekstern), Hayward, J. (Ekstern), Jamieson, R. C. (Ekstern), Yost, C. K. (Ekstern), Tong, A. (Ekstern)  
Number of pages: 9  
Publication date: 2018  
Main Research Area: Technical/natural sciences

**Publication information**

Journal: Journal of Environmental Quality  
ISSN (Print): 0047-2425  
Ratings:  
BFI (2018): BFI-level 2  
Web of Science (2018): Indexed yes  
BFI (2017): BFI-level 2  
Scopus rating (2017): SNIP 1.066 SJR 1.092  
Web of Science (2017): Indexed Yes  
BFI (2016): BFI-level 2  
Scopus rating (2016): CiteScore 2.51 SJR 1.065 SNIP 1.157  
BFI (2015): BFI-level 2  
Scopus rating (2015): SJR 1.269 SNIP 1.237 CiteScore 2.69  
Web of Science (2015): Indexed yes  
BFI (2014): BFI-level 2  
Scopus rating (2014): SJR 1.268 SNIP 1.28 CiteScore 2.66  
Web of Science (2014): Indexed yes  
BFI (2013): BFI-level 2  
Scopus rating (2013): SJR 1.325 SNIP 1.279 CiteScore 2.7  
ISI indexed (2013): ISI indexed yes  
BFI (2012): BFI-level 2  
Scopus rating (2012): SJR 1.364 SNIP 1.23 CiteScore 2.51  
ISI indexed (2012): ISI indexed yes  
BFI (2011): BFI-level 2  
Scopus rating (2011): SJR 1.478 SNIP 1.364 CiteScore 2.53  
ISI indexed (2011): ISI indexed yes

ISI indexed (2011): ISI indexed yes  
Web of Science (2011): Indexed yes  
BFI (2010): BFI-level 1  
Web of Science (2010): Indexed yes  
BFI (2009): BFI-level 1  
BFI (2008): BFI-level 1  
Web of Science (2008): Indexed yes  
Web of Science (2007): Indexed yes  
Web of Science (2003): Indexed yes  
Web of Science (2002): Indexed yes  
Web of Science (2001): Indexed yes  
Original language: English  
Aquatic Science, Plant Science, Adsorption, Bladderwrack, Macroalgae, Marine litter, Plastic debris, Sea vegetables  
DOIs:  
10.1007/s10811-018-1472-8  
Source: Findit  
Source-ID: 2434549806  
Publication: Research - peer-review › Journal article – Annual report year: 2018
SpaSM: A MATLAB Toolbox for Sparse Statistical Modeling

Applications in biotechnology such as gene expression analysis and image processing have led to a tremendous development of statistical methods with emphasis on reliable solutions to severely underdetermined systems. Furthermore, interpretations of such solutions are of importance, meaning that the surplus of inputs has been reduced to a concise model. At the core of this development are methods which augment the standard linear models for regression, classification and decomposition such that sparse solutions are obtained. This toolbox aims at making public available carefully implemented and well-tested variants of the most popular of such methods for the MATLAB programming environment. These methods consist of easy-to-read yet efficient implementations of various coefficient-path following algorithms and implementations of sparse principal component analysis and sparse discriminant analysis which are not available in MATLAB. The toolbox builds on code made public in 2005 and which has since been used in several studies.

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, National Food Institute, Image Analysis & Computer Graphics, EXINI Diagnostics AB
Authors: Sjöstrand, K. (Ekstern), Clemmensen, L. H. (Intern), Larsen, R. (Intern), Einarsson, G. (Intern), Ersbøll, B. K. (Intern)
Number of pages: 37
Publication date: 2018
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Statistical Software
Volume: 84
Issue number: 10
ISSN (Print): 1548-7660
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
Streptococcus sanguinis and Streptococcus gordonii: virulence factors in the pan and core-genomes of clinical strains isolated from patients with infective endocarditis

General information
State: Published
Organisations: Department of Bio and Health Informatics, Metagenomics, National Food Institute, Statens Serum Institut, Slagelse Sygehus, Psychiatric Center Copenhagen, Rigshospitalet, University of Southern Denmark
Authors: Iversen, K. H. (Intern), Hesselbjerg Rasmussen, L. (Ekstern), Jensen, C. S. (Ekstern), Chen Nielsen, X. (Ekstern), Rasmussen, S. (Intern), Dargis, R. (Ekstern), Justesen, U. S. (Ekstern), Lukjancenko, O. (Intern), Moser, C. E. (Ekstern), Christensen, J. J. (Ekstern)
Number of pages: 1
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Event: Poster session presented at 28th European Congress of Clinical Microbiology and Infectious Diseases, Madrid, Spain.
Main Research Area: Technical/natural sciences
Structure dependent antioxidant capacity of phlorotannins from Icelandic Fucus vesiculosus by UHPLC-DAD-ECD-QTOFMS

Brown algae are rich in polyphenolic compounds, phlorotannins, which have been found to possess high in vitro antioxidant capacity, especially DPPH radical scavenging activity, due to the high number of hydroxyl groups. Whereas, the overall antioxidant capacity of brown algae extracts has been widely studied, the antioxidant capacity of individual phlorotannins has been rarely explored. The aim of this study was to determine the structure dependant antioxidant capacity of phlorotannins from Icelandic brown algae, Fucus vesiculosus. The antioxidant capacity of individual phlorotannins was determined by an on-line method using liquid chromatography and an electrochemical detector followed by quadrupole Time of Flight mass spectrometry (UHPLC-DAD-ECD-QTOFMS). Tentative structural elucidation of 13 phlorotannin isomers from EAF was obtained by LC-DAD-QTOFMS, ranging from 374 to 870 Da. On-line determination of antioxidant capacity of the individual phlorotannins generally showed that low molecular phlorotannins exhibited higher antioxidant capacity and that the capacity decreased with polymerisation.
Supporting smallholders in organic crop cultivation in East Africa

General information
State: Published
Organisations: National Food Institute, University of Nairobi, University of Copenhagen, Sokoine University of Agriculture, Aarhus University
Authors: Onwonga, R. N. (Ekstern), Sibuga, K. P. (Ekstern), Nduku, H. (Ekstern), Sigsgaard, L. (Ekstern), Saria, A. (Ekstern), Shechambo, L. (Ekstern), Caceres, M. M. (Ekstern), Chepkoech, C. (Ekstern), Genga, Q. (Ekstern), Wahome, R. (Ekstern), Halberg, N. (Ekstern), Jensen, H. H. (Intern)
Number of pages: 14
Publication date: 2018

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ISBN (Print): 9781786761842
Main Research Area: Technical/natural sciences
Source: PublicationPreSubmission
Source-ID: 143605405
Publication: Research - peer-review › Book chapter – Annual report year: 2018
Surveillance of Foodborne Pathogens: Towards Diagnostic Metagenomics of Fecal Samples

Diagnostic metagenomics is a rapidly evolving laboratory tool for culture-independent tracing of foodborne pathogens. The method has the potential to become a generic platform for detection of most pathogens and many sample types. Today, however, it is still at an early and experimental stage. Studies show that metagenomic methods, from sample storage and DNA extraction to library preparation and shotgun sequencing, have a great influence on data output. To construct protocols that extract the complete metagenome but with minimal bias is an ongoing challenge. Many different software strategies for data analysis are being developed, and several studies applying diagnostic metagenomics to human clinical samples have been published, detecting, and sometimes, typing bacterial infections. It is possible to obtain a draft genome of the pathogen and to develop methods that can theoretically be applied in real-time. Finally, diagnostic metagenomics can theoretically be better geared than conventional methods to detect co-infections. The present review focuses on the current state of test development, as well as practical implementation of diagnostic metagenomics to trace foodborne bacterial infections in fecal samples from animals and humans.

General information
State: Published
Organisations: National Food Institute, Research Group for Analytical and Predictive Microbiology
Authors: Andersen, S. C. (Intern), Hoorfar, J. (Intern)
Number of pages: 11
Publication date: 2018
Main Research Area: Technical/natural sciences

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Journal: Genes
Volume: 9
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Article number: 14
ISSN (Print): 2073-4425
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.856 SJR 1.82
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.62 SJR 1.951 SNIP 0.782
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.743 SNIP 0.718 CiteScore 3.18
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.838 SNIP 0.484 CiteScore 1.33
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.807 SNIP 0.394 CiteScore 1.36
ISI indexed (2013): ISI indexed no
Scopus rating (2012): SJR 0.843 SNIP 0.406 CiteScore 1.45
ISI indexed (2012): ISI indexed no
Scopus rating (2011): SJR 0.473 SNIP 0.175 CiteScore 0.94
ISI indexed (2011): ISI indexed no
Original language: English
culture independent, fecal sample, shotgun metagenomics, next generation sequencing, Genetics, QH426-470
Electronic versions:
genes_09_00014.pdf
DOIs:
10.3390/genes9010014
Source: FindIt
Source-ID: 2395095519
Publication: Research - peer-review › Journal article – Annual report year: 2018
The effect of rosemary (Rosmarinus officinalis L.) extract on the oxidative stability of lipids in cow and soy milk enriched with fish oil

Lipid oxidation of fish oil enriched cow milk and soy milk supplemented with rosemary extract stored at 2°C was studied. Both peroxide value and volatile secondary lipid oxidation products were determined to monitor the progress of lipid oxidation. Rosemary extract inhibited lipid oxidation in fish oil enriched cow milk. In contrast, soy milk samples having much higher unsaturated fatty acid content showed higher lipid oxidation stability compared to cow milk. Reduction in the content of chlorogenic acid during storage suggested that this compound may contribute to the lipid oxidation stability of fish oil enriched soy milk product. Total carnosic acid and carnosol concentration declined much faster in soy milk than in cow milk. It is suggested from the results that food components could have significant impact on the fate of bioactive antioxidant compounds in a specific food product during storage.

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Jimei University
Authors: Qiu, X. (Ekstern), Jacobsen, C. (Intern), Sørensen, A. M. (Intern)
Pages: 119-126
Publication date: 2018
Main Research Area: Technical/natural sciences

Publication information
Journal: Food Chemistry
Volume: 263
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Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 2.109 SJR 1.793
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 4.85 SJR 1.731 SNIP 2.095
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.582 SNIP 1.946 CiteScore 4.31
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.557 SNIP 2.01 CiteScore 3.92
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.554 SNIP 2.056 CiteScore 3.87
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.762 SNIP 2.342 CiteScore 3.98
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.911 SNIP 2.383 CiteScore 4.17
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 1.981 SNIP 2.253
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 1.789 SNIP 2.023
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 1.47 SNIP 1.706
The impact of atmospheric cold plasma treatment on inactivation of lipase and lipoxygenase of wheat germ

Wheat germ is a by-product of milling process which contains large amount of nutrients. The shelf life of wheat germ could improve by inactivation of destructive endogenous enzymes especially lipase and lipoxygenase. In this work, the impact of atmospheric cold plasma treatment on the inactivation of lipase and lipoxygenase enzymes of wheat germ was studied. Dielectric barrier discharge plasma was utilized to treat wheat germs. The impact of treatment time and voltage of plasma on the inactivation of lipase and lipoxygenase were investigated as well. The higher voltage and treatment time led to higher inactivation, however, the inactivation of lipase and lipoxygenase was not significant after 25 min treatment time. The DPPH radical scavenging activity and total phenolic of treated samples did not change significantly compared to controlled samples. However lipase and lipoxygenase recovered some of their loss activity during the storage. The recovery of activity was higher for lipase compared to lipoxygenase. According to the overall results, the cold plasma could be introduced as a new potential to stabilize the wheat germ and extending its shelf-life.

General information
State: Published
Organisations: National Food Institute, Research Group for Food Production Engineering, Shahid Beheshti University of Medical Sciences, Shahid Beheshti University, Knowledge-based Center of Zar Research and Industrial Group, Agricultural Research Education and Extension Organization
Authors: Tolouie, H. (Ekstern), Mohammadifar, M. A. (Intern), Ghomi, H. (Ekstern), Yaghoubi, A. S. (Ekstern), Hashemi, M. (Ekstern)
Pages: 346-352
Publication date: 2018
Main Research Area: Technical/natural sciences

Publication information
Journal: Innovative Food Science and Emerging Technologies
Volume: 47
ISSN (Print): 1466-8564
Ratings:
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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SJR 1.201 SNIP 1.194
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.54 SJR 1.431 SNIP 1.386
Web of Science (2016): Indexed yes
The Impact of Cooling Rate on the Safety of Food Products as Affected by Food Containers

In recent decades, the demand for ready-to-eat (RTE) food items prepared by the food catering sector has increased together with the value of cook-serve, cook-chill, and cook-freeze food products. The technologies by which foods are cooked, chilled, refrigerated for storage, and reheated before serving are of prime importance to maintain safety. Packaging materials and food containers play an important role in influencing the cooling rate of RTE foods. Food items that are prepared using improper technologies and inappropriate packaging materials may be contaminated with foodborne pathogens. Numerous research studies have shown the impact of deficient cooling technologies on the survival and growth of foodborne pathogens, which may subsequently pose a threat to public health. The operating temperatures and cooling rates of the cooling techniques applied must be appropriate to inhibit the growth of pathogens. Food items must be stored outside the temperature danger zone, which is between 5 and 60 °C, in order to inhibit the growth of these pathogens. The cooling techniques used to prepare potentially hazardous foods, such as cooked meat, rice, and pasta, must be properly applied and controlled to ensure food safety. This paper critically reviews the effects of cooling and its relationship to food containers on the safety of RTE foods produced and sold through the food service industry.

General information
State: Accepted/in press
Organisations: National Food Institute, Research Group for Genomic Epidemiology, Curtin University, University of Ruhuna, University of Pretoria
Authors: Coorey, R. (Ekstern), Ng, D. S. H. (Ekstern), Jayamanne, V. S. (Ekstern), Buys, E. M. (Ekstern), Munyard, S. (Ekstern), Mousley, C. J. (Ekstern), Njage, P. M. K. (Intern), Dykes, G. A. (Ekstern)
The influence of microplastics and halogenated contaminants in feed on toxicokinetics and gene expression in European seabass (Dicentrarchus labrax)

When microplastics pollute fish habitats, it may be ingested by fish, thereby contaminating fish with sorbed contaminants. The present study investigates how combinations of halogenated contaminants and microplastics associated with feed are able to alter toxicokinetics in European seabass and affect the fish. Microplastic particles (2%) were added to the feed either with sorbed contaminants or as a mixture of clean microplastics and chemical contaminants, and compared to feed containing contaminants without microplastics. For the contaminated microplastic diet, the accumulation of polychlorinated biphenyls (PCBs) and brominated flame retardants (BFRs) in fish was significantly higher, increasing up to 40 days of accumulation and then reversing to values comparable to the other diets at the end of accumulation. The significant gene expression results of liver (cyp1a, il1β, gstα) after 40 days of exposure indicate that microplastics might indeed exacerbate
the toxic effects (liver metabolism, immune system, oxidative stress) of some chemical contaminants sorbed to microplastics. Seabass quickly metabolised BDE99 to BDE47 by debromination, probably mediated by deiodinase enzymes, and unlike other contaminants, this metabolism was unaffected by the presence of microplastics. For the other PCBs and BFRs, the elimination coefficients were significantly lower in fish fed the diet with contaminants sorbed to microplastic compared to the other diets. The results indicate that microplastics affects liver detoxification and lipid distribution, both of which affect the concentration of contaminants.

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Authors: Granby, K. (Intern), Rainieri, S. (Ekstern), Rasmussen, R. R. (Intern), Kotterman, M. J. (Ekstern), Sloth, J. J. (Intern), Cederberg, T. L. (Intern), Barranco, A. (Ekstern), Marques, A. (Ekstern), Larsen, B. K. (Intern)
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Scopus rating (2009): SJR 1.506 SNIP 1.384
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Scopus rating (2008): SJR 1.372 SNIP 1.39
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Scopus rating (2006): SJR 1.198 SNIP 1.506
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Scopus rating (2004): SJR 0.824 SNIP 0.973
Scopus rating (2003): SJR 0.752 SNIP 1.195
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The influence of processing conditions on the weight change of single herring (Clupea herengus) fillets during marinating

One of the main issues in the manufacturing of marinated herring is the variation in yield, which in turn, is affected by the processing conditions and the variance in fat content. In the present work, we study these effects on individual herring fillets, with focus on the intermediate brining process. Brining time, brine concentration, marinade composition and storage time were varied. For brine concentrations 8%, 16% and 26%, the diffusion coefficient was $2.31 \times 10^{-9}$ m$^2$ s$^{-1}$, which was used for model development of salt change prediction in herring during brining. Conducting experiments on single fillets revealed a correlation between the fat content and the weight change after 35 days of marinating. The greatest change occurred within the first few days and only minor changes were seen during the storage period of up to one year. These results contribute to a better understanding of the herring marinating process, which can aid the optimization process in the industry.
The use of synthetic and natural vitamin D sources in pig diets to improve meat quality and vitamin D content

This study investigated the effects of synthetic and natural sources of vitamin D biofortification in pig diets on pork vitamin D activity and pork quality. One hundred and twenty pigs (60 male, 60 female) were assigned to one of four dietary treatments for a 55d feeding period. The dietary treatments were (1) 50μg vitamin D₃/kg of feed; (2) 50μg of 25-hydroxvitamin D₃/kg of feed (25-OH-D₃); (3) 50μg vitamin D₂/kg of feed; (4) 50μg vitamin D₂-enriched mushrooms/kg of feed (Mushroom D₂). The pigs offered the 25-OH-D₃ diet exhibited the highest (P<0.001) serum total 25-hydroxyvitamin D concentration and subsequently exhibited the highest (P<0.05) Longissimus thoracis (LT) total vitamin D activity. Mushroom D₂ and 25-OH-D₃ supplementation increased pork antioxidant status. The vitamin D₂-enriched mushrooms improved (P<0.05) pig performance, carcass weight and LT colour. In conclusion, 25-OH-D₃ is the most successful source for increasing pork vitamin D activity, while Mushroom D₂ may be a new avenue to improve animal performance and pork quality.

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Towards transparent and consistent exchange of knowledge for improved microbiological food safety

Predictive microbial modelling and quantitative microbiological risk assessment, two important and complementary areas within the food safety community, are generating a variety of scientific knowledge (experimental data and mathematical models) and resources (databases and software tools) for the exploitation of this knowledge. However, the application and reusability of this knowledge is still hampered as the access to this knowledge and the exchange of information between databases and software tools are currently difficult and time consuming. To facilitate transparent and consistent knowledge access and exchange new tools and community resources are needed. These resources will promote the creation of a public microbiological food safety knowledge repository encompassing available data and models. However, essential components are currently missing, such as open data formats supported by different software tools and consistent rules for knowledge annotation. The knowledge repository would be a user friendly tool to benefit different users within the microbiological food safety community, especially users like risk assessors and managers, model developers and research scientists working in the private sector (e.g. food industries, consultancy companies), research institutes or food authorities.

Translocation of silver nanoparticles in the ex vivo human placenta perfusion model characterized by single particle ICP-MS

With the extensive use of silver nanoparticles (AgNPs) in various consumer products their potential toxicity is of great concern especially for highly sensitive population groups such as pregnant women and the developing fetus. To understand if AgNPs are taken up and cross the human placenta, we studied their translocation and accumulation in the human ex vivo placenta perfusion model by single particle ICP-MS (spICP-MS). The impact of different surface modifications on placental transfer was assessed by AgNPs with two different modifications: polyethylene glycol (AgPEG NPs) and sodium carboxylate (AgCOONa NPs). AgNPs and ionic Ag were detected in the fetal circulation in low but not negligible amounts. Slightly higher Ag translocation across the placental barrier for perfusion with AgPEG NPs and higher AgNPs accumulation in placental tissue for perfusion with AgCOONa NPs were observed. Since these AgNPs are soluble in water, we tried to distinguish between the translocation of dissolved and particulate Ag. Perfusion with AgNO3 revealed the formation of Ag containing NPs in both circulations over time, of which the amount and their size in the fetal circulation was comparable to those from perfusion experiments with both AgNP types. Although we were not able to clarify whether intact AgNPs and/or Ag precipitates from dissolved Ag cross the placental barrier, our study highlights that uptake of Ag ions and/or dissolution of AgNPs in the tissue followed by re-precipitation in the fetal circulation needs to be considered as an important pathway in studies of AgNP translocation across biological barriers.
Use of Electrohydrodynamic Processing for Encapsulation of Sensitive Bioactive Compounds and Applications in Food

The use of vitamins, polyphenolic antioxidants, omega-3 polyunsaturated fatty acids (PUFAs), and probiotics for the fortification of foods is increasing. However, these bioactive compounds have low stability and need to be protected to avoid deterioration in the food system itself or in the gastrointestinal tract. For that purpose, efficient encapsulation of the compounds may be required. Spray drying is one of the most commonly used encapsulation techniques in the food industry, but it uses high temperature, which can lead to decomposition of the bioactive compounds. Recently, alternative technologies such as electrospraying and electrospinning have received increasing attention. This review presents the principles of electrohydrodynamic processes for the production of nano-microstructures (NMSs) containing bioactive compounds. It provides an overview of the current use of this technology for encapsulation of bioactive compounds and discusses the future potential of the technology. Finally, the review discusses advanced microscopy techniques to study the morphology of NMSs.
Use of Mathematical Optimization Models to Derive Healthy and Safe Fish Intake

Recommended fish intake differs substantially from observed fish intake. In Denmark, ~15% of the population consumes the state-recommended fish intake. How much fish individuals eat varies greatly, and this variation cannot be captured by considering the fish intake of the average population. We developed a method intended to provide realistic and achievable personalized dietary recommendations based on an individual’s body weight and current fish intake. The objective of the study was to propose specific fish intake levels for individuals that meet the recommendations for eicosapentaenoic acid, docosahexaenoic acid, and vitamin D without violating the permitted intake recommendations for methyl mercury, dioxins, and polychlorinated biphenyls. Two mathematical optimization models were developed that apply quadratic programming to model personalized recommended fish intake, fulfilling criteria on nutrients and contaminants, while simultaneously deviating as little as possible from observed individual intake. A recommended intake for 8 fish species was generated for each individual in a group of 3016 Danes (1552 women and 1464 men, aged 18-75 y), whose fish intakes and body weights were known from a national dietary survey. Individual, personal dietary recommendations were successfully modeled. Modeled fish intake levels were compared to observed fish intakes. For women, the average proposed increase in fish intake was 14 g/wk for lean fish and 63 g/wk for fatty fish; and for men these numbers were 12 and 55 g/wk, respectively. Using fish intake as an example, we show how quadratic programming models may be used to advise individual consumers how to optimize their diet, taking both benefits and risks into account. This approach has the potential to increase compliance with dietary guidelines by targeting the individual consumers and minimizing the need for large and ultimately unrealistic behavior changes.
Utilizing cocoyam (Xanthosoma sagittifolium) for food and nutrition security: A review

The critical role of indigenous crops in the socioeconomic growth of developing nations has necessitated calls for accelerated exploitation of staples. Cocoyam, Xanthosoma sagittifolium, is food for over 400 million people worldwide and is the most consumed aroid in West Africa. However, it remains an underexploited food resource. This study reviews existing literature and also makes use of primary data from interviews with indigenous cocoyam farmers, processors, consumers, and cocoyam scientists in the research Institutes of Ghana, to provide insight into existing nomenclature of the species, indigenous knowledge on food uses, nutritional value, and potential novel food applications of cocoyam. Adaptable technologies in conformity to new trends in food science that could be employed for in-depth molecular studies and further exploitation of the crop are also discussed. It is envisaged that the provided information would contribute to global efforts aimed at exploiting the full potential of indigenous crops for sustainable food and nutrition security.

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Authors: Boakye, A. A. (Ekstern), Wireko-Manu, F. D. (Ekstern), Oduro, I. (Ekstern), Ellis, W. O. (Ekstern), Gudjónsdóttir, M. (Ekstern), Chronakis, I. S. (Intern)
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UV-filters and musk fragrances in seafood commercialized in Europe Union: Occurrence, risk and exposure assessment

In the framework of the FP7 ECsafeSeafood project, 62 seafood samples commercialized in Europe Union from several representative species – mackerel, tuna, salmon, sebream, cod, monkfish, crab, shrimp, octopus, perch and plaice – were analysed for residues of 21 personal care products (PCPs), including 11 UV-filters (UV-Fs) and 10 musk fragrances (musks). PCPs analysis were performed by Quick, Easy, Cheap, Effective Rugged, Safe (QuEChERS), combined with liquid-liquid extraction (LLE) or dispersive solid-phase extraction (dSPE), followed by gas chromatography-tandem mass spectrometry (GC-MS/MS). The results showed the presence in a wide range of samples of nine out of eleven UV-Fs compounds analysed, namely 2-ethylhexyl salicylate (EHS), 2-ethylhexyl,4-methoxy cinnamate (EMC), 4-methylbenzylidene camphor (4-MBC), benzophenone-1 (BP1), benzophenone-3 (BP3), isomyl-4-methoxy cinnamate (IMC), 2,2′-dihydroxy-4,4′-dimethoxybenzophenone (DHMB), homosalate (HS), and octocrylene (OC), whereas galaxolide (HHCB), galaxolide lactone (HHCB-lactone), and tonalide (AHTN) were the most found musks. The potential risks to
human health associated with the exposure to eight of the more prevalent PCPs – EHS, EHMC, 4-MBC, BP1, BP3, IMC, HHCB, and AHTN - through seafood consumption were assessed for consumers from five European countries (Belgium, Ireland, Italy, Portugal and Spain). Results showed that the human exposure to UV-Fs and musks estimated from the concentration values found in seafood and the daily consumption of concerned seafood species, were far below toxicological reference values.

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Scopus rating (2006): SJR 1.198 SNIP 1.506
Scopus rating (2005): SJR 1.094 SNIP 1.341
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Scopus rating (2003): SJR 0.752 SNIP 1.195
Scopus rating (2002): SJR 0.928 SNIP 1.263
Validation of the register-based lifetime antimicrobial usage measurement for finisher batches based on comparison with recorded antimicrobial usage at farm level

Assessing the relationship between antimicrobial usage (AMU) and antimicrobial resistance (AMR) requires the accurate and precise utilisation of register data. Therefore, validation of register-based data is essential for evaluating the quality and, subsequently, the internal validity of studies based on the data. In this study, different smoothing methods for Veterinary Medicine Statistic Program database (VetStat)-records were validated by comparing these with farm-records. Comparison between measurements included accuracy as; completeness and correctness, and precision as; a relative difference of the error, correlation with Fisher’s z transformation and reliability coefficient. The most valid methods of those examined were then used in re-analyses of the abundance of AMR genes in 10 finisher batches from a previous study. Improved accuracy was found when detailed smoothing methods were applied. Although the precision also increased, the effect was not as pronounced, as the usage estimate of all smoothing methods deviated moderately compared with the farm-registrations. Applying the most valid methods to the 10 finisher batches increased estimates of statistical model fit for aminoglycosides, lincosamides, tetracyclines and decreased estimates of statistical model fit for macrolides. The estimates of statistical model fit for sulfonamides and broad-spectrum penicillins remained the same. Through refined data transformation, VetStat-records can be used to calculate a daily amount of AMU per pig reflecting the true usage accurately and moderately precisely, which is the foundation for calculating lifetime AMU.

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Authors: Dalhoff Andersen, V. (Intern), Munk, P. (Intern), de Knegt, L. (Intern), Stengaard Jensen, M. (Intern), Aarestrup, F. M. (Intern), Vigre, H. (Intern)
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Vancomycin resistance in Enterococcus faecium isolated from Danish chicken meat is located on a pVEF4-like plasmid persisting in poultry for 18 years

The occurrence of vancomycin-resistant Enterococcus faecium (VREfm) in food has public health relevance since foodborne VREfm may colonize the gut of consumers and transfer vancomycin resistance genes to the indigenous gut microbiota. Therefore, we determined occurrence and elucidated genetic traits of VREfm in Danish retail chicken meat. Three out of 40 samples (7.5%) from two slaughterhouses yielded VREfm (vancomycin MIC > 32mg/L). This is the first report of VREfm in Danish retail poultry meat since 2010 (DANMAP). All three VREfm belonged to the sequence type ST32, cluster type CT1068. Using whole genome sequencing, we detected transposon Tn1546 harbouring the vanA operon encoding vancomycin resistance. The vanA operon was located on a 43.4kb plasmid highly similar (99.9% identity across 97.5% of the sequence) to pVEF4 which was observed in VREfm in Norwegian poultry in 1998 as well as in Danish poultry in 2010. The remarkable persistence of a pVEF4-like plasmid in enterococcal populations may be explained by the presence of two independent plasmid stability systems namely the ω/ε/ζ toxin-antitoxin system and the prgOPN gene cluster. Filter mating experiments showed that the pVEF4-like plasmid could transfer between E. faecium strains in vitro and that transfer occurred concomitantly with a larger, co-residing plasmid. The data presented here indicates that poultry meat constitutes a reservoir of VREfm and further investigations are needed to assess the risk of foodborne transmission to humans.
Vitamin D vitamers affect vitamin D status differently in young healthy males

Dietary intake of vitamin D includes vitamin D3 (vitD3), 25-hydroxyvitamin D3 (25OH-D3), and vitamin D2 (vitD2). However, the bioactivity of the different species has not been scientifically established. The hypothesis in this study was that vitD3, 25OH-D3, and vitD2 have an equal effect on 25-hydroxyvitamin D in serum (vitamin D status). To test our hypothesis, we performed a randomized, crossover study. Twelve young males consumed 10 µg/day vitD3 during a four-week run-in period, followed by 3 × 6 weeks of 10 µg/day vitD3, 10 µg/day 25OH-D3, and 10 µg/day vitD2. The content of vitD3, vitD2, 25OH-D3, and 25-hydroxyvitamin D2 (25OH-D2) in serum was quantified by liquid chromatography-tandem mass spectrometry (LC-MS/MS). The hypothesis that the three sources of vitamin D affect vitamin D status equally was rejected. Based on the assumption that 1 µg vitD3/day will show an increase in vitamin D status of 1.96 nmol/L, the results showed that 23 µg vitD2 and 6.8 µg 25OH-D3 was similar to 10 µg vitD3. These results demonstrate that further investigations are necessary to determine how to quantify the total vitamin D activity based on chemical quantification of the individual vitamin D metabolites to replace the total vitamin D activity assessed in biological rat models.

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Scopus rating (2013): SJR 1.309 SNIP 1.241 CiteScore 3.86
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Worst case prediction of additives migration from polystyrene for food safety purposes: a model update.
A reliable prediction of migration levels of plastic additives into food requires a robust estimation of diffusivity. Predictive modelling of diffusivity as recommended by the EU commission is carried out using a semi-empirical equation that relies on two polymer-dependent parameters. These parameters were determined for the polymers most used by packaging industry (LLDPE, HDPE, PP, PET, PS, HIPS) from the diffusivity data available at that time. In the specific case of general purpose polystyrene, the diffusivity data published since then shows that the use of the equation with the original parameters results in systematic underestimation of diffusivity. The goal of this study was therefore, to propose an update of the aforementioned parameters for PS on the basis of up to date diffusivity data, so the equation can be used for a reasoned overestimation of diffusivity.

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ROLLER FILTRATION APPARATUS

The present invention relates to the field of filtering, more precisely the present invention concerns an apparatus and a method for the separation of dry matter from a medium and the use of said apparatus. One embodiment discloses an apparatus for the separation of dry matter and liquid from a medium, comprising a plurality of press rollers, a separation chamber for receiving the medium and defined, in cross section, by the press rollers, and at least one chamber filter located inside and enclosed by the separation chamber. The apparatus is preferably configured such that a negative pressure can be established in said chamber filter(s) relative to the separation chamber such that liquid in the medium can be sucked into the chamber filter(s) and dry matter in the medium can pass between corresponding press roller.

A bacterial cell factory for efficient production of ethanol from whey

The invention relates to a method for homo-ethanol production from lactose using a genetically modified lactic acid bacterium of the invention, where the cells are provided with a substrate comprising dairy waste supplemented with an amino nitrogen source (such as acid hydrolysed corn steep liquor). The invention further relates to genetically modified lactic acid bacterium and its use for homo-ethanol production from lactose in dairy waste. The lactic acid bacterium
comprises both genes (lacABCD, LacEF, lacG) encoding enzymes catalysing the lactose catabolism pathway; and transgenes (pdc and adhB) encoding enzymes catalysing the conversion of pyruvate to ethanol. Additionally a number of genes (Idh, pta and adhE) are deleted in order to maximise homo-ethanol production as compared to production of lactate, acetoin and acetate production.

**General information**
State: Published
Organisations: National Food Institute, Research Group for Microbial Biotechnology and Biorefining
Authors: Jensen, P. R. (Intern), Liu, J. (Intern), Solem, C. (Intern), Dantoft, S. H. (Intern)
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**Milk allergy prevention and treatment**
The invention provides a new strategy for achieving desensitisation or induction of tolerance to milk protein allergens, e.g. BLG, in humans or animals, comprising formulating and using a composition comprising a purified intact expressed milk protein together with one or more purified peptides from said intact milk protein.

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Authors: Bøgh, K. L. (Intern), Madsen, C. B. (Intern)
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**Characteristics of Xanthosoma sagittifolium roots during cooking, using physicochemical analysis, uniaxial compression, multispectral imaging and low field NMR spectroscopy**
To effectively promote the industrial utilization of cocoyam (Xanthosoma sagittifolium) roots for enhanced food sustainability and security, there is a need to study their molecular, mechanical and physicochemical properties in detail. The physicochemical and textural characteristics of the red and white varieties of cocoyam roots were thus analysed by low field nuclear magnetic resonance relaxometry, multispectral imaging, uniaxial compression testing, and relevant physicochemical analysis in the current study. Both varieties had similar dry matter content, as well as physical and mechanical properties. However, up to four fast-interacting water populations were observed in the roots, dependent on the root variety and their degree of gelatinization during cooking. Changes in the relaxation parameters indicated weak gelatinization of starch at approximately 80 °C in both varieties. However, shorter relaxation times and a higher proportion of restricted water in the white variety indicated that this variety was slightly more sensitive towards gelatinization. A strong negative correlation existed between dry matter and all multispectral wavelengths >800 nm, suggesting the potential use of that spectral region for rapid analysis of dry matter and water content of the roots. The small, but significant differences
in the structural and gelatinization characteristics of the two varieties indicated that they may not be equally suited for further processing, e.g. to flours or starches. Processors thus need to choose their raw materials wisely dependent on the aimed product characteristics. However, the spectroscopic methods applied in the study were shown to be effective in assessing important quality attributes during cooking of the roots.

**General information**

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Organisations: National Food Institute, Research Group for Food Production Engineering, Research Group for Nano-Bio Science, Technical University of Denmark, University of Iceland, Kwame Nkrumah University of Science and Technology
Authors: Boakye, A. A. (Ekstern), Gudjónsdóttir, M. (Ekstern), Skytte, J. L. (Intern), Chronakis, I. S. (Intern), Wireko-Manu, F. D. (Ekstern), Oduro, I. (Ekstern)
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Scopus rating (2001): SJR 0.292 SNIP 0.442
Background Recent initiatives in Europe have encouraged the formalisation of research infrastructure to unify fragmented facilities, resources and services; and to facilitate world-class research of complex public health challenges, such as those related to non-communicable disease. How this can be achieved in the area of food and health has, to date, been unclear.

Scope and approach This commentary paper presents examples of the types of food and health research facilities, resources and services available in Europe. Insights are provided on the challenge of identifying and classifying research infrastructure. In addition, suggestions are made for the future direction of food and health research infrastructure in Europe. These views are informed by the EuroDISH project, which mapped research infrastructure in four areas of food and health research: Determinants of dietary behaviour; Intake of foods/nutrients; Status and functional markers of nutritional health; Health and disease risk of foods/nutrients. Key findings and conclusion There is no objective measure to identify or classify research infrastructure. It is therefore, difficult to operationalise this term. EuroDISH demonstrated specific challenges with identifying the degree an organisation, project, network or national infrastructure could be considered a research infrastructure; and establishing the boundary of a research infrastructure (integral hard or soft facilities/resources/services). Nevertheless, there are opportunities to create dedicated food and health research infrastructures in Europe. These would need to be flexible and adaptable to keep pace with an ever-changing research environment and bring together the multi-disciplinary needs of the food and health research community.
High-level production of diacetyl in a metabolically engineered lactic acid bacterium

The present invention provides a genetically modified lactic acid bacterium capable of producing diacetyl under aerobic conditions. Additionally, the invention provides a method for producing diacetyl using the genetically modified lactic acid bacterium under aerobic conditions in the presence of a source of iron-containing porphyrin and a metal ion selected from Fe<sup>3+</sup>, Fe<sup>2+</sup>, and Cu<sup>2+</sup>. The lactic acid bacterium is genetically modified by deletion of those genes in its genome that encode polypeptides having lactate dehydrogenase (E.C 1.1.1.27/E.C.1.1.1.28); α-acetolactate decarboxylase (E.C 4.1.1.5); water-forming NADH oxidase (E.C. 1.6.3.4); phosphotransacetylase (E.C.2.3.1.8) activity; and optionally devoid of or deleted for genes encoding polypeptides having diacetyl reductase ((R)-acetoin forming; EC: 1.1.1.303); D-acetoin reductase; butanediol dehydrogenase ((R,R)-butane-2,3-diol forming; E.C. 1.1.1.4/1.1.1.-) and alcohol dehydrogenase (E.C. 1.2.1.10) activity. The invention provides for use of the genetically modified lactic acid bacterium for the production of diacetyl and a food product.

General information
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Organisations: National Food Institute, Research Group for Microbial Biotechnology and Biorefining
Authors: Solem, C. (Intern), Jensen, P. R. (Intern), Liu, J. (Intern)
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Abortion and mortality in farm mink (Neovison vison) associated with feed-born Clostridium limosum

Disease in mink clinically characterized by abortion and increased mortality among pregnant female mink on 28 Danish farms was observed during April and May 2015. Most of these farms suffered extensive disease problems, including a significant increase in the number of mated females without litters. Pathological, microbiological and molecular biological
methods were applied to investigate the cause of disease. Necropsies of animals found dead revealed fragile and partially dissolved (liquefying) uterine tissue, with the presence of Gram positive rod-shaped bacteria. These slow growing bacteria were isolated by anaerobic culturing and identified as Clostridium limosum by both MALDI-TOF mass spectrometry analysis and 16S rRNA gene sequencing. All the performed tests for relevant differential diagnoses were negative. Foodborne disease was indicated because all the affected farms were served by the same feed factory. A specific PCR-based analysis was developed for positive identification of C. limosum and used to screen archived feed samples from the implicated feed factory. Both C. limosum 16S rRNA genes and C. limosum collagenase genes were identified in both mixed feed and more specifically in raw chicken carcass used as one of the components in the mixed feed, which was therefore identified as the most likely source of contamination. Based on the results of this investigation it is concluded that C. limosum can be associated with abortion and increased mortality in pregnant mink females and it is consequently recommended that raw materials contaminated with C. limosum should be avoided in mink feed, in particular during the whelping season.

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Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, University of Copenhagen, Kopenhagen Consulting, Bindslev Animal Hospital
Authors: Hammer, A. S. (Ekstern), Andresen, L. (Ekstern), Aalbaek, B. (Ekstern), Damborg, P. (Ekstern), Weiss, V. (Ekstern), Christiansen, M. L. (Ekstern), Selsing, S. (Ekstern), Bahl, M. I. (Intern)
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BFI (2011): BFI-level 2
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ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
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A Colon Targeted Delivery System for Resveratrol Enriching in pH Responsive-Model

Background: Resveratrol effects on the prevention and treatment of colon cancer have been well documented recently, but low solubility, rapid absorption and metabolism of resveratrol limit its beneficial effects on colon cancer. Designing a formulation that enhances the solubility of resveratrol, protects resveratrol from oxidation and isomerization, and delivers it to the colon is a priority of food and drug industry. In this study, resveratrol-polyethylene glycol (PEG)-loaded pectin-chitosan polyelectrolyte complex was designed as a colon targeted delivery system. Methods: The effects of adding PEG, ultra-sonication time, pH, and pectin to chitosan ratio were investigated on particle size, polydispersity index (PDI), zeta potential by particle size analyzer, and scanning electron microscopy (SEM). Encapsulation efficiency (EE), release of resveratrol in simulated gastrointestinal fluid, and different pHs were analyzed via High Performance Liquid Chromatography (HPLC). Antioxidant activity was measured by (2, 2-diphenyl-1-picryl-hydrazyl-hydrate) DPPH free-radical method. Results: Results showed that colloidal stable micro-particles (725 ± 20 nm) with PDI < 0.3 and zeta potential +27 ± 2 mV was formed in the ratio of 5:1 of pectin to chitosan w/v % after a 10-min sonication. Encapsulation efficiency was 81 ± 7 %. The reduction of antioxidant activity of resveratrol loaded micro-particles after one month was less than 13%. Micro-particles released about 33% of resveratrol in the simulated gastric and intestinal fluids. Conclusion: Two-thirds of the loaded resveratrol in Pectin-Chitosan complex reached colon. The developed system had enough specification for enriching fruit based drinks due to remarkable colloidal stability in the pH range of 3.5 to 4.5.
Adhesion of Escherichia coli under flow conditions reveals potential novel effects of FimH mutations

FimH-mediated adhesion of Escherichia coli to bladder epithelium is a prerequisite for urinary tract infections. FimH is also essential for blood-borne bacterial dissemination, but the mechanisms are poorly understood. The purpose of this study was to assess the influence of different FimH mutations on bacterial adhesion using a novel adhesion assay, which models the physiological flow conditions bacteria are exposed to. We introduced 12 different point mutations in the mannose binding pocket of FimH in an E. coli strain expressing type 1 fimbriae only (MSC95-FimH). We compared the bacterial adhesion of each mutant across several commonly used adhesion assays, including agglutination of yeast, adhesion to mono- and tri-mannosylated substrates, and static adhesion to bladder epithelial and endothelial cells. We performed a comparison of these assays to a novel method that we developed to study bacterial adhesion to mammalian cells under flow conditions. We showed that E. coli MSC95-FimH adheres more efficiently to microvascular endothelium than to bladder epithelium, and that only endothelium supports adhesion at physiological shear stress. The results confirmed that mannose binding pocket mutations abrogated adhesion. We demonstrated that FimH residues E50 and T53 are crucial for adhesion under flow conditions. The coating of endothelial cells on biochips and modelling of physiological flow conditions enabled us to identify FimH residues crucial for adhesion. These results provide novel insights into screening methods to determine the effect of FimH mutants and potentially FimH antagonists.
OBJECTIVE:
Offspring of pregnancies affected by gestational diabetes mellitus (GDM) are at increased risk of the development of type 2 diabetes. However, the extent to which these dysmetabolic traits may be due to offspring and/or maternal adiposity is unknown. We examined body composition and associated cardiometabolic traits in 561 9- to 16-year-old offspring of mothers with GDM and 597 control offspring.

RESEARCH DESIGN AND METHODS:
We measured anthropometric characteristics; puberty status; blood pressure; and fasting glucose, insulin, C-peptide, and lipid levels; and conducted a DEXA scan in a subset of the cohort. Differences in the outcomes between offspring of mothers with GDM and control subjects were examined using linear and logistic regression models.

RESULTS:
After adjustment for age and sex, offspring of mothers with GDM displayed higher weight, BMI, waist-to-hip ratio (WHR), systolic blood pressure, and resting heart rate and lower height. Offspring of mothers with GDM had higher total and abdominal fat percentages and lower muscle mass percentages, but these differences disappeared after correction for offspring BMI. The offspring of mothers with GDM displayed higher fasting plasma glucose, insulin, C-peptide, HOMA-insulin resistance (IR), and plasma triglyceride levels, whereas fasting plasma HDL cholesterol levels were decreased.
Female offspring of mothers with GDM had an earlier onset of puberty than control offspring. Offspring of mothers with GDM had significantly higher BMI, WHR, fasting glucose, and HOMA-IR levels after adjustment for maternal prepregnancy BMI, and glucose and HOMA-IR remained elevated in the offspring of mothers with GDM after correction for both maternal and offspring BMIs.

CONCLUSIONS:
In summary, adolescent offspring of women with GDM show increased adiposity, an adverse cardiometabolic profile, and earlier onset of puberty among girls. Increased fasting glucose and HOMA-IR levels among the offspring of mothers with GDM may be explained by the programming effects of hyperglycemia in pregnancy.
Administration of two probiotic strains during early childhood does not affect the endogenous gut microbiota composition despite probiotic proliferation

Probiotics are increasingly applied to prevent and treat a range of infectious, immune related and gastrointestinal diseases. Despite this, the mechanisms behind the putative effects of probiotics are poorly understood. One of the suggested modes of probiotic action is modulation of the endogenous gut microbiota, however probiotic intervention studies in adults have failed to show significant effects on gut microbiota composition. The gut microbiota of young children is known to be unstable and more responsive to external factors than that of adults. Therefore, potential effects of probiotic intervention on gut microbiota may be easier detectable in early life. We thus investigated the effects of a 6 month placebo-controlled probiotic intervention with Bifidobacterium animalis subsp. lactis (BB-12®) and Lactobacillus rhamnosus (LGG®) on gut microbiota composition and diversity in more than 200 Danish infants (N = 290 enrolled; N = 201 all samples analyzed), as assessed by 16S rRNA amplicon sequencing. Further, we evaluated probiotic presence and proliferation by use of specific quantitative polymerase chain reaction (qPCR). Probiotic administration did not significantly alter gut microbiota community structure or diversity as compared to placebo. The probiotic strains were detected in 91.3% of the fecal samples from children receiving probiotics and in 1% of the placebo treated children. Baseline gut microbiota was not found to predict the ability of probiotics to establish in the gut after the 6 month intervention. Within the probiotics group, proliferation of the strains LGG® and BB-12® in the gut was detected in 44.7% and 83.5% of the participants, respectively. A sub-analysis of the gut microbiota including only individuals with detected growth of the probiotics LGG® or BB-12® and comparing these to placebo revealed no differences in community structure or diversity. Six months of probiotic administration during early life did not change gut microbiota community structure or diversity, despite active proliferation of the administered probiotic strains. Therefore, alteration of the healthy infant gut microbiota is not likely to be a prominent mechanism by which these specific probiotics works to exert beneficial effects on host health. NCT02180581 . Registered 30 June 2014.

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A framework to estimate concentrations of potentially unknown substances by semi-quantification in liquid chromatography electrospray ionization mass spectrometry

Risk assessment of exposure to chemicals from food and other sources rely on quantitative information of the occurrence of these chemicals. As screening analysis is increasingly used, a strategy to semi-quantify unknown or untargeted analytes is required. A proof of concept strategy to semi-quantifying unknown substances in LC-MS was investigated by studying the responses of a chemically diverse marker set of 17 analytes using an experimental design study. Optimal conditions were established using two optimization parameters related to weak-responding compounds and to the overall...
response. All the 17 selected analytes were semi-quantified using a different analyte to assess the quantification performance under various conditions. It was found that source conditions had strong effects on the responses, with the range of low-response signals varying from −80% to over +300% compared to centerpoints. Positive electrospray (ESI+) was found to have more complex source interactions than negative electrospray (ESI−). Choice of quantification marker resulted in better quantification if the retention time difference was minimized (12 out of 12 cases error factor <4.0) rather than if the accurate mass difference was minimized (7 out of 12 cases error factor <4.0). Using optimal conditions and retention time selection, semi-quantification in ESI+ (70% quantified, average prediction error factor 2.08) and ESI− (100% quantified, average prediction error factor 1.74) yielded acceptable results for untargeted screening. The method was successfully applied to an extract of food contact material containing over 300 unknown substances. Without identification and authentic standards, the method was able to estimate the concentration of a virtually unlimited number of compounds thereby providing valuable data to prioritize compounds in risk assessment studies.

General information
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Organisations: National Food Institute, Research Group for Analytical Food Chemistry
Authors: Pieke, E. N. (Intern), Granby, K. (Intern), Trier, X. (Intern), Smedsgaard, J. (Intern)
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Airway exposure to multi-walled carbon nanotubes disrupts the female reproductive cycle without affecting pregnancy outcomes in mice

Background: The use of multi-walled carbon nanotubes (MWCNT) is increasing due to a growing use in a variety of products across several industries. Thus, occupational exposure is also of increasing concern, particularly since airway exposure to MWCNTs can induce sustained pulmonary acute phase response and inflammation in experimental animals, which may affect female reproduction. This proof-of-principle study therefore aimed to investigate if lung exposure by intratracheal instillation of the MWCNT NM-400 would affect the estrous cycle and reproductive function in female mice.

Results: Estrous cycle regularity was investigated by comparing vaginal smears before and after exposure to 67 μg of NM-400, whereas reproductive function was analyzed by measuring time to delivery of litters after instillation of 2, 18 or 67 μg of NM-400. Compared to normal estrous cycling determined prior to exposure, exposure to MWCNT significantly prolonged the estrous cycle during which exposure took place, but significantly shortened the estrous cycle immediately after the exposed cycle. No consistent effects were seen on time to delivery of litter or other gestational or litter parameters, such as litter size, sex ratio, implantations and implantation loss.

Conclusion: Lung exposure to MWCNT interfered with estrous cycling. Effects caused by MWCNTs depended on the time of exposure: the estrous stage was particularly sensitive to exposure, as animals exposed during this stage showed a higher incidence of irregular cycling after exposure. Our data indicates that MWCNT exposure may interfere with events leading to ovulation.
Antioxidant addition can be one strategy to limit lipid oxidation in emulsions. Research has proven that an important factor regarding the efficacy of antioxidants is their localization in the emulsion; however, other factors such as interactions with other components can also have an impact. Thus, the aim was to evaluate the impact of emulsifiers (Citrem and Tween80) and presence of endogenous tocopherols on the efficacies of caffeic acid and caffeates (C1–C20) as antioxidants in emulsions. Lipid oxidation was evaluated during storage and partitioning of caffeic acid and caffeates was estimated by measuring their concentrations in the aqueous phase. Partitioning of caffeic acid and caffeates was influenced by emulsifier type and the presence of endogenous tocopherols. Caffeic acid was the most efficient antioxidant in Citrem and Tween stabilized emulsions in the presence of endogenous tocopherol. In contrast, for Tween stabilized emulsions, caffeic acid acted as a prooxidant and the evaluated caffeates acted as strong antioxidants in the absence of endogenous tocopherol. Thus, when endogenous tocopherol was present lipophilization of caffeic acid did not increase its efficacy as an antioxidant. It is suggested that the differences observed in antioxidant efficiency with different emulsifiers and with and without endogenous tocopherols is due to emulsifier–antioxidant interactions and antioxidant–antioxidant interactions in the emulsions.
Analysis of 28 Arcobacter genomes belonging to different species

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Authors: Alba, P. (Ekstern), Leekitcharoenphon, P. (Intern), Hendriksen, R. S. (Intern), Aarestrup, F. M. (Intern), José, F. M. (Ekstern)
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Analysis of the production of salmon fillet - Prediction of production yield
The aim was to investigate the influence of raw material variation in Atlantic salmon from aquaculture on filleting yield, and to develop a decision tool for choosing the appropriate raw material for optimized yield. This was achieved by tracking salmon on an individual level (n = 60) through a primary production site. The majority of the salmon exhibited a heavier right fillet compared to the left fillet after filleting. No explicit explanation was found for this observation although the heading procedure was shown to have a large impact. A Partial Least Square model was built to predict the yield after filleting. The model was based on six pre-processing variables and allowed an acceptable prediction of the filleting yield with a root mean square error cross validation of 0.68. The presented model can estimate the slaughter yield for a certain batch before ordering from the slaughterhouse. This may facilitate optimal planning of the production of salmon fillets by ordering and assigning the right batch to the right product category to obtain an optimal yield and quality.

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Organisations: National Food Institute, Research Group for Food Production Engineering, University of Iceland, Fast-Q
Authors: Johansson, G. Ø. (Intern), Guðjónsdóttir, M. (Ekstern), Nielsen, M. E. (Ekstern), Skytte, J. L. (Intern), Frosch, S. (Intern)
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Main Research Area: Technical/natural sciences
There is limited knowledge on the global prescription and consumption patterns of therapeutic (TD) and illicit drugs (ID). Pooled urine analysis and wastewater-based epidemiology (WBE) has been used for local-based drug screening. It is, however, difficult to study the global epidemiology due to difficulties in obtaining samples. The aims of the study were to test the detectability of TD and ID in airplane wastewater samples categorized according to their geographical origin. Wastewater samples (n = 17) were collected from long-distance flights and prepared with enzymatic conjugate cleaving followed by either precipitation or solid phase extraction. Aliquots were analysed on various liquid chromatography – mass
spectrometers. TDs were grouped according to their Anatomical Therapeutic Chemical (ATC) codes. Identification confidence was assigned to three levels based on variables including detection on multiple instruments and number of targets per compound. A total of 424 compounds were identified across all samples, distributed on 87 unique TD and 2 ID. Two principal components in a principal component analysis separated three clusters of wastewater samples corresponding to geographical origin of the airplanes with therapeutic subgroup ATC codes as variables. Airplane wastewater analysis is useful for identifying targets for WBE and toxicological analysis and explore drug use and abuse patterns.

An Assessment of Different Genomic Approaches for Inferring Phylogeny of Listeria monocytogenes

Background/objectives: Whole genome sequencing (WGS) has proven to be a powerful subtyping tool for foodborne pathogenic bacteria like L. monocytogenes. The interests of genome-scale analysis for national surveillance, outbreak detection or source tracking has been largely documented. The genomic data however can be exploited with many different bioinformatics methods like single nucleotide polymorphism (SNP), core-genome multi locus sequence typing (cgMLST), whole-genome multi locus sequence typing (wgMLST) or multi locus predicted protein sequence typing (MLPPST) on either core-genome (cgMLPPST) or pan genome (wgMLPPST). Currently, there are little comparisons studies of these different analytical approaches. Our objective was to assess and compare different genomic methods that can be implemented in order to cluster isolates of L. monocytogenes.

Methods: The clustering methods were evaluated on a collection of 207 L. monocytogenes genomes of food origin representative of the genetic diversity of the Anses collection. The trees were then compared using robust statistical analyses.

Results: The backward comparability between conventional typing methods and genomic methods revealed a near-perfect concordance. The importance of selecting a proper reference when calling SNPs was highlighted, although distances between strains remained identical. The analysis also revealed that the topology of the phylogenetic trees between wgMLST and cgMLST were remarkably similar. The comparison between SNP and cgMLST or SNP and wgMLST approaches showed that the topologies of phylogenetic trees were statistically similar with an almost equivalent clustering.

Conclusion: Our study revealed high concordance between wgMLST, cgMLST, and SNP approaches which are all suitable for typing of L. monocytogenes. The comparable clustering is an important observation considering that the two approaches have been variously implemented among reference laboratories.
An effect-directed strategy for characterizing emerging chemicals in food contact materials made from paper and board

Food contact materials (FCM) are any type of item intended to come into contact with foods and thus represent a potential source for human exposure to chemicals. Regarding FCMs made of paper and board, information pertaining to their chemical constituents and the potential impacts on human health remains scarce, which hampers safety evaluation. We describe an effect-directed strategy to identify and characterize emerging chemicals in paper and board FCMs. Twenty FCMs were tested in eight reporter gene assays, including assays for the AR, ER, AhR, PPARγ, Nrf2 and p53, as well as mutagenicity. All FCMs exhibited activities in at least one assay. As proof-of-principle, FCM samples obtained from a sandwich wrapper and a pizza box were carried through a complete step-by-step multi-tiered approach. The pizza box exhibited ER activity, likely caused by the presence of bisphenol A, dibutyl phthalate, and benzylbutyl phthalate. The sandwich wrapper exhibited AR antagonism, likely caused by abietic acid and dehydroabietic acid. Migration studies confirmed that the active chemicals can transfer from FCMs to food simulants. In conclusion, we report an effect-directed strategy that can identify hazards posed by FCMs made from paper and board, including the identification of the chemical(s) responsible for the observed activity.

General information
State: Published
Pages: 250-259
A novel genetic tool for metabolic optimization of Corynebacterium glutamicum: efficient and repetitive chromosomal integration of synthetic promoter-driven expression libraries

Fine-tuning the expression level of multiple genes is usually pivotal for metabolic optimization. We have developed a tool for this purpose for the important industrial workhorse Corynebacterium glutamicum that allows for the introduction of synthetic promoter-driven expression libraries of arbitrary genes. We first devised a method for introducing genetic elements into the chromosome repeatedly, relying on site-specific recombinases and the vector pJS31 serving as the carrier. The pJS31 vector contains a synthetic cassette including a phage attachment site attP for integration, a bacterial attachment site attB for subsequent integration, a multiple cloning site, and two modified loxP sites to facilitate easy removal of undesirable vector elements. Meanwhile, we constructed a derivative of the wild-type strain ATCC 13032 carrying an attB site in its chromosome (JS34) and demonstrated that pJS31 readily could integrate into the attB site in this strain providing expression of the corresponding integrase. Subsequent expression of the Cre recombinase promoted recombination between the modified loxP sites, resulting in a strain only retaining the target insertions and an attB site. To simplify the procedure, non-replicating circular expression units for the phage integrase and the Cre recombinase were used. As a showcase, we used the tool to construct a battery of strains simultaneously expressing the two reporter genes, lacZ (encoding β-galactosidase) and gusA (encoding β-glucuronidase), to arbitrary levels. In principle, an unlimited number of genes, whether native, heterologous, or synthetic, can be introduced using the developed approach, and this should greatly facilitate metabolic optimization of this important platform organism.

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Biotechnology and Biorefining
Authors: Shen, J. (Intern), Chen, J. (Intern), Jensen, P. R. (Intern), Solem, C. (Intern)
Anti-Bacterial Activity of Phenolic Compounds against Streptococcus pyogenes

Background: Worldwide, Streptococcus pyogenes is the leading cause of bacterial pharyngitis. To reduce the use of antibiotics, antimicrobial phytochemical-containing remedies, which have long been in use in traditional medicine, may provide new approaches for management of streptococcal pharyngitis. The objective of this study was to assess the inhibitory activities of 25 natural phenolic compounds against three strains of S. pyogenes. Methods: After an initial screening, the minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) of the nine most effective phenolic compounds were determined. The effect of four compounds with the lowest MIC and MBC on streptococcal growth and biofilm formation was also studied. Results: 1,2-Naphthoquinone and 5-hydroxy-1,4-naphthoquinone elicited the greatest anti-S. pyogenes activities with MICs ranging from 0.39 to 6.25 µg mL⁻¹ and MBCs of 100 µg mL⁻¹. Both naphthoquinones inhibited the biofilm formation at concentrations ranging from 12.5 to 50 µg mL⁻¹. Biofilm reduction and altered bacterial cell structures were visible in scanning electron microscopy images of naphthoquinone-treated cells. Conclusion: In conclusion, 1,2-naphthoquinone and 5-hydroxy-1,4-naphthoquinone inhibit S. pyogenes and should be further investigated as candidates for the management of streptococcal pharyngitis.

Antibiotic resistance genes in municipal wastewater treatment systems and receiving waters in Arctic Canada

Domestic wastewater discharges may adversely impact arctic ecosystems and local indigenous people, who rely on being able to hunt and harvest food from their local environment. Therefore, there is a need to develop efficient wastewater treatment plants (WWTPs), which can be operated in remote communities under extreme climatic conditions. WWTPs have been identified as reservoirs of antibiotic resistance genes (ARGs). The objective of this work was to quantify the presence of nine different ARG markers (int1, sul1, sul2, tet(O), erm(B), mecA, blaCTX-M, blaTEM, and qnr(S)) in two passive systems (waste stabilization ponds [WSPs]) and one mechanical filtration plant operating in two smaller and one large community, respectively, in Nunavut, Canada. Measurement of water quality parameters (carbonaceous oxygen demand, ammonia, total suspended solids, Escherichia coli and total coliforms) showed that the WWTPs provided only primary treatment. Low levels of the ARGs (2 log copies/mL) were observed in the effluent, demonstrating that bacteria residing in three northern WWTPs harbour ARGs conferring resistance to multiple clinically-relevant classes of antibiotics.
Our results indicate that long-term storage in WSPs benefitted removal of organic material and some ARGs. However, one WSP system showed evidence of the enrichment of sul1, sul2, mecA, tet(O) and qnr(S). Further research is needed to fully understand if these ARG releases pose a risk to human health, especially in the context of traditional hunting and fishing activities.

General information
State: Published
Organisations: National Food Institute, Research Group for Analytical and Predictive Microbiology, Dalhousie University, University of Regina
Authors: Neudorf, K. D. (Ekstern), Huang, Y. N. (Ekstern), Ragush, C. M. (Ekstern), Yost, C. K. (Ekstern), Jamieson, R. C. (Ekstern), Hansen, L. T. (Intern)
Number of pages: 10
Pages: 1085-1094
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
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Volume: 598
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Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SJR 1.546 SNIP 1.65
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 5.09 SJR 1.652 SNIP 1.856
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.653 SNIP 1.648 CiteScore 4.33
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.635 SNIP 1.843 CiteScore 4.2
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.527 SNIP 1.745 CiteScore 3.73
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.749 SNIP 1.82 CiteScore 3.7
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.802 SNIP 1.676 CiteScore 3.61
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 1.651 SNIP 1.506
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.576 SNIP 1.6
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 1.461 SNIP 1.489
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.393 SNIP 1.473
Web of Science (2007): Indexed yes
Antimicrobial peptide CAP18 and its effect on Yersinia ruckeri infections in rainbow trout Oncorhynchus mykiss (Walbaum): comparing administration by injection and oral routes

The antimicrobial peptide CAP18 has been demonstrated to have a strong in vitro bactericidal effect on Yersinia ruckeri, but its activity in vivo has not been described. In this work, we investigated whether CAP18 protects rainbow trout Oncorhynchus mykiss (Walbaum) against enteric red mouth disease caused by this pathogen either following i.p. injection or by oral administration (in feed). It was found that injection of CAP18 into juvenile rainbow trout before exposure to Y. ruckeri was associated with lowered mortality compared to non-medicated fish although it was less effective than the conventional antibiotic oxolinic acid. Oral administration of CAP18 to trout did not prevent infection. The proteolytic effect of secretions on the peptide CAP18 in the fish gastrointestinal tract is suggested to account for the inferior effect of oral administration.

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, Research Group for Genomic Epidemiology, National Veterinary Institute, Section for Bacteriology, Pathology and Parasitology, University of Copenhagen, Aalborg University, BioMar A/S
Authors: Chetri, J. K. (Intern), Mehrdana, F. (Ekstern), Hansen, E. B. (Intern), Ebbensgaard, A. E. (Intern), Overgaard, M. T. (Ekstern), Lauritsen, A. H. (Ekstern), Dalsgaard, I. (Intern), Buchmann, K. (Ekstern)
Pages: 97-104
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Fish Diseases
Volume: 40
Issue number: 1
ISSN (Print): 0140-7775
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
Antimikrobielle stoffer Forbrug og resistensmønstre
Antioxidant effect of water and acetone extracts of Fucus vesiculosus on oxidative stability of skin care emulsions

A water and an acetone extract of the Icelandic brown algae Fucus vesiculosus were evaluated as potential natural sources of antioxidant compounds in skin care emulsions. To assess their efficacy in inhibiting lipid oxidation caused by photo- or thermoxidation, they were stored in darkness and room temperature as control conditions, and compared to samples stored under accelerated conditions (light and room temperature, or darkness and 40°C). The presence of extracts in the skin care emulsions induced remarkable colour changes when the emulsions were exposed to light, and more extensively under high temperature. High temperature also caused greater increments in the droplet size of the emulsions. The analysis of the tocopherol content, peroxide value and volatile compounds during the storage revealed that, whereas both water and acetone extracts showed (at 2 mg/g of emulsion) protective effect against thermooxidation, only the water extract showed antioxidant activity against photooxidation.

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, University of Navarra, Matís Ltd.
Number of pages: 11
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Main Research Area: Technical/natural sciences

Publication information
Journal: European Journal of Lipid Science and Technology
Volume: 119
Issue number: 3
ISSN (Print): 1438-7697
Ratings:
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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.05 SJR 0.776
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.06 SJR 0.712 SNIP 1.042
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.643 SNIP 0.878 CiteScore 1.85
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.742 SNIP 1.052 CiteScore 1.98
The use of flavonoids as antioxidants in food formulations is limited due to their solubility and thereby their localization in the food products. However, enzymatic alkylation of flavonoids with lipophilic moieties alters their lipophilicity and thereby partitioning within different phases in a food product. This study aimed to evaluate the antioxidative efficiency of two derivatives of rutin, namely rutin laurate (C12:0) and rutin palmitate (C16:0) compared with their parent compound rutin and with butylated hydroxytoluene (BHT). Their efficiency as antioxidants at two different concentrations (25 and 200 µM) was assessed in bulk oil and in an o/w emulsion system without and with iron addition. All evaluated compounds revealed antioxidant effects. However, rutin and BHT were the most efficient antioxidants in bulk oil followed by rutin palmitate, whereas rutin laurate acted as either an antioxidant or a prooxidant at low and high concentrations (25 and 200 µM), respectively. In emulsions, rutin and BHT in high concentration (200 µM) were more efficient than rutin esters. Thus, alkylation of rutin with medium chain fatty acids did not improve the antioxidant ability, neither in bulk oil nor in o/w emulsion. Interestingly, rutin had stronger antioxidative effect than BHT upon iron addition to the emulsion.
Practical application: According to the antioxidant hypothesis the polar paradox more amphiphilic antioxidants should perform as better antioxidants in emulsions than more polar antioxidants. The finding in this study revealed that lipophilization of rutin did not improve its antioxidant capacity in emulsions compared to untreated rutin. This stresses the importance of evaluating the antioxidant in each emulsion systems before selecting appropriate antioxidants for optimal protection against lipid oxidation.

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Aarhus University
Authors: Lue, B. (Ekstern), Sørensen, A. M. (Intern), Jacobsen, C. (Intern), Guo, Z. (Ekstern), Xu, X. (Ekstern)
Number of pages: 15
Publication date: 2017
Main Research Area: Technical/natural sciences

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Journal: European Journal of Lipid Science and Technology
Volume: 119
Issue number: 4
Article number: 1600049
ISSN (Print): 1438-7697
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BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.05 SJR 0.776
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.06 SJR 0.712 SNIP 1.042
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.643 SNIP 0.878 CiteScore 1.85
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.742 SNIP 1.052 CiteScore 1.98
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.863 SNIP 1.122 CiteScore 2.16
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.864 SNIP 1.221 CiteScore 2.06
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.742 SNIP 0.94 CiteScore 1.75
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.799 SNIP 1.05
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.84 SNIP 1.07
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.612 SNIP 0.855
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.607 SNIP 0.801
Web of Science (2007): Indexed yes
Application of Probabilistic Modeling to Quantify the Reduction Levels of Hepatocellular Carcinoma Risk Attributable to Chronic Aflatoxins Exposure

Epidemiological studies show a definite connection between areas of high aflatoxin content and a high occurrence of human hepatocellular carcinoma (HCC). Hepatitis B virus in individuals further increases the risk of HCC. The two risk factors are prevalent in rural Kenya and continuously predispose the rural populations to HCC. A quantitative cancer risk assessment therefore quantified the levels at which potential pre- and postharvest interventions reduce the HCC risk attributable to consumption of contaminated maize and groundnuts. The assessment applied a probabilistic model to derive probability distributions of HCC cases and percentage reductions levels of the risk from secondary data. Contaminated maize and groundnuts contributed to 1,847 +/- 514 and 158 +/- 52 HCC cases per annum, respectively. The total contribution of both foods to the risk was additive as it resulted in 2,000 +/- 518 cases per annum. Consumption and contamination levels contributed significantly to the risk whereby lower age groups were most affected. Nonetheless, pre- and postharvest interventions might reduce the risk by 23.0-83.4% and 4.8-95.1%, respectively. Therefore, chronic exposure to aflatoxins increases the HCC risk in rural Kenya, but a significant reduction of the risk can be achieved by applying specific pre- and postharvest interventions.

General information

State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, University of Nairobi, Kenya Nutritionists and Dieticians Institute
Authors: Wambui, J. M. (Ekstern), Karuri, E. G. (Ekstern), Ojiambo, J. A. (Ekstern), Njage, P. M. K. (Intern)
Number of pages: 13
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Main Research Area: Technical/natural sciences

Publication information

Journal: Nutrition and Cancer—an International Journal
Volume: 69
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Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.698 SJR 0.745
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.5 SJR 0.926 SNIP 0.829
BFI (2015): BFI-level 1
Applied Genomics of Foodborne Pathogens
This book provides a timely and thorough snapshot into the emerging and fast evolving area of applied genomics of foodborne pathogens. Driven by the drastic advance of whole genome shot gun sequencing (WGS) technologies, genomics applications are becoming increasingly valuable and even essential in studying, surveying and controlling foodborne microbial pathogens. The vast opportunities brought by this trend are often at odds with the lack of bioinformatics know-how among food safety and public health professionals, since such expertise is not part of a typical food microbiology curriculum and skill set. Further complicating the challenge is the large and ever evolving body of bioinformatics tools that can obfuscate newcomers to this area. Although reviews, tutorials and books are not in short supply in the fields of bioinformatics and genomics, until now there has not been a comprehensive and customized source of information designed for and accessible to microbiologists interested in applying cutting-edge genomics in food safety and public health research. This book fills this void with a well-selected collection of topics, case studies, and bioinformatics tools contributed by experts at the forefront of foodborne pathogen genomics research.

General information
State: Published
Applying LCA in decision making - the need and the future perspective

General information
State: Published
Organisations: Department of Management Engineering, Quantitative Sustainability Assessment, Department of Civil Engineering, Centre for oil and gas – DTU, Transport DTU, Transport Modelling, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, Department of Environmental Engineering, Urban Water Systems, National Food Institute, Research Group for Genomic Epidemiology, Section for Structural Engineering
Authors: Dong, Y. (Intern), Miraglia, S. (Intern), Manzo, S. (Intern), Georgiadis, S. (Intern), Sørup, H. J. D. (Intern), Boriani, E. (Intern), Hald, T. (Intern), Thøns, S. (Intern), Hauschild, M. Z. (Intern)
Number of pages: 1
Publication date: 2017
Main Research Area: Technical/natural sciences
Electronics versions:

Relations
Activities:
Applying LCA in decision making - the need and the future perspective
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2017

A procedure for grouping food consumption data for use in food allergen risk assessment

Food allergic subjects need to avoid the allergenic food that triggers their allergy. However, foods can also contain unintended allergens. Food manufacturers or authorities need to perform a risk assessment to be able to decide if unintended allergen presence constitutes a risk to food allergic consumers. One of the input parameters in risk assessment is the amount of a given food consumed in a meal. There has been little emphasis on how food consumption data can be used in food allergen risk assessment. The aim of the study was to organize the complex datasets from National Food Consumption Surveys from different countries (France, Netherlands and Denmark) to be manageable in food allergen risk assessment. To do this, a two-step method was developed. First, based on initial groups of similar food items, the homogeneity of consumption was evaluated using a customized clustering method. Then, the risk was calculated for each initial food group and its subgroups to verify if it also represents a relevant difference in risk. Forty-eight food groups were designated in Denmark (53 in the Netherlands, 54 in France). Finally, summary statistics and names for each food group for the Danish data illustrate the results when applying the procedure.

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, National Food Institute, Research Group for Gut Microbiology and Immunology, Division of Risk Assessment and Nutrition, The Netherlands Organization for Applied Scientific Research, ANSES - French Agency for Food, Environmental and Occupational Health & Safety
Authors: Birot, S. (Intern), Madsen, C. B. (Intern), Kruizinga, A. G. (Ekstern), Christensen, T. (Intern), Crépet, A. (Ekstern), Brockhoff, P. B. (Intern)
Pages: 111-123
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication Information
A review of animal models used to evaluate potential allergenicity of genetically modified organisms (GMOs)

Food safety regulators request prediction of allergenicity for newly expressed proteins in genetically modified (GM) crops and in novel foods. Some have suggested using animal models to assess potential allergenicity. A variety of animal models have been used in research to evaluate sensitisation or elicitation of allergic responses. However, protocols for sensitisation and challenge, animal species and strains, diets and other environmental factors differ widely. We present a comprehensive review of published, peer-reviewed experimental animal models used for the evaluation of allergenicity of genetically modified organisms (GMOs).

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, University of Nebraska, Medical University of Vienna
Authors: Marsteller, N. (Ekstern), Bøgh, K. L. (Intern), Goodman, R. E. (Ekstern), Epstein, M. M. (Ekstern)
Number of pages: 8
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Main Research Area: Technical/natural sciences

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Journal: Drug Discovery Today: Disease Models
Volume: 17-18
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BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.167 SJR 0.218
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 0.74 SJR 0.479 SNIP 0.225
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.31 SNIP 0.112 CiteScore 0.55
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.373 SNIP 0.199 CiteScore 0.72
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.288 SNIP 0.229 CiteScore 0.62
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.228 SNIP 0.17 CiteScore 0.61
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.364 SNIP 0.19 CiteScore 0.8
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.33 SNIP 0.178
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.264 SNIP 0.156
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.197 SNIP 0.123
Scopus rating (2007): SJR 0.205 SNIP 0.097
Scopus rating (2006): SJR 0.177 SNIP 0.084
Scopus rating (2005): SJR 0.13 SNIP 0.029
Original language: English
DOIs:
10.1016/j.ddmod.2016.11.001
Source: FindIt
Source-ID: 2349064696
Publication: Research - peer-review › Review – Annual report year: 2017
A risk modelling approach for setting microbiological limits using enterococci as indicator for growth potential of Salmonella in pork

Microbiological limits are widely used in food processing as an aid to reduce the exposure to hazardous microorganisms for the consumers. However, in pork, the prevalence and concentrations of Salmonella are generally low and microbiological limits are not considered an efficient tool to support hygiene interventions. The objective of the present study was to develop an approach which could make it possible to define potential risk-based microbiological limits for an indicator, enterococci, in order to evaluate the risk from potential growth of Salmonella. A positive correlation between the concentration of enterococci and the prevalence and concentration of Salmonella was shown for 6640 pork samples taken at Danish cutting plants and retail butchers. The samples were collected in five different studies in 2001, 2002, 2010, 2011 and 2013. The observations that both Salmonella and enterococci are carried in the intestinal tract, contaminate pork by the same mechanisms and share similar growth characteristics (lag phase and maximum specific growth rate) at temperatures around 5-10 °C, suggest a potential of enterococci to be used as an indicator of potential growth of Salmonella in pork. Elevated temperatures during processing will lead to growth of both enterococci and, if present, also Salmonella. By combining the correlation between enterococci and Salmonella with risk modelling, it is possible to predict the risk of salmonellosis based on the level of enterococci. The risk model used for this purpose includes the dose-response relationship for Salmonella and a reduction factor to account for preparation of the fresh pork. By use of the risk model, it was estimated that the majority of salmonellosis cases, caused by the consumption of pork in Denmark, is caused by the small fraction of pork products that has enterococci concentrations above 5 log. CFU/g. This illustrates that our approach can be used to evaluate the potential effect of different microbiological limits and therefore, the perspective of this novel approach is that it can be used for definition of a risk-based microbiological limit for enterococci. The limit for enterococci can then be used for development of a process hygiene criterion in cutting plants and retail butcher shops, with the purpose of reducing the risk of Salmonella for the consumer.
Assessing the effects of seawater temperature and pH on the bioaccumulation of emerging chemical contaminants in marine bivalves

Emerging chemical contaminants [e.g. toxic metals speciation, flame retardants (FRs) and perfluorinated compounds (PFCs), among others], that have not been historically recognized as pollutants nor their toxicological hazards, are increasingly more present in the marine environment. Furthermore, the effects of environmental conditions (e.g. temperature and pH) on bioaccumulation and elimination mechanisms of these emerging contaminants in marine biota have been poorly studied until now. In this context, the aim of this study was to assess, for the first time, the effect of warmer seawater temperatures (Δ = + 4°C) and lower pH levels (Δ = - 0.4 pH units), acting alone or combined, on the bioaccumulation and elimination of emerging FRs (dechloranes 602, 603 and 604, and TBBPA), inorganic arsenic (iAs), and PFCs (PFOA and PFOS) in two estuarine bivalve species (Mytilus galloprovincialis and Ruditapes philippinarum).

Overall, results showed that warming alone or combined with acidification promoted the bioaccumulation of some compounds (i.e. dechloranes 602, 604, TBBPA), but also facilitated the elimination of others (i.e. iAs, TBBPA). Similarly, lower pH also resulted in higher levels of dechloranes, as well as enhanced iAs, PFOA and PFOS elimination. Data also suggests that, when both abiotic stressors are combined, bivalves’ capacity to accumulate contaminants may be time-dependent, considering significantly drastic increase observed with Dec 602 and TBBPA, during the last 10 days of exposure, when compared to reference conditions. Such changes in contaminants’ bioaccumulation/elimination patterns also suggest a potential increase of human health risks of some compounds, if the climate continues changing as forecasted. Therefore, this first study pointed out the urgent need for further research on the effects of abiotic conditions on emerging contaminants kinetics, to adequately estimate the potential toxicological hazards associated to these compounds and develop recommendations/regulations for their presence in seafood, considering the prevailing environmental conditions expected in tomorrow’s ocean.
Assessment of airborne bacteria and noroviruses in air emission from a new highly-advanced hospital wastewater treatment plant

Exposure to bioaerosols can pose a health risk to workers at wastewater treatment plants (WWTPs) and to habitants of their surroundings. The main objective of this study was to examine the presence of harmful microorganisms in the air emission from a new type of hospital WWTP employing advanced wastewater treatment technologies. Air particle measurements and sampling of inhalable bacteria, endotoxin and noroviruses (NoVs) were performed indoor at the WWTP and outside at the WWTP ventilation air exhaust, downwind of the air exhaust, and upwind of the WWTP. No significant differences were seen in particle and endotoxin concentrations between locations. Bacterial concentrations were comparable or significantly lower in the exhaust air than inside the WWTP and in the upwind reference. Bacterial isolates were identified using matrix-assisted laser desorption-ionization time-of-flight mass spectrometry. In total, 35 different bacterial genera and 64 bacterial species were identified in the air samples. Significantly higher genus and species richness was found with an Andersen Cascade Impactor compared with filter-based sampling. No pathogenic bacteria were found in the exhaust air. Streptomyces was the only bacterium found in the air both inside the WWTP and at the air emission, but not in the upwind reference. NoV genomes were detected in the air inside the WWTP and at the air exhaust, albeit in low concentrations. As only traces of NoV genomes could be detected in the exhaust air they are unlikely to pose a health risk to surroundings. Hence, we assess the risk of airborne exposure to pathogenic bacteria and NoVs from the WWTP air emission to surroundings to be negligible. However, as a slightly higher NoV concentration was detected inside the WWTP, we cannot exclude the possibility that exposure to airborne NoVs can pose a health risk to susceptible workers inside the WWTP, although the risk may be low.

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Food Safety, National Research Center for Working Environment, DHI Denmark
Authors: Uhrbrand, K. (Intern), Schultz, A. C. (Intern), Koivisto, A. J. (Ekstern), Nielsen, U. (Ekstern), Madsen, A. M. (Ekstern)
Number of pages: 10
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Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Water Research
Volume: 112
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Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SJR 2.601 SNIP 2.358
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 7.49 SJR 2.663 SNIP 2.563
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.665 SNIP 2.482 CiteScore 6.63
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.946 SNIP 2.702 CiteScore 6.13
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.956 SNIP 2.676 CiteScore 6.02
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
Assessment of the Risk to Public Health due to Use of Antimicrobials in Pigs—An Example of Pleuromutilins in Denmark

Antibiotic consumption in pigs can be optimized by developing treatment guidelines, which encourage veterinarians to use effective drugs with low probability of developing resistance of importance for human health. In Denmark, treatment guidelines for use in swine production are currently under review at the Danish Veterinary and Food Administration. Use of pleuromutilins in swine has previously been associated with a very low risk for human health. However, recent international data and sporadic findings of novel resistance genes suggest a change of risk. Consequently, a reassessment was undertaken inspired by a risk assessment framework developed by the European Medicines Agency. Livestock-associated methicillin-resistant Staphylococcus aureus of clonal complex 398 (MRSA CC398) and enterococci were identified as relevant hazards. The release assessment showed that the probability of development of pleuromutilin resistance was high in MRSA CC398 (medium uncertainty) and low in enterococci (high uncertainty). A relatively small proportion of Danes has an occupational exposure to pigs, and foodborne transmission was only considered of relevance for enterococci, resulting in an altogether low exposure risk. The human consequences of infection with pleuromutilin-resistant MRSA CC398 or enterococci were assessed as low for the public in general but high for vulnerable groups such as hospitalized and immunocompromised persons. For MRSA CC398, the total risk was estimated as low (low uncertainty), among other due to the current guidelines on prevention of MRSA in place at Danish hospitals, which include
screening of patients with daily contact to pigs on admittance. Moreover, MRSA CC398 has a medium human–human transmission potential. For enterococci, the total risk was estimated as low due to low prevalence of resistance, low probability of spread to humans, low virulence, but no screening of hospitalized patients, high ability of acquiring resistance genes, and a limited number of alternative antimicrobials (high uncertainty). This assessment reflects the current situation and should be repeated if pleuromutilin consumption increases substantially, resulting in increased prevalence of mobile, easily transmissible resistance mechanisms. Continuous monitoring of pleuromutilin resistance in selected human pathogens should therefore be considered. This also includes monitoring of linezolid resistance, since resistance mechanisms for pleuromutilins and oxazolidiones are often coupled.

General information
State: Accepted/In press
Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Danish Agriculture and Food Council, Danish Association of the Veterinary Pharmaceutical Industry, Statens Seruminstitute
Authors: Alban, L. (Ekstern), Ellis-Iversen, J. (Intern), Andreasen, M. (Ekstern), Dahl, J. (Ekstern), Wolff Sönksen, U. (Ekstern)
Number of pages: 16
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Frontiers in Veterinary Science
ISSN (Print): 2297-1769
Ratings:
BFI (2018): BFI-level 1
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Source: FindIt
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Association between single nucleotide polymorphisms in the antioxidant genes CAT, GR and SOD1, erythrocyte enzyme activities, dietary and life style factors and breast cancer risk in a Danish, prospective cohort study
Exposure to estrogens and alcohol consumption - the two only well-established risk factors for breast cancer - are capable of causing oxidative stress, which has been linked to progression of breast cancer. Here, five functional polymorphisms in the antioxidant genes SOD1, CAT and GSR were investigated in 703 breast cancer case-control pairs in the Danish, prospective "Diet, Cancer and Health" cohort together with gene-environment interactions between the polymorphisms, enzyme activities and intake of fruits and vegetables, alcohol and smoking in relation to breast cancer risk. Our results showed that genetically determined variations in the antioxidant enzyme activities of SOD1, CAT and GSR were not associated with risk of breast cancer per se. However, intake of alcohol, fruit and vegetables, and smoking status interacted with some of the polymorphisms in relation to breast cancer risk. Four polymorphisms were strongly associated with enzyme activity, but there was no interaction between any of the studied environmental factors and the polymorphisms in relation to enzyme activity. Additionally, single measurement of enzyme activity at entry to the cohort was not associated with risk of breast cancer. Our results therefore suggest that the antioxidant enzyme activities studied here are not major determinants of breast cancer risk.

General information
State: Published
Organisations: National Food Institute, Research Group for Risk-Benefit, National Research Center for Working Environment, University of Copenhagen, Danish Cancer Society
Authors: Kopp, T. I. (Intern), Vogel, U. (Ekstern), Dragsted, L. O. (Ekstern), Tjønneland, A. (Ekstern), Ravn-Haren, G. (Intern)
Number of pages: 14
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: OncoTarget
Article number: 18062
ISSN (Print): 1949-2553
Ratings:
Web of Science (2018): Indexed yes
A Stochastic Model to Assess the Effect of Meat Inspection Practices on the Contamination of the Pig Carcasses

The objective of meat inspection is to promote animal and public health by preventing, detecting, and controlling hazards originating from animals. With the improvements of sanitary level in pig herds, the hazards profile has shifted and the inspection procedures no longer target major foodborne pathogens (i.e., not risk based). Additionally, carcass manipulations performed when searching for macroscopic lesions can lead to cross-contamination. We therefore developed a stochastic model to quantitatively describe cross-contamination when consecutive carcasses are submitted to classic inspection procedures. The microbial hazard used to illustrate the model was Salmonella, the data set was obtained from Brazilian slaughterhouses, and some simplifying assumptions were made. The model predicted that due to cross-contamination during inspection, the prevalence of contaminated carcass surfaces increased from 1.2% to 95.7%, whereas the mean contamination on contaminated surfaces decreased from 1 logCFU/cm² to −0.87 logCFU/cm², and the standard deviations decreased from 0.65 to 0.19. These results are explained by the fact that, due to carcass manipulations with hands, knives, and hooks, including the cutting of contaminated lymph nodes, Salmonella is transferred to previously uncontaminated carcasses, but in small quantities. These small quantities can easily go undetected during sampling. Sensitivity analyses gave insight into the model performance and showed that the touching and cutting of lymph nodes during inspection can be an important source of carcass contamination. The model can serve as a tool to support discussions on the modernization of pig carcass inspection.

General information
State: Published
Organisations: National Food Institute, Research Group for Risk-Benefit, Federal University of Rio Grande do Sul
Authors: de Freitas Costa, E. (Ekstern), Corbellini, L. G. (Ekstern), da Silva, A. P. S. P. (Ekstern), Nauta, M. (Intern)
Number of pages: 16
Pages: 1849-1864
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Risk Analysis
Volume: 37
Issue number: 10
ISSN (Print): 0272-4332
Ratings:
Background Recently the World Health Organization, Foodborne Disease Burden Epidemiology Reference Group (FERG) estimated that 31 foodborne diseases (FBDs) resulted in over 600 million illnesses and 420,000 deaths worldwide in 2010. Knowing the relative role importance of different foods as exposure routes for key hazards is critical to preventing illness. This study reports the findings of a structured expert elicitation providing globally comparable food source attribution.
estimates for 11 major FBDs in each of 14 world subregions. Methods and findings We used Cooke’s Classical Model to
elicit and aggregate judgments of 73 international experts. Judgments were elicited from each expert individually and
aggregated using both equal and performance weights. Performance weighted results are reported as they increased the
informativeness of estimates, while retaining accuracy. We report measures of central tendency and uncertainty bounds
on food source attribution estimate. For some pathogens we see relatively consistent food source attribution estimates
across subregions of the world; for others there is substantial regional variation. For example, for non-typhoidal
salmonellosis, pork was of minor importance compared to eggs and poultry meat in the American and African subregions,
whereas in the European and Western Pacific subregions the importance of these three food sources were quite similar.
Our regional results broadly agree with estimates from earlier European and North American food source attribution
research. As in prior food source attribution research, we find relatively wide uncertainty bounds around our median
estimates. Conclusions We present the first worldwide estimates of the proportion of specific foodborne diseases
attributable to specific food exposure routes. While we find substantial uncertainty around central tendency estimates,
we believe these estimates provide the best currently available basis on which to link FBDs and specific foods in many parts
of the world, providing guidance for policy actions to control FBDs.

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, U.S. Department of Agriculture,
Scientific Institute of Public Health, Brussels, Aspinall & Associates, University of Bristol, Resources for the Future, Delft
University of Technology, World Health Organization, University of Florida, National Institute of Public Health and the
Environment, Utrecht University, Centers for Disease Control and Prevention, Gibb Epidemiology Consulting LLC,
Australian National University, ESR, Universite Catholique de Louvain, University of Zurich
Authors: Hoffmann, S. (Ekstern), Devleeschauwer, B. (Ekstern), Aspinall, W. (Ekstern), Cooke, R. (Ekstern), Corrigan, T.
(Ekstern), Havelaar, A. (Ekstern), Angulo, F. (Ekstern), Gibb, H. (Ekstern), Kirk, M. (Ekstern), Lake, R. (Ekstern),
Speybroeck, N. (Ekstern), Torgerson, P. (Ekstern), Hald, T. (Intern)
Number of pages: 26
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: PLoS ONE
Volume: 12
Issue number: 9
Article number: e0183641
ISSN (Print): 1932-6203
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SJR 1.164 SNIP 1.111
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.11 SJR 1.236 SNIP 1.101
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.427 SNIP 1.136 CiteScore 3.32
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.559 SNIP 1.148 CiteScore 3.54
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.772 SNIP 1.153 CiteScore 3.94
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.982 SNIP 1.156 CiteScore 4.15
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 2.425 SNIP 1.233 CiteScore 4.58
Bacillus cereus in fresh ricotta: Comparison of growth and Haemolysin BL production after artificial contamination during production or post processing

Bacillus cereus is of particular concern for the production of fresh ricotta, due to the ability of spores to survive to the thermal treatment, leading to a potential germination, growth and toxin production in the product. This study aimed to evaluate the effect of a B. cereus contamination occurring in the whey used for the production of ricotta, or in the final product as post-production event. Four B. cereus strains (ATCC 14579 and three clinical isolates, GGu1, GPe2 and RCe1) were first evaluated for their ability to grow at different temperatures (from 5 to 55Â°C) and spore survival rate to different thermal treatments (65, 70, 80 and 90Â°C for 30, 15, 10 and 3Âmin, respectively). None of the strains showed to be psychrotrophic, as no growth below 10Â°C was observed. Strains ATCC 14579 and GPe2 were the most resistant to thermal stresses and were selected for the inoculation tests. In the first trial, two aliquots of whey were inoculated with ATCC 14579 or GPe2 strain and used for the production of fresh ricotta samples, that were stored at 10Â°C for 7 days (only GPe2) or 15Â°C for 5 days (both the strains). In the second trial, the inoculation was made on fresh ricotta just after production. Samples were stored in the same conditions and analysed daily for the quantification of B. cereus vegetative cells and spores; the L2 component of Haemolysin BL was also quantified in the product. At 15Â°C, a very fast germination of spores, followed by an active growth, was constantly observed in the two trials for both B. cereus strains. An earlier growth was detected in the whey-inoculated samples, suggesting the potential activation of spore germination caused by high temperatures reached during ricotta production. A slightly faster growth was observed for ATCC 14579 strain. At 10Â°C, GPe2 strain showed a slow growth, with similar rates between whey- or product-inoculated ricotta samples. The production of HBL toxin was significant only in samples kept at 15Â°C, starting from the 4th day of storage. In order to ensure the consumersâ€™ protection, these results suggest the suitability of fresh ricotta as a substrate for the growth and metabolic activity of B. cereus, highlighting the need to prevent the contamination of the product and, above all, to apply a correct refrigeration during its storage.

General information
State: Published
Organisations: National Food Institute, Università degli Studi di Milano, University of Pisa, Azienda Agricola Casati s. a.
Authors: Tirloni, E. (Ekstern), Ghelardi, E. (Ekstern), Celandroni, F. (Ekstern), Bernardi, C. (Ekstern), Casati, R. (Ekstern), Rosshaug, P. S. (Intern), Stella, S. (Ekstern)
Number of pages: 7
Pages: 272-278
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Food Control
Biotechnology, Food Science, Bacillus cereus, Endospores, Haemolysin BL, Heat treatment, Ricotta

DOIs:
10.1016/j.foodcont.2017.04.008
Bacterial whole genome-based phylogeny: construction of a new benchmarking dataset and assessment of some existing methods

Background
Whole genome sequencing (WGS) is increasingly used in diagnostics and surveillance of infectious diseases. A major application for WGS is to use the data for identifying outbreak clusters, and there is therefore a need for methods that can accurately and efficiently infer phylogenies from sequencing reads. In the present study we describe a new dataset that we have created for the purpose of benchmarking such WGS-based methods for epidemiological data, and also present an analysis where we use the data to compare the performance of some current methods.

Results
Our aim was to create a benchmark data set that mimics sequencing data of the sort that might be collected during an outbreak of an infectious disease. This was achieved by letting an E. coli hypermutator strain grow in the lab for 8 consecutive days, each day splitting the culture in two while also collecting samples for sequencing. The result is a data set consisting of 101 whole genome sequences with known phylogenetic relationship. Among the sequenced samples 51 correspond to internal nodes in the phylogeny because they are ancestral, while the remaining 50 correspond to leaves. We also used the newly created data set to compare three different online available methods that infer phylogenies from whole-genome sequencing reads: NDtree, CSI Phylogeny and REALPHY. One complication when comparing the output of these methods with the known phylogeny is that phylogenetic methods typically build trees where all observed sequences are placed as leafs, even though some of them are in fact ancestral. We therefore devised a method for post processing the inferred trees by collapsing short branches (thus relocating some leafs to internal nodes), and also present two new measures of tree similarity that takes into account the identity of both internal and leaf nodes.

Conclusions
Based on this analysis we find that, among the investigated methods, CSI Phylogeny had the best performance, correctly identifying 73% of all branches in the tree and 71% of all clades. We have made all data from this experiment (raw sequencing reads, consensus whole-genome sequences, as well as descriptions of the known phylogeny in a variety of formats) publicly available, with the hope that other groups may find this data useful for benchmarking and exploring the performance of epidemiological methods. All data is freely available at: https://cge.cbs.dtu.dk/services/evolution_data.php.
Scopus rating (2013): SJR 2.195 SNIP 1.188 CiteScore 4.39
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 2.236 SNIP 1.243 CiteScore 4.61
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 2.307 SNIP 1.191 CiteScore 4.38
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 2.142 SNIP 1.037
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 2.21 SNIP 1.012
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 2.287 SNIP 1.007
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 2.12 SNIP 1.039
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.878 SNIP 0.927
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 2.287 SNIP 0.915
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 2.218 SNIP 0.728
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 1.94 SNIP 0.571
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 7.349 SNIP 0.529
Scopus rating (2001): SJR 0.132 SNIP 0.016
Original language: English
Phylogeny, Evolution, Benchmark, WGS
Electronic versions:
DOIs:
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Bag om Måltidsmærket: Udvikling og afprøvning af mærkets principper for sund kantinemad

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition
Authors: Lassen, A. D. (Intern), Christensen, L. M. (Intern), Trolle, E. (Intern)
Number of pages: 10
Bioaccessibility of contaminants of emerging concern in raw and cooked commercial seafood species: insights for food safety risk assessment

General information
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Organisations: National Food Institute, Research Group for Nano-Bio Science
Pages: 14-14
Publication date: 2017

Bioactivity of Cod and Chicken Protein Hydrolysates before and after in vitro Gastrointestinal Digestion
Bioactivity of cod (Gadus morhua) and chicken (Gallus domesticus) protein hydrolysates before and after in vitro gastrointestinal (GI) digestion was investigated using yeast Saccharomyces cerevisiae as a model organism. Both hydrolysates were exposed to in vitro GI digestion prior to cellular exposure to simulate digestion conditions in the human body and therefore investigate the role of modulations in the GI tract on the cell response. The effect of digested and undigested hydrolysates on intracellular oxidation, cellular metabolic energy and proteome level was investigated. No difference in the effect on intracellular oxidation activity was obtained between cod and chicken hydrolysates, while higher effect on intracellular oxidation was provided by digested hydrolysates, with relative values of intracellular oxidation of cod of (70.2±0.8) and chicken of (74.5±1.4) % than by undigested ones, where values of cod and chicken were (95.5±1.2) and (90.5±0.7) %, respectively. Neither species nor digestion had any effect on cellular metabolic energy. At proteome level, digested hydrolysates gave again significantly stronger responses than undigested counterparts; cod peptides here also gave somewhat stronger response than chicken peptides. The knowledge of the action of food protein hydrolysates and their digests within live cells, also at proteome level, is important for further validation of their activity in higher eukaryotes to develop new products, such as in this case chicken and cod muscle-derived peptides as functional ingredients.

General information
State: Published
Organisations: National Food Institute, University of Ljubljana, Chalmers University of Technology, Icelandic Food Research, Chalmers University of Technology
Pages: 360-367
Publication date: 2017
Main Research Area: Technical/natural sciences
Bioavailability of emerging contaminants in seafood

General information
State: Published
Bioinspired, biomimetic, double-enzymatic mineralization of hydrogels for bone regeneration with calcium carbonate

Hydrogels are popular materials for tissue regeneration. Incorporation of biologically active substances, e.g. enzymes, is straightforward. Hydrogel mineralization is desirable for bone regeneration. Here, hydrogels of Gellan Gum (GG), a biocompatible polysaccharide, were mineralized biomimetically with CaCO₃ using a double enzymatic approach. The enzymes urease (U) and carbonic anhydrase (CA) were incorporated in GG hydrogels. Hydrogels were incubated in a mineralization solution containing U substrate (urea) and calcium ions. U converts urea to ammonia (which raises pH) and CO₂. CA catalyses the reaction of CO₂ with water to form HCO₃⁻, which undergoes deprotonation to form CO₃²⁻, which react with Ca²⁺ to form insoluble CaCO₃. All hydrogels containing U+CA were mineralized more with calcite and stiffer than hydrogels containing U. Mineralization with calcite promoted proliferation and spreading of osteoblast-like cells.
Biomechanical study of porcine urinary bladder wall: matter of isotropy or anisotropy

General information
State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science
Authors: Ajalloueian, F. (Intern), Sami Jokandan, M. (Intern), Chronakis, I. S. (Intern)
Number of pages: 1
Publication date: 2017

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Publisher: Technical University of Denmark (DTU)
Article number: H-1
Main Research Area: Technical/natural sciences
Conference: Sustain 2017, Kgs. Lyngby, Denmark, 06/12/2017 - 06/12/2017
Electronic versions:
SustainAbstracts2017c.compressed_83.pdf
Publication: Research - peer-review » Conference abstract in proceedings – Annual report year: 2017

Biomimetic design, fabrication and development of nano-microstructured layered urine bladder scaffolds for bladder tissue engineering
Brewing with 100 % unmalted grains: barley, wheat, oat and rye

Whilst beers have been produced using various levels of unmalted grains as adjuncts along with malt, brewing with 100 % unmalted grains in combination with added mashing enzymes remains mostly unknown. The aim of this study was to investigate the brewing potential of 100 % unmalted barley, wheat, oat and rye in comparison with 100 % malt. To address this, identical brewing methods were adopted at 10-L scale for each grain type by applying a commercial mashing enzyme blend (Ondea® Pro), and selected quality attributes were assessed for respective worts and beers. Different compositions of fermentable wort carbohydrates were observed in the worts (all at ca. 12°P), and in particular oat wort had lower concentration of maltose compared to the others, resulting in the lowest concentration of alcohol in final beer. Moreover, wort made from unmalted grains also showed lower free amino nitrogen and higher viscosity than malt wort. Furthermore, the use of 100 % unmalted grains resulted in a decrease in the levels of colour and brightness, as well as higher alcohols and esters in the final beers. Consequently, the study provides valuable information for exploring beer brewing with 100 % unmalted barley, oat, rye or wheat using exogenously added enzymes. It also helps to understand the process ability by revealing specific needs when manufacturing different type of beers from unmalted grains, potentially paving the way to process optimisation and development of future products.
Butanol is cytotoxic to Lactococcus lactis while ethanol and hexanol are cytostatic

Lactic acid bacteria currently used extensively by the dairy industry have a superior tolerance towards small chain alcohols, which makes them interesting targets for use in future bio-refineries. The mechanism underlying the alcohol tolerance of lactic acid bacteria has so far received little attention. In the present study the physiological alcohol stress response of Lactococcus lactis subsp. cremoris MG1363 towards the primary, even-chain alcohols; ethanol, butanol, and hexanol was characterized. The alcohol tolerance of L. lactis was found comparable to those reported for highly alcohol resistant lactic acid bacteria. Combined results from alcohol survival rate, live/dead staining, and a novel usage of the beta-galactosidase assay, revealed that while high concentrations of ethanol and hexanol were cytostatic to L. lactis, high concentrations of butanol were cytotoxic, causing irreparable damages to the cell membrane.
Can seafood safety be compromised in the ocean of tomorrow?

**General information**

State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science
Authors: Maulvault, A. L. (Ekstern), Camacho, C. (Ekstern), Sampaio, E. (Ekstern), Barbosa, V. (Ekstern), Alves, R. N. (Ekstern), Fogaça, F. (Ekstern), Kwadijk, C. (Ekstern), Kotterman, M. (Ekstern), Sloth, J. J. (Intern), Rasmussen, R. R. (Intern), Eljarrat, E. (Ekstern), Aznar-Alemany, Ò. (Ekstern), Cunha, S. (Ekstern)
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Source: Findit
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Carbapenemase VCC-1-Producing Vibrio cholerae in Coastal Waters of Germany

During antimicrobial drug resistance testing for Vibrio spp. from coastal waters of Germany, we identified 4 nontoxigenic, carbapenem-resistant V. cholerae isolates. We used whole-genome sequencing to identify the carbapenemase gene bla(VCC-1). In addition, a molecular survey showed that more bla(VCC-1)-harboring isolates are present in coastal waters of Germany.

**General information**

State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, Federal Institute for Risk Assessment
Authors: Hammerl, J. A. (Ekstern), Jaeckel, C. (Ekstern), Bortolaia, V. (Intern), Schwartz, K. (Ekstern), Bier, N. (Ekstern), Hendriksen, R. S. (Intern), Guerra, B. (Ekstern), Strauch, E. (Ekstern)
Number of pages: 3
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Publication date: 2017
Main Research Area: Technical/natural sciences

**Publication information**

Journal: Emerging Infectious Diseases
Volume: 23
Issue number: 10
ISSN (Print): 1080-6040
Ratings:
Contamination of food generally has a negative impact on the quality and may imply a risk to human health. Mercury (Hg) is one of the most hazardous compounds in our environment and is released from the earth’s crust by both natural and anthropogenic processes. The mercury species ‘methylmercury’ is highly toxic, because affects the function of enzymes, easily crosses the blood-brain and the placenta barriers and is toxic to the nervous system (especially the developing brain). It bioaccumulates and biomagnifies through the aquatic food chain. Methylmercury is the most common mercury species in fish and humans are also mainly exposed to methylmercury from consumption of fish and other seafood.

The aims of the present controlled fish feeding trials were to study the carryover from feed to fish fillets (at low spike levels (1x background level of methylmercury) and to determine toxicokinetic parameters. The study included Atlantic salmon (Salmo salar), which is one of the main farmed seafood product consumed in Europe and with production in Northern Europe as well as European seabass (Dicentrarchus labrax) produced in Southern Europe, where it is a highly consumed seafood product. The weight gain of the fish, their feed intake, feed and fish fillet contaminant level were determined to model the uptake and elimination of methylmercury. The toxicokinetics for feed with low levels of methylmercury (41-75 ng/g) showed high assimilation and low elimination.

The research leading to these results has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under the ECsafeSEAFOOD project (grant agreement n° 311820).
starter cultures. The fermented camel milk microbiota was dominated either by Lactobacillales or by Enterobacteriaceae, depending on incubation temperature and the provider of the milk. Strains of species with a potential use as starter cultures i.e., Lactococcus lactis, Lactobacillus plantarum, and Pediococcus acidilactici, were isolated. Fast acidifiers of camel milk have been isolated from the species of Lc. lactis, P. acidilactici, and Streptococcus infantarius. Gram-negative and potentially pathogenic microorganisms were frequent in spontaneously fermented camel milk, indicating the need for improved hygiene in Ethiopian camel farms. The profiled microbiota of spontaneously fermented camel milk and the isolated LAB strains will significantly contribute towards improving food safety and food security in dry regions that depend on camel milk production.
Characterization and genetic variation of vibrio cholerae isolated from clinical and environmental sources in Thailand

Cholera is still an important public health problem in several countries, including Thailand. In this study, a collection of clinical and environmental V. cholerae serogroup O1, O139, and non-O1/non-O139 strains originating from Thailand (1983 to 2013) was characterized to determine phenotypic and genotypic traits and to investigate the genetic relatedness. Using a combination of conventional methods and whole genome sequencing (WGS), 78 V. cholerae strains were identified. WGS was used to determine the serogroup, biotype, virulence, mobile genetic elements, and antimicrobial resistance genes using online bioinformatics tools. In addition, phenotypic antimicrobial resistance was determined by the minimal inhibitory concentration (MIC) test. The 78 V. cholerae strains belonged to the following serogroups O1: (n = 44), O139 (n = 16) and non-O1/non-O139 (n = 18). Interestingly, we found that the typical El Tor O1 strains were the major cause of clinical cholera during 1983-2000 with two Classical O1 strains detected in 2000. In 2004-2010, the El Tor variant strains revealed genotypes of the Classical biotype possessing either only ctxB or both ctxB and rstR while they harbored tcpA of the El Tor biotype. Thirty O1 and eleven O139 clinical strains carried CTXφ (Cholera toxin) and tcpA as well four different pathogenic islands (PAIs). Beside non-O1/non-O139, the O1 environmental strains also presented chxA and Type Three Secretion System (TTSS). The in silico MultiLocus Sequence Typing (MLST) discriminated the O1 and O139 clinical strains from other serogroups and environmental strains. ST69 was dominant in the clinical strains belonging to the 7th pandemic clone. Non-O1/non-O139 and environmental strains showed various novel STs indicating genetic variation. Multidrug-resistant (MDR) strains were observed and conferred resistance to ampicillin, azithromycin, nalidixic acid, sulfamethoxazole, tetracycline, and trimethoprim and harboured variants of the SXT elements. For the first time since 1986, the presence of V. cholerae O1 Classical was reported causing cholera outbreaks in Thailand. In addition, we found that V. cholerae O1 El Tor variant and O139 were pre-dominating the pathogenic strains in Thailand. Using WGS and bioinformatic tools to analyze both historical and contemporary V. cholerae circulating in Thailand provided a more detailed understanding of the V. cholerae epidemiology, which ultimately could be applied for control measures and management of cholera in Thailand.

General information

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Organisations: National Food Institute, Research Group for Genomic Epidemiology, Mahidol University, Thammasat University
Authors: Siriphap, A. (Ekstern), Leekitcharoenphon, P. (Intern), Kaas, R. S. (Intern), Theethakaew, C. (Ekstern), Aarestrup, F. M. (Intern), Sutheinkul, O. (Ekstern), Hendriksen, R. S. (Intern)
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Characterization of alginates from Ghanaian brown seaweeds: Sargassum spp. and Padina spp
Alginates of four locally harvested Ghanaian brown seaweeds from the *Sargassum* and *Padina* genus were assessed for their rheological and chemical characteristics. The seaweeds contained 16–30% by weight of alginate assessed as the sum of d-mannuronic acid (M) and l-guluronic acid (G). In comparison, alginate samples from *Laminaria digitata* and *Macrocystis pyrifera*, used commercially for alginate extraction, contained 29% and 27% by weight of the two constituent uronic acids (M + G), respectively. Alginate extraction yields of the Ghanaian seaweeds ranged from 17 to 23% by weight of dry material; the corresponding yields from *L. digitata* and *M. pyrifera* were 26–29% by weight; these yields were equivalent to 49–99% of the theoretical yields, but the purity of the extracted alginates varied, and were lowest for the Ghanaian seaweed alginates. $^1$H NMR analysis of the uronic acid block-structure in the alginates gave M/G ratios of 0.47 and 0.70 for the alginates extracted from *Sargassum natans* and *Sargassum vulgare*, while alginates from *Padina gymnospora* and *Padina antillarum* had M/G ratios of 1.75 and 1.85, respectively. The alginates from the two Ghanaian Sargassum spp. had high contents of dimeric and trimeric homoguluronate elements: $F_{GG}$ and $F_{GGG}$ values were 0.61 and 0.58 for *S. natans* and 0.49 and 0.44 for *S. vulgare*. The alginates from the two Padina spp. had gel strengths estimated as $G'$ surpassing those from the commercial alginates with $G'$ values after 4 h of rheological oscillation of 340
Pa (P. gymnospora) and 376 Pa (P. antillarum), whereas the gelling properties of the Sargassum spp. alginates were poor. The degree of polymerization of the acid tolerant alginate backbone fragments, but not M/G ratio or homoguluronate dimer and trimer element contents, appeared to correlate to the alginate gel strength. The study shows that notably Ghanaian Padina spp. hold alginate having desirable properties for high gel-strength applications.
Chemical and microbial characteristics of municipal drinking water supply systems in the Canadian Arctic

Drinking water in the vast Arctic Canadian territory of Nunavut is sourced from surface water lakes or rivers and transferred to man-made or natural reservoirs. The raw water is at a minimum treated by chlorination and distributed to customers either by trucks delivering to a water storage tank inside buildings or through a piped distribution system. The objective of this study was to characterize the chemical and microbial drinking water quality from source to tap in three hamlets (Coral Harbour, Pond Inlet and Pangnirtung—each has a population of 0.2 mg/L free chlorine). Some buildings in the four communities contained manganese (Mn), copper (Cu), iron (Fe) and/or lead (Pb) concentrations above Health Canada guideline values for the aesthetic (Mn, Cu and Fe) and health (Pb) objectives. Corrosion of components of the drinking water distribution system (household storage tanks, premise plumbing) could be contributing to Pb, Cu and Fe levels, as the source water in three of the four communities had low alkalinity. The results point to the need for robust disinfection, which may include secondary disinfection or point-of-use disinfection, to prevent microbial risks in drinking water tanks in buildings and ultimately at the tap.

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Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
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Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.99 SNIP 1.199 CiteScore 2.57
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.942 SNIP 1.179 CiteScore 2.34
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Children's genuine participation and development of social capital in the school setting

The concern of involving children in decision-making and activities related to their health and well-being in the school has increasingly become accepted politically as well as academically in line with the adoption of the UN Convention on the rights of the child. While formal and informal participation is viewed as an integral part of social capital generation according to Putnam, which has been found beneficial for health and wellbeing, little is known regarding how social capital is generated in relation to children and drawing on children as active participants. Drawing on children’s perspective and the concept of participation, the aims of this study are therefore to explore children’s experiences with their participation in everyday school situations and secondly, to contribute, theoretically, to the conceptualization of social capital in relation to children in the school setting. An abductive research strategy was used based on 10 focus groups interviews with 44 children aged 10-11 and participatory observation at two Danish public schools. We found three forms of participation: ‘Child-directed’, ‘Adult/child-directed’ and ‘Adult-directed’ that relate to different practises and different social capital types. While children actively contribute to the formation of bonding social capital practices as part of child-directed participation, ‘adult/child-directed’ participation with its focus on participatory democratic education tends to reinforce bonding as well as bridging social capital. In line with Putnam’s focus on civic engagement the merged perspectives thus highlight the importance of stressing pupils’ genuine participation as an active social pedagogical principle alongside structural changes at the whole school level.

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Roskilde University, Steno Diabetes Centre
Chitinase Expression in Listeria monocytogenes Is Influenced by lmo0327, Which Encodes an InternalinLike Protein

The chitinolytic system of Listeria monocytogenes thus far comprises two chitinases, ChiA and ChiB, and a lytic polysaccharide monoxygenase, Lmo2467. The role of the system in the bacterium appears to be pleiotropic, as besides mediating hydrolysis of chitin, the second most ubiquitous carbohydrate in nature, the chitinases have been deemed important for colonization of unicellular moulds, as well as mammalian hosts. In order to identify additional components of the chitinolytic system, we screened a transposon mutant library for mutants exhibiting impaired chitin hydrolysis. The screening yielded a mutant with a transposon insertion in a locus corresponding to lmo0327 of the EGD-e strain. Imo0327 encodes a large (1349 aa) cell-wall associated protein that has been proposed to possess murein hydrolase activity. Single inactivation of lmo0327, as well as of lmo0325 that codes for a putative transcriptional regulator functionally related to lmo0327, led to an almost complete abolishment of chitinolytic activity. The effect could be traced at the transcriptional level, as both chiA and chiB transcripts were dramatically decreased in the lmo0327 mutant. In accordance with that, we could barely detect ChiA and ChiB in the culture supernatants of the mutant strain. Our results provide new information regarding the function of the lmo0325-lmo0327 locus in L. monocytogenes and link it to the expression of chitinolytic activity.

Importance: Many bacteria from terrestrial and marine environments express chitinase activities enabling them to utilize chitin as the sole source of carbon and nitrogen. Interestingly, several bacterial chitinases may also be involved in host pathogenesis. For example, in the important food borne pathogen Listeria monocytogenes, the chitinases ChiA and ChiB, and the lytic polysaccharide monoxygenase Lmo2467 are implicated in chitin assimilation, but also act as virulence factors during infection of mammalian hosts. Therefore, it is important to identify their regulators and induction cues in order to understand how the different roles of the chitinolytic system are controlled and mediated. Here we provide evidence for the importance of lmo0327 and lmo0325, encoding a putative internalin/autolysin and a putative transcriptional activator, respectively, in the efficient expression of chitinase activity in L. monocytogenes, and thereby provide new information regarding the function of the lmo0325-lmo0327 locus.
CHROMagar COL-APSE: a selective bacterial culture medium for the isolation and differentiation of colistin-resistant Gram-negative pathogens

Purpose. A selective chromogenic culture medium for the laboratory isolation and differentiation of colistin resistant Acinetobacter, Pseudomonas, Stenotrophomonas and Enterobacteriaceae spp. (CHROMagar COL-APSE) was developed, evaluated and compared to an existing selective bacterial culture medium (SuperPolymyxin).

Methodology. The medium was challenged with 84 isolates, including polymyxin B (POL B)-susceptible and -resistant type strains and colistin (COL)-resistant organisms recovered from human and animal samples. Susceptibility to COL and POL
B was determined by agar dilution and broth microtitre dilution. The lower limit for the detection of COL-resistant organisms was also calculated for both CHROMagar COL-APSE and SuperPolymyxin media. The ability to isolate and correctly differentiate COL-resistant organisms within mixed cultures was also assessed and compared using both media.

Results. Using CHROMagar COL-APSE, Gram-negative pathogens (n=71) with intrinsic (n=8) or acquired COL (n=63) resistance were recovered with 100% specificity down to the lower limit of detection of 101 colony-forming units (c.f.u.). The growth on SuperPolymyxin was similar, but notably weaker for COL-resistant non-fermentative bacteria (Acinetobacter, Pseudomonas and Stenotrophomonas). CHROMagar COL-APSE was also more sensitive in supporting the growth of Enterobacteriaceae with COL resistance associated with the carriage of mcr-1.

Conclusion. CHROMagar COL-APSE is a sensitive and specific medium for the growth of COL-resistant bacterial pathogens. Due to the low limit of detection (101 c.f.u.), it may be useful as a primary isolation medium in the surveillance and recovery of COL-resistant bacteria from complex human, veterinary and environmental samples, especially those with plasmid-mediated MCR-1 or novel mechanisms of polymyxin resistance.

General information
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Organisations: National Food Institute, Research Group for Genomic Epidemiology, Queen Mary University of London, Federation University Australia, Universite Claude Bernard Lyon 1
Authors: Abdul Momin, M. H. F. (Ekstern), Bean, D. C. (Ekstern), Hendriksen, R. S. (Intern), Haenni, M. (Ekstern), Phee, L. M. (Ekstern), Wareham, D. W. (Ekstern)
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Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
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BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.115 SNIP 0.978 CiteScore 2.27
Web of Science (2015): Indexed yes
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Scopus rating (2014): SJR 1.048 SNIP 1.052 CiteScore 2.26
Web of Science (2014): Indexed yes
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ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.059 SNIP 1.16 CiteScore 2.54
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.121 SNIP 1.114 CiteScore 2.47
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.153 SNIP 1.11
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
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Clean-up of oat extracts for pesticide residues analysis by dSPE with PSA, C18, Z-sep or EMR-lipid, individually and combinations

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Organisations: National Food Institute, Research Group for Analytical Food Chemistry
Authors: Herrmann, S. S. (Intern), Poulsen, M. E. (Intern)
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Coagulants et cultures pour le lait de chamelle

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Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, University of Copenhagen, Chr. Hansen A/S, Haramaya University
Authors: Hansen, E. B. (Intern), Ipsen, R. (Ekstern), Sørensen, K. I. (Ekstern), Hailu, Y. (Ekstern), Berhe, T. (Ekstern), Eshetu, M. (Ekstern)
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Relations
Activities:
Coagulants et cultures pour le lait de chamelle
Publication: Research - peer-review › Paper – Annual report year: 2017
Cold Atmospheric Plasma Manipulation of Proteins in Food Systems

Plasma processing has been getting a lot of attention in recent applications as a novel, eco-friendly, and highly efficient approach. Cold plasma has mostly been used to reduce microbial counts in foodstuff and biological materials, as well as in different levels of packaging, particularly in cases where there is thermal sensitivity. As it is a very recent application, the impact of cold plasma treatment has been studied on the protein structures of food and pharmaceutical systems, as well as in the packaging industry. Proteins, as a food constituent, play a remarkable role in the techno-functional characteristics of processed foods and/or the physico-chemical properties of protein-based films. At the same time, some proteins are responsible for reduction in quality and nutritional value, and/or causing allergic reactions in the human body. This study is a review of the influences of different types of plasma on the conformation and function of proteins with food origin, especially enzymes and allergens, as well as protein-made packaging films. In enzyme manipulation with plasma, deactivation has been reported to be either partial or complete. In addition, an activity increase has been observed in some cases. These variations are caused by the effect of different active species of plasma on the enzyme structure and its function. The level and type of variations in the functional properties of food proteins, purified proteins in food, and plasma-treated protein films are affected by a number of control factors, including treatment power, time, and gas type, as well as the nature of the substance and the treatment environment.
Combating antibiotic resistance - A Policy Roadmap to Reduce Use of Medically Important Antibiotics in Livestock

Medical and public health organizations around the world agree that more prudent use of antibiotics in human medicine and in livestock production is paramount to slow the spread of antibiotic resistance. Of particular concern is the widespread use of antibiotics important to human medicine in food animals. In the U.S., such use accounts for 70% of all sales of medically important antibiotics. It is against this backdrop that 12 antibiotic resistance experts from the fields of infectious disease medicine, veterinary medicine, microbiology, epidemiology and public health joined to craft a policy roadmap to help move the U.S. forward in addressing the contribution of livestock antibiotic use to the growing global threat of antibiotic resistance.

The policy roadmap consists of 11 core policy recommendations that are aimed at a broad set of stakeholders: federal, state and local policymakers, food companies, institutional food purchasers (i.e. hospitals, schools and universities), and medical groups. The recommendations are split into three key areas: 1) decreasing livestock use of medically important antibiotics; 2) monitoring livestock antibiotic use, and 3) enhancing surveillance and data integration to inform antibiotic resistance policy.

Combining exposure to low doses of pesticides causes decreased birth weights in rats

Decreased birth weight is a common effect of many pesticides in reproductive toxicity studies, but there are no empirical data on how pesticides act in combination on this endpoint. We hypothesized that a mixture of six pesticides (cyromazine, MCPB, pirimicarb, quinoclamine, thiram, and ziram) would decrease birth weight, and that these mixture effects could be predicted by the Dose Addition model. Data for the predictions were obtained from the Draft Assessment Reports of the individual pesticides. A mixture of equi-effective doses of these pesticides was tested in two studies in Wistar rats, showing mixture effects in good agreement with the additivity predictions. Significantly lower birth weights were observed
when compounds were present at individual doses below their no-observed adverse effect levels (NOAELs). These results emphasize the need for cumulative risk assessment of pesticides to avoid potentially serious impact of mixed exposure on prenatal development and pregnancy in humans.
Combining traditional dietary assessment methods with novel metabolomics techniques: present efforts by the Food Biomarker Alliance

FFQ, food diaries and 24 h recall methods represent the most commonly used dietary assessment tools in human studies on nutrition and health, but food intake biomarkers are assumed to provide a more objective reflection of intake. Unfortunately, very few of these biomarkers are sufficiently validated. This review provides an overview of food intake biomarker research and highlights present research efforts of the Joint Programming Initiative ‘A Healthy Diet for a Healthy Life’ (JPI-HDHL) Food Biomarkers Alliance (FoodBAll). In order to identify novel food intake biomarkers, the focus is on new food metabolomics techniques that allow the quantification of up to thousands of metabolites simultaneously, which may be applied in intervention and observational studies. As biomarkers are often influenced by various other factors than the food under investigation, FoodBAll developed a food intake biomarker quality and validity score aiming to assist the systematic evaluation of novel biomarkers. Moreover, to evaluate the applicability of nutritional biomarkers, studies are presently also focusing on associations between food intake biomarkers and diet-related disease risk. In order to be successful in these metabolomics studies, knowledge about available electronic metabolomics resources is necessary and further developments of these resources are essential. Ultimately, present efforts in this research area aim to advance quality control of traditional dietary assessment methods, advance compliance evaluation in nutritional intervention studies, and increase the significance of observational studies by investigating associations between nutrition and health.
Commentary: Benefits and risks of antimicrobial use in food-producing animals

General information
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Organisations: National Food Institute, Research Group for Genomic Epidemiology
Authors: Schlundt, J. (Intern), Aarestrup, F. M. (Intern)
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Commercial biocides induce transfer of prophage $\Phi_{13}$ from human strains of Staphylococcus aureus to livestock CC398

Human strains of Staphylococcus aureus commonly carry the bacteriophage $\Phi_{Sa3}$ that encodes immune evasion factors. Recently, this prophage has been found in livestock-associated, methicillin resistant S. aureus (MRSA) CC398 strains where it may promote human colonization. Here, we have addressed if exposure to biocidal products induces phage transfer, and find that during co-culture, $\Phi_{13}$ from strain 8325, belonging to $\Phi_{Sa3}$ group, is induced and transferred from a human strain to LA-MRSA CC398 when exposed to sub-lethal concentrations of commercial biocides containing hydrogen peroxide. Integration of $\Phi_{Sa3}$ in LA-MRSA CC398 occurs at multiple positions and the integration site influences the stability of the prophage. We did not observe integration in hlb encoding $\beta$-hemolysin that contains the preferred $\Phi_{Sa3}$ attachment site in human strains, and we demonstrate that this is due to allelic variation in CC398 strains that disrupts the phage attachment site, but not the expression of $\beta$-hemolysin. Our results show that hydrogen peroxide present in biocidal products stimulate transfer of $\Phi_{Sa3}$ from human to LA-MRSA CC398 strains and that in these strains prophage stability depends on the integration site. Knowledge of $\Phi_{Sa3}$ transfer and stability between human and livestock strains may lead to new intervention measures directed at reducing human infection by LA-MRSA strains.
Common genetic variants are associated with lower serum 25-hydroxyvitamin D concentrations across the year among children at northern latitudes

In a longitudinal study including 642 healthy 8-11-year-old Danish children, we investigated associations between vitamin D dependent SNP and serum 25-hydroxyvitamin D (25(OH)D) concentrations across a school year (August-June). Serum 25(OH)D was measured three times for every child, which approximated measurements in three seasons (autumn, winter, spring). Dietary and supplement intake, physical activity, BMI and parathyroid hormone were likewise measured at each time point. In all, eleven SNP in four vitamin D-related genes: Cytochrome P450 subfamily IIR1 (CYP2R1); 7-dehydrocholesterol reductase/nicotinamide adenine dinucleotide synthetase-1(DHCR7/NADSYN1); group-specific complement (GC); and vitamin D receptor were genotyped. We found minor alleles of CYP2R1 rs10500804, and of GC rs4588 and rs7041 to be associated with lower serum 25(OH)D concentrations across the three seasons (all P values significant).

General information

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Organisations: National Food Institute, Research Group for Risk-Benefit, University of Copenhagen, Aalborg University Hospital
Authors: Petersen, R. A. (Ekstern), Larsen, L. H. (Ekstern), Damsgaard, C. T. (Ekstern), Serensen, L. B. (Ekstern), Hjorth, M. F. (Ekstern), Andersen, R. (Intern), Tetens, I. (Intern), Krarup, H. (Ekstern), Ritz, C. (Ekstern), Astrup, A. (Ekstern), Michaelsen, K. F. (Ekstern), Mølgaard, C. (Ekstern)
Number of pages: 10
Comparative assessment of Vibrio virulence in marine fish larvae

Vibrionaceae infections are a major obstacle for marine larviculture; however, little is known about virulence differences of Vibrio strains. The virulence of Vibrio strains, mostly isolated from vibriosis outbreaks in farmed fish, was tested in larval challenge trials with cod (Gadus morhua), turbot (Scophthalmus maximus) and halibut (Hippoglossus hippoglossus) using a multiwell dish assays with single-egg/larvae cultures. The strains differed significantly in virulence as some caused a high mortality of larva reaching 100% mortality after a few days, while others had no or only marginal effects on survival. Some Vibrio strains were pathogenic in all of the larva species, while some caused disease only in one of the species. Twenty-nine of the Vibrio anguillarum strains increased the mortality of larvae from at least one fish species; however, pathogenicity of the strains differed markedly. Other Vibrio species had no or less pronounced effects on larval mortalities. Iron uptake has been related to V. anguillarum virulence; however, the presence or absence of the plasmid pJM1 encoding anguibactin did not correlate with virulence. The genomes of V. anguillarum were compared (D. Castillo, P.W. D'Alvise, M. Middelboe & L. Gram, unpublished data) and most of the high-virulent strains had acquired virulence genes from other pathogenic Vibrio.

General information

State: Published
Organisations: Department of Systems Biology, Bacterial Ecophysiology and Biotechnology, Department of Environmental Engineering, National Food Institute, Department of Biotechnology and Biomedicine, Bacterial Ecophysiology and Biotechnology, University of Copenhagen, University of Bergen, Fishlab, Institute of Marine Research
Authors: Rønneseth, A. (Ekstern), Castillo, D. (Ekstern), D'Alvise, P. (Intern), Tønnesen, Ø. (Ekstern), Haugland, G. (Ekstern), Grotkjær, T. (Intern), Engell-Sørensen, K. (Ekstern), Nørremark, L. (Ekstern), Bergh, Ø. (Ekstern), Wergeland, H. I. (Ekstern), Gram, L. (Intern)
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BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
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Scopus rating (2016): CiteScore 2.12
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 1.71
Comparison between analyzed and calculated nutrient content of fast foods using two consecutive versions of the Danish food composition databank: FOODCOMP and FRIDA

The objective of this study was to compare the content of selected nutrients of fast foods determined by chemical analysis versus estimated by recipe calculation based on data from two versions of the Danish food composition databank, FOODCOMP and the latest FRIDA. A total of 155 samples of ready-to-eat fast foods were collected from fast food outlets, separated into their components and weighed. Typical components were bread, French fries, vegetables, meat and dressings. The fast foods were analyzed, and energy, protein, saturated fat, iron, thiamin, potassium and sodium contents were compared to recipe calculation. When using the FOODCOMP in recipe calculation, the error percentage was largest for saturated fat (28%). When using FRIDA, the error percentage for saturated fat decreased to 11% and was below 15% for all nutrients. The correlations ranged from 0.49 to 0.89 with both databanks. For the individual fast foods, the error percentages were both acceptable (<15%) and large (>50%). Future challenges for the databank in relation to recipe calculation are to include more varieties, a better coverage of foods used as ingredients, and inclusion of analytical values of mixed dishes if they are commonly eaten from fast food outlets.

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition
Authors: Biltoft-Jensen, A. P. (Intern), Knuthsen, P. (Intern), Saxholt, E. (Intern), Christensen, T. (Intern)
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Computational algorithm for lifetime exposure to antimicrobials in pigs using register data – the LEA algorithm

Accurate and detailed data on antimicrobial exposure in pig production are essential when studying the association between antimicrobial exposure and antimicrobial resistance. Due to difficulties in obtaining primary data on antimicrobial exposure in a large number of farms, there is a need for a robust and valid method to estimate the exposure using register data. An approach that estimates the antimicrobial exposure in every rearing period during the lifetime of a pig using register data was developed into a computational algorithm. In this approach data from national registers on antimicrobial purchases, movements of pigs and farm demographics registered at farm level are used. The algorithm traces batches of pigs retrospectively from slaughter to the farm(s) that housed the pigs during their finisher, weaner, and piglet period. Subsequently, the algorithm estimates the antimicrobial exposure as the number of Animal Defined Daily Doses for treatment of one kg pig in each of the rearing periods. Thus, the antimicrobial purchase data at farm level are translated into antimicrobial exposure estimates at batch level. A batch of pigs is defined here as pigs sent to slaughter at the same day from the same farm. In this study we present, validate, and optimise a computational algorithm that calculate the lifetime exposure of antimicrobials for slaughter pigs. The algorithm was evaluated by comparing the computed estimates to data on antimicrobial usage from farm records in 15 farm units. We found a good positive correlation between the two estimates. The algorithm was run for Danish slaughter pigs sent to slaughter in January to March 2015 from farms with more than 200 finishers to estimate the proportion of farms that it was applicable for. In the final process, the algorithm was successfully run for batches of pigs originating from 3,026 farms with finisher units (77% of the initial population). This number can be increased if more accurate register data can be obtained. The algorithm provides a systematic and repeatable approach to estimating the antimicrobial exposure throughout the rearing period, independent of rearing site for finisher batches, as a lifetime exposure measurement.

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State: Published
Organisations: National Veterinary Institute, Epidemiology, National Food Institute, Research Group for Genomic Epidemiology
Authors: Birkegård, A. C. (Intern), Dalhoff Andersen, V. (Intern), Hisham Beshara Halasa, T. (Intern), Jensen, V. F. (Intern), Toft, N. (Intern), Vigre, H. (Intern)
Pages: 173-180
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Preventive Veterinary Medicine
Volume: 146
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Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 1.31 SJR 1.144
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 2.2 SJR 1.249 SNIP 1.361
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.282 SNIP 1.177 CiteScore 2.1
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.27 SNIP 1.407 CiteScore 2.37
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.264 SNIP 1.529 CiteScore 2.49
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.265 SNIP 1.436 CiteScore 2.45
ISI indexed (2012): ISI indexed yes
The potential contribution of organic farming to the public goods, "Nature and Biodiversity", "Environment", "Energy and Climate", "Human Health and Welfare" and "Animal Health and Welfare" in Denmark is guided and partly secured by the principles and specific requirements of the EU Organic Regulation. However, other factors, such as the production type, farm size, geographical location and not the least the management of the farm, also influence the contribution. Using the ban on synthetic pesticides and restricted use of antibiotics, including the requirements to compensate for and prevent such uses in organic farming, as examples, the positive and negative contributions of organic farming in relation to selected public goods were analysed. The contributions of organic farming to Nature and Biodiversity and Human and Animal Health and Welfare are mainly positive compared to conventional farming for all farm types, whilst the effects on Environment and Energy and Climate are mixed; i.e. some effects are positive and others are negative. The analysis revealed a need for further documentation and revision of the organic principles and specific organic requirements in particular in relation to the public goods Energy and climate, which at present are not addressed in the EU Organic Regulation. Moreover, some organic farming requirements and practices cause dilemmas; e.g. more space per animal and outdoor access improves Animal Health and Welfare but at the same time has negative effects on Environment, Energy Consumption and Climate Change. These dilemmas should be solved before OA may be fully attractive as an integrated policy measure supporting jointly several public goods objectives.
Control of human pathogenic Yersinia enterocolitica in minced meat: Comparative analysis of different interventions using a risk assessment approach

This study aimed to evaluate the effect of different processing scenarios along the farm-to-fork chain on the contamination of minced pork with human pathogenic Y. enterocolitica. A modular process risk model (MPRM) was used to perform the assessment of the concentrations of pathogenic Y. enterocolitica in minced meat produced in industrial meat processing plants. The model described the production of minced pork starting from the contamination of pig carcasses with pathogenic Y. enterocolitica just before chilling. The endpoints of the assessment were (i) the proportion of 0.5 kg minced meat packages that contained pathogenic Y. enterocolitica and (ii) the proportion of 0.5 kg minced meat packages that contained more than 10³ pathogenic Y. enterocolitica at the end of storage, just before consumption of raw pork or preparation. Comparing alternative scenarios to the baseline model showed that the initial contamination and different decontamination procedures of carcasses have an important effect on the proportion of highly contaminated minced meat packages at the end of storage. The addition of pork cheeks and minimal quantities of tonsillar tissue into minced meat also had a large effect on the endpoint estimate. Finally, storage time and temperature at consumer level strongly influenced the number of highly contaminated packages.
Correlation of the allergenicity and tolerogenicity of two cow’s milk protein products with intestinal uptake

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, Technical University of Denmark, Utrecht University, Arla Foods
Authors: Graversen, K. (Intern), Hornslet, S. E. (Ekstern), Smit, J. J. (Ekstern), Heydenreich Jensen, L. (Intern), Christoffersen, H. F. (Ekstern), Jacobsen, L. N. (Ekstern), Bøgh, K. L. (Intern)
Pages: 320-320
Publication date: 2017
Conference: European Academy of Allergy and Clinical Immunology Congress 2017, Helsinki, Finland, 17/06/2017 - 17/06/2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Allergy: European Journal of Allergy and Clinical Immunology
Volume: 72
Issue number: S103
Article number: 0455
ISSN (Print): 0105-4538
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 2.332 SJR 2.702
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 6.23 SJR 2.841 SNIP 2.521
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 3.17 SNIP 2.17 CiteScore 5.73
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 2.529 SNIP 2.161 CiteScore 5.51
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 2.218 SNIP 1.939 CiteScore 4.91
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 2.126 SNIP 1.853 CiteScore 4.81
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 2.221 SNIP 1.801 CiteScore 4.89
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.898 SNIP 1.86
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.735 SNIP 0.982
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 1.432 SNIP 1.933
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.389 SNIP 1.861
Correlation of the allergenicity and tolerogenicity of two cow's milk protein products with their intestinal uptake – a study in Brown Norway (BN) rats

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, Technical University of Denmark, Utrecht University, Arla Foods Ingredients Group P/S
Authors: Graversen, K. (Intern), Asukowit, C. (Ekstern), Reholt, J. (Ekstern), Hornslet, S. E. (Ekstern), Jensen, L. H. (Intern), Smit, J. (Ekstern), Christoffersen, H. F. (Ekstern), Jacobsen, L. N. (Ekstern), Bøgh, K. L. (Intern)
Number of pages: 1
Pages: 35-35
Publication date: 2017

Host publication information
Title of host publication: Proceedings of the 3rd International ImpARAS Conference
Place of publication: Helsingør, Denmark
Article number: 016
Main Research Area: Technical/natural sciences
Conference: 3rd International ImpARAS Conference, Helsingør, Denmark, 10/10/2017 - 10/10/2017
Electronic versions:
Proceeding book
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

Correlation of the allergenicity and tolerogenicity of two cow's milk protein products with their intestinal uptake – a study in Brown Norway rats

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, Technical University of Denmark, Arla Foods Ingredients Group P/S, Utrecht University
Authors: Graversen, K. (Intern), Asukowit, C. (Ekstern), Reholt, J. (Ekstern), Hornslet, S. E. (Ekstern), Jensen, L. H. (Intern), Smit, J. (Ekstern), Christoffersen, H. F. (Ekstern), Jacobsen, L. N. (Ekstern), Bøgh, K. L. (Intern)
Number of pages: 1
Publication date: 2017
Main Research Area: Technical/natural sciences
Electronic versions:
ImpARAS_2017_Abstract_Katrine_Graversen.pdf
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2017
Cross-border outbreak of listeriosis caused by cold-smoked salmon, revealed by integrated surveillance and whole genome sequencing (WGS), Denmark and France, 2015 to 2017

In August 2017, an outbreak of six listeriosis cases in Denmark was traced to cold-smoked salmon, using epidemiological investigations and whole-genome sequencing (WGS) analyses. Exchange of genome sequences allowed identification in France of a food isolate from a salmon-derived product and a human isolate from 2016 within the same cgMLST cluster as the Danish isolates (L2-SL8-ST8-CT771). The salmon product came from a third European Union country. WGS can rapidly link human cases and food isolates across Europe.

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, Statens Seruminstitute, Danish Veterinary and Food Administration, Institut Pasteur, French Public Health Agency, Ministry of Agriculture
Number of pages: 5
Pages: 8-12
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Eurosurveillance
Volume: 22
Issue number: 50
ISSN (Print): 1025-496X
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 2.087 SJR 3.727
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.72 SNIP 2.311 SJR 4.072
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 2.69 SNIP 1.864 SJR 3.11
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 2.83 SNIP 1.75 SJR 3.15
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 2.62 SNIP 1.766 SJR 2.673
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 3.02 SNIP 2.262 SJR 2.837
ISI indexed (2012): ISI indexed no
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 3.27 SNIP 2.5 SJR 2.678
ISI indexed (2011): ISI indexed no
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SNIP 15.968 SJR 1.831
BFI (2009): BFI-level 1
Scopus rating (2009): SNIP 4.554 SJR 0.704
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SNIP 1.037 SJR 0.461
Scopus rating (2007): SNIP 0.185 SJR 0.411
Cross-sectional survey on the use and impact of the Danish national antibiotic use guidelines for companion animal practice

Background: The Danish antibiotic use guidelines for companion animal practice were published by the Danish Veterinary Association in 2012. Since then, national surveillance data indicate a 10% reduction in the total use of antibiotics for companion animals, particularly a marked reduction in the use of third generation cephalosporins. The aim of the study was to assess if and how the guidelines have impacted diagnostic and antibiotic prescription habits of the users, and to identify user perceived barriers to implementation.

Results: An online questionnaire was sent to all 882 members of the Danish Small Animal Veterinary Association in October 2015. The survey was completed by 151 veterinarians. Respondents most frequently consulted the recommendations on skin and urinary tract infections (UTI), and users generally reported a high degree of adherence to the recommendations. Sixty-five per cent indicated that the guidelines had influenced their habits in one or more of the areas being investigated, i.e. perioperative use of antibiotics, use of first line antibiotics for the treatment of pyoderma or UTI, and/or use of microbiological diagnostics. Perioperative use of antibiotics for clean surgeries was uncommon, irrespective of whether respondents had consulted the relevant recommendations or not. On the contrary, significant differences in the prescribing habits between guideline users and non-users were observed for pyoderma and UTI, suggesting an impact of the guidelines towards more prudent antimicrobial use. The diagnostic habits were examined in a subgroup of 63 guideline users. Of those, 19 and 39% reported frequent use of culture and susceptibility (C&S) testing prior to treating pyoderma and UTI respectively, whereas 68-84% reported C&S testing in the event of poor response to treatment or recurrence of infections. The main barriers for implementation of therapeutic recommendations were confidence in old prescribing practices and unavailability of recommended drugs. The main barriers for C&S testing were good experience with empiric treatment, and the owners’ financial situation.

Conclusions: The findings suggest a positive influence of the national antibiotic guidelines on prescription patterns among companion animal practitioners in Denmark. Sustained campaign activity is encouraged and should include promotion of bacteriological testing.
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.01 SJR 0.641 SNIP 0.826
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.644 SNIP 1.641 CiteScore 0.98
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.753 SNIP 1.21 CiteScore 1.54
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.539 SNIP 1.11 CiteScore 1.41
ISI indexed (2013): ISI indexed no
Web of Science (2013): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.664 SNIP 0.997 CiteScore 1.42
ISI indexed (2011): ISI indexed no
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.551 SNIP 1.005
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.409 SNIP 0.716
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.338 SNIP 0.588
Scopus rating (2007): SJR 0.207 SNIP 1.86
Scopus rating (2006): SJR 0.184 SNIP 0.963
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 0.131 SNIP 0.191
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 0.114 SNIP 0
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 0.214 SNIP 0
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 0.486 SNIP 0.454
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 0.318 SNIP 0.757
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 0.015 SNIP 0.912
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 0.107 SNIP 0.903

Original language: English
Veterinary (all), Bacteriological testing, Culture, Prescription patterns, Pyoderma, Questionnaire, Rational antimicrobial use, Sensitivity, Susceptibility, Urinary tract infections, UTI

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Source: FindIt
Source-ID: 2394117513
Publication: Research - peer-review › Journal article – Annual report year: 2017
Crystal Phase Quantum Well Emission with Digital Control

One of the major challenges in the growth of quantum well and quantum dot heterostructures is the realization of atomically sharp interfaces. Nanowires provide a new opportunity to engineer the band structure as they facilitate the controlled switching of the crystal structure between the zinc-blende (ZB) and wurtzite (WZ) phases. Such a crystal phase switching results in the formation of crystal phase quantum wells (CPQWs) and quantum dots (CPQDs). For GaP CPQWs, the inherent electric fields due to the discontinuity of the spontaneous polarization at the WZ/ZB junctions lead to the confinement of both types of charge carriers at the opposite interfaces of the WZ/ZB/WZ structure. This confinement leads to a novel type of transition across a ZB flat plate barrier. Here, we show digital tuning of the visible emission of WZ/ZB/WZ CPQWs in a GaP nanowire by changing the thickness of the ZB barrier. The energy spacing between the sharp emission lines is uniform and is defined by the addition of single ZB monolayers. The controlled growth of identical quantum wells with atomically flat interfaces at predefined positions featuring digitally tunable discrete emission energies may provide a new route to further advance entangled photons in solid state quantum systems.

General information
State: Published
Organisations: National Food Institute, Department of Photonics Engineering, Eindhoven University of Technology, Paul-Drude-Institut für Festkörperelektronik, Delft University of Technology
Pages: 6062-6068
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Nano Letters
Volume: 17
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ISSN (Print): 1530-6984
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 13.4
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 14.76
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 14.04
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 14.23
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): CiteScore 13.78
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): CiteScore 13.83
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Web of Science (2008): Indexed yes
Web of Science (2007): Indexed yes
Web of Science (2006): Indexed yes
Web of Science (2005): Indexed yes
Web of Science (2003): Indexed yes
Web of Science (2002): Indexed yes
Web of Science (2001): Indexed yes
Original language: English
Semiconductor nanowire, Crystal phase quantum well, Gallium phosphide, Photoluminescence, Spontaneous polarization
Electronic versions:
acs.nanolett.7b02489.pdf
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Publication: Research - peer-review › Journal article – Annual report year: 2017

Cumulative risk assessment of chemical exposure of children/unborn children to endocrine disruptors and neurotoxic substances

General information
State: Published
Organisations: National Food Institute, Research Group for Molecular and Reproductive Toxicology, DHI Hørsholm
Authors: Larsen, P. B. (Ekstern), Boberg, J. (Intern), Mørck, T. A. (Ekstern), Buchardt Boyd, H. (Ekstern)
Number of pages: 1
Pages: 307-307
Publication date: 2017
Conference: Eurotox 2017, Bratislava, Slovakia, 10/09/2017 - 10/09/2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Toxicology Letters
Volume: 280
Issue number: S1
Article number: P-12-00-04
ISSN (Print): 0378-4274
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.025 SJR 1.103
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.83 SJR 1.302 SNIP 1.201
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.281 SNIP 1.117 CiteScore 3.62
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.142 SNIP 1.154 CiteScore 3.45
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.11 SNIP 1.199 CiteScore 3.56
ISI indexed (2013): ISI indexed yes
Cyclic imines identification and confirmation in European commercial shellfish and seaweed samples

General information
State: Published
Organisations: National Food Institute, Research Group for Analytical Food Chemistry
Pages: 12-12
Publication date: 2017

Host publication information
Title of host publication: Seafood safety new findings & innovation challenges - abstract book
Place of publication: Brussels, Belgium
Publisher: Royal Flemish Academy of Science and the Arts (KVAB)
Main Research Area: Technical/natural sciences
Conference: Seafood Safety, Brussels, Belgium, 25/01/2017 - 25/01/2017
Electronic versions:
21042f_6f62ebecb4654c2fac338c8587d6be15.pdf
Publication: Research - peer-review › Conference abstract in journal – Annual report year: 2017
DANMAP 2016 - Use of antimicrobial agents and occurrence of antimicrobial resistance in bacteria from food animals, food and humans in Denmark

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Research Group for Genomic Epidemiology, Research Group for Microbial Food Safety, National Veterinary Institute, Bacteriology & Parasitology, Statens Serum Institute, State Serum Institute, Statens Serum Institut
Number of pages: 130
Publication date: 2017

Publication information
Publisher: Statens Serum Institut, National Veterinary Institute, Technical University of Denmark National Food Institute, Technical University of Denmark
Original language: English
Main Research Area: Technical/natural sciences
Electronic versions: DANMAP_2016_LOW_241017.pdf
Source: PublicationPreSubmission
Source-ID: 140074257
Publication: Commissioned › Report – Annual report year: 2017

Denmark life expectancy in years (2013): Fact sheet Denmark

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition
Authors: Fagt, S. (Intern), Matthiessen, J. (Intern)
Number of pages: 2
Publication date: 2017

Publication information
Place of publication: Søborg
Publisher: National Food Institute, Technical University of Denmark
Original language: English
Main Research Area: Technical/natural sciences
Electronic versions: Fact_sheet_Denmark.pdf
Publication: Research - peer-review › Report – Annual report year: 2017

Den mikrobielle verden indeni os - En kort introduktion til tarmens mikrobiom

General information
State: Published
Organisations: Copenhagen Center for Health Technology, National Food Institute, Research Group for Gut Microbiology and Immunology
Authors: Licht, T. R. (Intern)
Pages: 3-5
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Miljø og sundhed
Volume: 23
Issue number: Suppl. 1
ISSN (Print): 1601-4146
Ratings:
Detection of lead nanoparticles in game meat by single particle ICP-MS following use of lead-containing bullets

This study investigated whether game meat may contain nanoparticles of lead from ammunition. Lead nanoparticles in the range 40 to 750 nm were detected by ICP-MS in single particle mode in game shot with lead-containing bullets. The median diameter of the detected nanoparticles was around 60 nm. The particle mass concentration ranged from 290 to 340 ng/g meat and the particle number concentrations from 27 to 50 million particles/g meat. The size limit of detection strongly depended on the level of dissolved lead and was in the range of 40 to 80 nm. In game meat sampled more than 10 cm away from the wound channel, no lead particles with a diameter larger than 40 nm were detected. In addition to dissolved lead in meat that originated from particulates, the presence of lead nano particles in game meat represents a hitherto unattended source of lead with a largely unknown toxicological impact to humans.

General information

State: Published
Authors: Kollander, B. (Ekstern), Widemo, F. (Ekstern), Ågren, E. (Ekstern), Larsen, E. H. (Ekstern), Löschner, K. (Intern)
Number of pages: 9
Pages: 1877-1885
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Analytical and Bioanalytical Chemistry
Volume: 409
Issue number: 7
ISSN (Print): 1618-2642
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.921 SJR 0.978
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.03 SJR 0.99 SNIP 1.044
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.059 SNIP 1.072 CiteScore 3.07
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.126 SNIP 1.212 CiteScore 3.26
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.236 SNIP 1.279 CiteScore 3.55
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.354 SNIP 1.279 CiteScore 3.51
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Detection of linezolid resistance due to the optrA gene in Enterococcus faecalis from poultry meat from the American continent (Colombia)

Three Enterococcus isolates obtained from retail chicken collected in 2010-11 as part of the Colombian Integrated Program for Antimicrobial Resistance Surveillance (COIPARS) showed reduced susceptibility towards linezolid (MIC 8 mg/L). This study aimed at characterizing the isolates resistant to linezolid and detecting the resistance mechanism. Strains were analysed in 2011-12 without successful detection of the resistance mechanism. All isolates were found negative for the cfr gene and no 23S rRNA mutations were detected. In 2016, with the novel resistance gene optrA being described, the WGS data were re-analysed using in silico genomic tools for confirmation of species, detection of virulence and resistance genes, MLST and SNP analyses and comparison of the genetic environment with the previously published plasmid pE349. Three Enterococcus faecalis isolates were found positive for the optrA gene encoding resistance to linezolid and phenicols. Additional screening of 37 enterococci strains from the same study did not detect any further positives. Typing showed that two of the isolates belong to ST59, while the last belongs to ST489. All isolates carry genes encoding resistance to macrolide-lincosamide-streptogramin B, tetracycline and phenicols. In addition, the ST489 isolate also carries genes conferring aminoglycoside resistance and is resistant to quinolones, but no plasmid-mediated gene was detected. The optrA gene regions of the three plasmids showed high similarity to the originally reported optrA-carrying plasmid pE349. To the best of our knowledge, this is the first description of the optrA gene in E. faecalis isolated from poultry meat in the Americas.

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, Corporación Colombiana de Investigación Agropecuaria (CORPOICA), Pan American Health Organization
Authors: Cavaco, L. (Intern), Bernal, J. F. (Ekstern), Zankari, E. (Intern), Léon, M. (Ekstern), Hendriksen, R. S. (Intern), Perez-Gutierrez, E. (Ekstern), Aarestrup, F. M. (Intern), Donado-Godoy, P. (Ekstern)
Pages: 678-683
Publication date: 2017
Main Research Area: Technical/natural sciences
Detection of Salmonella enterica in meat in less than 5 hours by a low-cost and non-complex sample preparation method

Salmonella is recognised as one of the most important foodborne bacteria, and has a wide health and socioeconomical impact worldwide. Fresh pork meat is one of the main sources of Salmonella and efficient and fast methods for detection are therefore necessary. Current methods for Salmonella detection in fresh meat usually include >16 h of culture enrichment, in few cases <12 h, thus requiring at least two working shifts. Here, we report a rapid (<5 h) and high throughput method, for screening of Salmonella in samples from fresh pork meat, consisting of a 3-h enrichment in standard buffered peptone water, and a real-time PCR compatible sample preparation method, based on filtration, centrifugation, and enzymatic digestion, followed by fast cycling real-time PCR detection. The method was validated in an un-paired, comparative study against the Nordic Committee on Food Analysis (NMKL) reference culture method 187. Pork meat samples (n=140) were either artificially contaminated with Salmonella at levels: 0, 1-10 and 10-100 CFU/25 g, or naturally contaminated. Cohen's Kappa for degree of agreement between the rapid method and the reference was 0.64 and the relative accuracy, sensitivity and specificity for the rapid method were 81.4, 95.1 and 97.9 %, respectively. The limit of detection (LOD50) was 8.8 CFU/25 g for the rapid method and 7.7 CFU/25 g for the reference method. Implementation of this method will enable faster release of Salmonella low risk meat, providing savings for meat producers, and help contribute to improved food safety. While the cost of analysis and hands-on time of the presented rapid method were comparable to reference culture methods, the fast product release by this method can provide the meat industry with a competitive advantage. Not only will the abattoirs save costs for work hours and cold storage; consumers as well as retailers will also benefit from fresher meat with a longer shelf life. Furthermore, the presented sample preparation might be adjusted for application in detection of other pathogenic bacteria in different sample types.
Developing a framework to assess the cost-effectiveness of COMPARE - A global platform for the exchange of sequence-based pathogen data

Analysing the genomic data of pathogens with the help of next-generation sequencing (NGS) is an increasingly important part of disease outbreak investigations and helps guide responses. While this technology has already been successfully employed to elucidate and control disease outbreaks, wider implementation of NGS also depends on its cost-effectiveness. COMPARE - short for ‘Collaborative Management Platform for detection and Analyses of (Re-) emerging and foodborne outbreaks’ - is a major project, funded by the European Union, to develop a global platform for sharing and
analysing NGS data and thereby improve the rapid identification, containment and mitigation of emerging infectious diseases and foodborne outbreaks. This article introduces the project and presents the results of a review of the literature, composed of previous relevant cost-benefit and cost-effectiveness analyses. The authors also outline the implications for a methodological framework to assess the cost-effectiveness of COMPARE and similar systems.

**General information**

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Organisations: National Food Institute, Research Group for Genomic Epidemiology  
Authors: Alleweldt, F. (Ekstern), Kara, S. (Ekstern), Osinski, A. (Ekstern), Van Baalk, P. (Ekstern), Kellerborg, K. (Ekstern), Aarestrup, F. M. (Intern), Koopmans, M. (Ekstern)

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Development and application of QSAR models for mechanisms related to endocrine disruption.
Humans are daily exposed to a wide variety of man-made chemicals through food, consumer products, water, air inhalation etc. For the main part of these chemicals no or only very limited information is available on their potential to cause endocrine disruption. Traditionally such information has been derived from animal studies, which are time-consuming, expensive and subject to ethical issues. For these reasons alternative methods such as cell culture studies and non-testing approaches such as quantitative structure-activity relationships (QSARs) are of high value as they can provide information on the mode of action of chemicals in a faster and cheaper way. The main purpose in this PhD project was to develop QSAR models for mechanisms related to endocrine disruption and apply the models to predict 10,000s of chemicals to which humans are potentially exposed. The first part of the thesis is a background section, comprising 1) an introduction to the endocrine system with a focus on thyroid hormones (THs) and their essential function in neurodevelopment as well as a description of how chemicals may interfere with endocrine mechanisms and cause adverse effects, 2) an introduction to the applied methods to develop QSARs, and 3) an introduction to regulatory toxicology including the acceptance of predictions from QSARs under the European chemicals regulation, REACH.

Following the background section, the four projects of the thesis are described. The first three projects focus on the development of QSARs for mechanisms that can affect TH levels: Thyroperoxidase (TPO) inhibition, Pregnane X receptor (PXR) activation, and Aryl hydrocarbon receptor (AhR) activation. TPO is an enzyme essential in the synthesis of THs, and both PXR and AhR are important regulators of enzymes involved in the turnover of THs and other hormones. The fourth project was part of a large international QSAR collaboration, CERAPP, in which a QSAR model for estrogen receptor (ER) agonism was developed, and used to predict 32,197 CERAPP chemicals. All models in the four projects were validated to assess how good they are at making correct predictions, and they all showed good predictive performance. The QSAR models were used to predict 72,524 REACH substances, and they were able to predict between 38,114 to 53,433 of these substances. To conclude, the QSAR models developed in this PhD project can provide important information on the 10,000s of chemicals in our surroundings. The predictions can for example be used for prioritizing chemicals for further evaluation, aid in chemical assessments, grouping approaches, and drug development as well as in the generation of new hypotheses on mode of actions in adverse health outcomes.

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Development of carbohydrate-based nano-microstructures loaded with fish oil by using electrohydrodynamic processing

The encapsulation of fish oil in carbohydrate-based nanomicrostructures obtained by electrohydrodynamic processing was investigated. Solutions of pullulan 200 kDa (15 wt%) and dextran 70 kDa (25 wt%) presented appropriate properties (viscosity, surface tension and conductivity) to allow the formation of nano-microfibers and nano-microcapsules, respectively. Although dextran 70 kDa exhibited antioxidant properties in solution, their capsules produced at lab and pilot-plant scales showed a low oxidative stability both with emulsified and neat oil. Phase separation of solution and opened capsules indicated a poor interaction between dextran and fish oil, which suggested that further optimization of the electrospraying solution is necessary. On the contrary, pullulan solutions were optimized to work even at pilot-plant scale. In this case, in spite of the prooxidant effect of pullulan in solution, oxidatively stable pullulan fibers (PV = 12.3 ± 0.9 meq O2/kg and 15.5 ± 5.1 ng/g of 1-penten-3-ol) were obtained when oil was incorporated as neat oil and when producing batches during short time (30 or 10 min). This superior oxidative stability when compared to fibers with emulsified oil is mainly attributed to a higher fish oil entrapment and to the location of the oil in large bead-structures with a reduced specific surface area. These results indicated the feasibility of producing omega-3 nanodelivery systems by encapsulating fish oil in pullulan nano-microfibers using electrospinning processing.

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Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Research Group for Nano-Bio Science, Center for Electron Nanoscopy, Technical University of Denmark, IATA-CSIC
Authors: García Moreno, P. J. (Intern), Özdemir, N. (Ekstern), Boutrup Stephansen, K. (Intern), Mateiu, R. V. (Intern), Echegoyend, Y. (Ekstern), Lagaron, J. (Ekstern), Chronakis, I. S. (Intern), Jacobsen, C. (Intern)
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Die Hard - improving the physical quality of extruded fish feed pellets

The present thesis, Die Hard – Improving the Physical Quality of Extruded Fish Feed Pellets, approaches some of the biggest challenges within production of high-performance feed: Oil leakage and pellet strength. Salmon farmers in the aquaculture industry are requesting high energy dense diets with a supreme physical quality. To fulfil the market expectations, feed pellets have to contain 40% fat and tolerate high levels of stress during the transportation to the fish cages – without the pellets crumbling and oil leaking out of the feed. To solve this task, an improved understanding of the pellet structure’s impact on the physical quality of the feed is required. Through detailed analyses of the pellets’ microstructure, it was found that the optimal pore structure is defined by a high pore-surface-area to object-volume ratio. To obtain this pore structure, a new generation of dies was developed. These dies are proven to significantly reduce oil leakage while the overall pellet strength is significantly enhanced. The observations leading to the development of the new dies are published in the enclosed Paper I, whereas an application increasing the utilization of the pores is filed as Patent Application I, and the die technology facilitating an improved pore structure of extruded feed is filed as Patent Application II.

Dietary fibre in Europe: current state of knowledge on definitions, sources, recommendations, intakes and relationships to health

Research into the analysis, physical properties and health effects of dietary fibre has continued steadily over the last 40-50 years. From the knowledge gained, countries have developed guidelines for their populations on the optimal amount of fibre to be consumed each day. Food composition tables from many countries now contain values for the dietary fibre content of foods, and, from these, combined with dietary surveys, population intakes have been determined. The present review assessed the uniformity of the analytical methods used, health claims permitted, recommendations and intakes, particularly from national dietary survey data showed that intakes do not reach recommendations and very few countries provide guidance on the types of fibre that are preferable to achieve recommended intakes. Research gaps were identified and ideas suggested to provide information for more detailed advice to the public about specific food sources that should be consumed to achieve health benefits.
Dietary fibre, Dietary intakes, Dietary recommendations, Health claims

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Diethylhexyl phthalate effects on male reproductive system during neonatal period

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Authors: Di Lorenzo, M. (Ekstern), De Falco, M. (Ekstern), Hass, U. (Intern), Boberg, J. (Intern)
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Dilute solution, flow behavior, thixotropy and viscoelastic characterization of cress seed (Lepidium sativum) gum fractions

In this study, rheological properties of cress seed gum (CSG) and its fractions (F1, F2, F3; fractionated using stepwise extraction with water) were investigated. Cress seed gum and its fractions revealed random coil conformation in dilute regimes; chain flexibility and intrinsic viscosity increased from F1 to F2 to F3. The mechanical spectra derived from strain sweep and frequency sweep measurements indicated that the gum dispersions had viscoelastic behavior; all of them were classified as weak gels and the gel network got stronger along the series of F1, F2 and F3. Arrhenius-type model was used to describe the effect of temperature; F2 and F1 showed the highest and the lowest activation energy, respectively. All gum dispersions displayed thixotropic behavior; hysteresis loop area and structural recovery increased significantly along the series of F1, F2 and F3. In general, the results indicated that CSG and the fractions exhibited significantly different rheological properties.

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Organisations: National Food Institute, Research Group for Food Production Engineering, Ferdowsi University of Mashhad
Authors: Razmkhah, S. (Ekstern), Razavi, S. M. A. (Ekstern), Mohammadifar, M. A. (Intern)
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Direct PCR - A rapid method for multiplexed detection of different serotypes of Salmonella in enriched pork meat samples

Salmonellosis, an infectious disease caused by Salmonella spp., is one of the most common foodborne diseases. Isolation and identification of Salmonella by conventional bacterial culture method is time consuming. In response to the demand for rapid on line or at site detection of pathogens, in this study, we developed a multiplex Direct PCR method for rapid detection of different Salmonella serotypes directly from pork meat samples without any DNA purification steps. An inhibitor-resistant Phusion PFu DNA polymerase was used to overcome PCR inhibition. Four pairs of primers including a pair of newly designed primers targeting Salmonella spp. at subtype level were incorporated in the multiplex Direct PCR. To maximize the efficiency of the Direct PCR, the ratio between sample and dilution buffer was optimized. The sensitivity and specificity of the multiplex Direct PCR were tested using naturally contaminated pork meat samples for detecting and subtyping of Salmonella spp. Conventional bacterial culture methods were used as reference to evaluate the performance of the multiplex Direct PCR. Relative accuracy, sensitivity and specificity of 98.8%; 97.6% and 100%, respectively, were achieved by the method. Application of the multiplex Direct PCR to detect Salmonella in pork meat at slaughter reduces the time of detection from 5 to 6 days by conventional bacterial culture and serotyping methods to 14 h (including 12 h enrichment time). Furthermore, the method poses a possibility of miniaturization and integration into a point-of-need Lab-on-a-chip system for rapid online pathogen detection.

General Information
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Organisations: National Food Institute, Research Group for Analytical and Predictive Microbiology, Department of Micro- and Nanotechnology, BioLabChip, National Veterinary Institute
Authors: Chin, W. H. (Intern), Sun, Y. (Intern), Hegberg, J. (Intern), Than Linh, Q. (Intern), Engelsmann, P. (Intern), Wolff, A. (Intern), Bang, D. D. (Intern)
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Scopus rating (2014): SJR 0.722 SNIP 0.881 CiteScore 1.96
Web of Science (2014): Indexed yes
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Scopus rating (2013): SJR 0.843 SNIP 1.129 CiteScore 2.03
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BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.517 SNIP 0.802 CiteScore 1.97
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ISI indexed (2011): ISI indexed yes
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BFI (2009): BFI-level 1
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Discovery, cloning and characterisation of proline specific prolyl endopeptidase, a gluten degrading thermo-stable enzyme from Sphaerobacter thermophiles

Gluten free products have emerged during the last decades, as a result of a growing public concern and technological advancements allowing gluten reduction in food products. One approach is to use gluten degrading enzymes, typically at low or ambient temperatures, whereas many food production processes occur at elevated temperature. We present in this paper, the discovery, cloning and characterisation of a novel recombinant thermostable gluten degrading enzyme, a proline specific prolyl endoprotease (PEP) from Sphaerobacter thermophiles. The molecular mass of the prolyl endopeptidase was estimated to be 77 kDa by using SDS-PAGE. Enzyme activity assays with a synthetic dipeptide Z-Gly-Pro-p-nitroanilide as the substrate revealed that the enzyme had optimal activity at pH 6.6 and was most active from pH 5.0-8.0. The optimum temperature was 63 °C and residual activity after one hour incubation at 63 °C was higher than 75 %. The enzyme was activated and stabilized by Co2+ and inhibited by Mg2+, K+ and Ca2+ followed by Zn2+, Na+, Mn2+, Al3+, and Cu2+. The Km and kcat values of the purified enzyme for different substrates were evaluated. The ability to degrade immunogenic gluten peptides (PQPQLPYPQPQLPY (α-gliadin) and SQQQFPQPQQPFPQQP (γ-hordein)) was also confirmed by enzymatic assays and mass spectrometric analysis of cleavage fragments. Addition of the enzyme during small scale mashing of barley malt reduced the gluten content. The findings here demonstrate the potential of enzyme use during mashing to produce gluten free beer, and provide new insights into the effects of proline specific proteases on gluten degradation.

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Authors: Shetty, R. (Intern), Vestergaard, M. (Intern), Jessen, F. (Intern), Hägglund, P. (Intern), Knorr, V. (Ekstern), Koehler, P. (Ekstern), Prakash, H. (Ekstern), Hobley, T. J. (Intern)
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Disease burden due to gastrointestinal infections among people living along the major wastewater system in Hanoi, Vietnam

Background: Despite recent improvements of wastewater treatment capacities in urban areas of Hanoi, Vietnam, microbial pollution is still considerable. There is a paucity of burden estimates due to gastrointestinal infection in people living along the wastewater system, and among people who are in direct contact with the wastewater, such as farmers using wastewater in agriculture and aquaculture. Methods: A quantitative microbial risk assessment (QMRA) was pursued focussing on four population groups characterised by different levels of exposure to wastewater: (i) workers maintaining the wastewater conveyance and treatment systems; (ii) urban farmers using wastewater from To Lich River; (iii) community members in urban areas exposed to flooding events in the districts of Hoang Mai and Thanh Tri; and (iv) peri-urban farmers in Thanh Tri district, where Red River water is used for agriculture and aquaculture. The QMRA was developed on the basis of measured concentration of Escherichia coli and Salmonella spp. and Ascaris spp. eggs in water samples. Published ratios between measured organisms and pathogenic strains of norovirus, rotavirus, Campylobacter spp., pathogenic E. coli, pathogenic Salmonella spp., Cryptosporidium spp. and Ascaris lumbricoides were employed to estimate annual risk of gastrointestinal infection and disease burden. Results: The QMRA estimated a disease burden of 0.011 disability-adjusted life years (DALYs) per person per year in urban farmers, 0.006 DALYs for sanitation workers, 0.0005 DALYs for urban communities at risk of flooding events and 0.0004 DALYs for peri-urban farmers. Urban farmers had considerably higher incidence estimates for gastrointestinal disease episodes per year (2.0) compared to the other exposure groups (≤ 1.0). Conclusions: Urban farmers using wastewater from To Lich River have a high gastrointestinal disease burden, which is about 100 times larger than the health-based targets for wastewater use set by the World Health Organization. These findings are of direct public health relevance and call for upgrading Hanoi's wastewater system to reduce microbial contamination. Finally, this study presents a first example on how to link QMRA to a sanitation safety planning (SSP) approach in an Asian context and its findings are interesting in the frame of Sustainable Development Goal (SDGs) #6.
Disinfection and removal of human pathogenic bacteria in arctic waste stabilization ponds

Wastewater stabilization ponds (WSPs) are commonly used to treat municipal wastewater in Arctic Canada. The biological treatment in the WSPs is strongly influenced by climatic conditions. Currently, there is limited information about the removal of fecal and pathogenic bacteria during the short cool summer treatment season. With relevance to public health, the objectives of this paper were to determine if treatment in arctic WSPs resulted in the disinfection (i.e., removal of fecal indicator bacteria, Escherichia coli) and removal of selected human bacterial pathogens from the treated effluent. The treatment performance, with focus on microbial removal, was assessed for the one-cell WSP in Pond Inlet (Nunavut [NU]) and two-cell WSP in Clyde River (NU) over three consecutive (2012–2014) summer treatment seasons (late June–early September). The WSPs provided a primary disinfection treatment of the wastewater with a 2–3 Log removal of generic indicator E. coli. The bacterial pathogens Salmonella spp., pathogenic E. coli, and Listeria monocytogenes, but not Campylobacter spp. and Helicobacter pylori, were detected in the untreated and treated wastewater, indicating that human pathogens were not reliably removed. Seasonal and annual variations in temperature significantly (p <0.05) affected the disinfection efficiency. Improved disinfection and pathogen removal was observed for the two-cell system in Clyde River as compared to the one-cell system in Pond Inlet. A quantitative microbial risk assessment should be performed to determine if the release of low levels of human pathogens into the arctic environment poses a human health risk.

General information

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Do pesticides affect the intestinal bacterial community and does this have health implications?

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Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, Research Group for Analytical Food Chemistry, Aarhus University
Authors: Nielsen, L. N. (Intern), Roager, H. M. (Intern), Escola Casas, M. (Ekstern), Frandsen, H. L. (Intern), Bay Gosewinkel, U. (Ekstern), Bester, K. (Ekstern), Licht, T. R. (Intern), Bohse Hendriksen, N. (Ekstern), Bahl, M. I. (Intern)
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Main Research Area: Technical/natural sciences

Draft Genome Sequence of Acinetobacter johnsonii C6, an Environmental Isolate Engaging in Interspecific Metabolic Interactions

Acinetobacter johnsonii C6 originates from creosote-polluted groundwater and performs ecological and evolutionary interactions with Pseudomonas putida in biofilms. The draft genome of A. johnsonii C6 is 3.7 Mbp and was shaped by mobile genetic elements. It reveals genes facilitating the biodegradation of aromatic hydrocarbons and resistance to antimicrobials and metals.

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Effectiveness of a temperature control system in home induction hobs to reduce acrylamide formation during pan frying

Three trials were conducted to determine the influence of the use of temperature control systems on physico-chemical characteristics and acrylamide formation in the domestic preparation of potatoes. French fries were pre-treated by soaking in water or acidified water, and then they were cooked using a range of home-cooking procedures. Soaking raw potatoes in acidified water (pH=3.17) before frying at a controlled temperature (180 °C) was the most efficient pretreatment for reducing acrylamide formation (76%). For the same temperature, roasted frozen par-fried potatoes contained less fat and acrylamide than similar pan-fried potatoes. Potatoes butter fried at 140 °C had an acrylamide concentration similar to that of potatoes fried in oil at 180 °C, but this value was reduced by 71% when the frying was carried out using a temperature control system. Controlling the frying temperature reduced acrylamide formation at all the temperatures studied.

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BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.227 SNIP 0.273 CiteScore 0.34
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.211 SNIP 0.227 CiteScore 0.32
BFI (2012): BFI-level 1
Effect of cooking on levels of contaminants of emerging concern in commercial seafood

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Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

Effect of nitrogen source and acclimatization on specific growth rates of microalgae determined by a high throughput in vivo microplate autofluorescence method

General information
State: Published
Organisations: Department of Environmental Engineering, Residual Resource Engineering, National Food Institute, Research Group for Bioactives – Analysis and Application
Effects of Added Enzymes on Sorted, Unsorted and Sorted-Out Barley: A Model Study on Realtime Viscosity and Process Potentials Using Rapid Visco Analyser

Barley sorting is an important step for selecting grain of required quality for malting prior to brewing. However, brewing with unmalted barley with added enzymes has been thoroughly proven, raising the question of whether traditional sorting for high quality malting-barley is still necessary. To gain more insight on this, we examine realtime viscosity of sorted-out and unsorted barley during downscaled mashing with added enzymes in comparison with malting quality sorted barley. A rapid visco analyser was used to simulate brewery mashing process at lab scale together with two commercial enzymes (Ondea®-Pro and Cellic®-CTec2). During downscaled mashing, viscosity profile of sorted-out barley was markedly different from others, irrespective of enzyme type, whereas a small difference was observed between the sorted and unsorted barley. Furthermore, whilst sorted-out barley generated lowest sugar-concentration, unsorted and sorted barley resulted in higher sugar-content, regardless of the enzyme used. In terms of filterability, the Ondea®-Pro treatment resulted in significantly lower-turbidity and smaller particle-size compared to Cellic®-CTec2; however, this effect was observed in sorted and unsorted barley but not in sorted-out barley. Consequently, we find that unsorted barley demonstrates great potential for brewing with added enzymes and its use may help to improve sustainability of the brewing process.
Effects of Different Lipophilized Ferulate Esters in Fish Oil-Enriched Milk: Partitioning, Interaction, Protein, and Lipid Oxidation

Antioxidant effects of ferulic acid and lipophilized ferulate esters were investigated in fish oil-enriched milk. Methyl ferulate (C1) and ethyl ferulate (C2) more efficiently prevented lipid oxidation than dodecyl ferulate (C12) did, followed by ferulic acid (C0). The combination of C1 or C2 with C12 could have a "synergistic" effect indicated by peroxide value, hexanal, and 1-penten-3-ol analysis results. These antioxidants also showed protein oxidation inhibition effects. The most effective antioxidants (C1 and C2) had the highest concentration in the precipitate phase but the lowest concentration in the aqueous phase, which was the opposite of the partitioning of C0. C12 had the highest concentration in the oil and emulsion phase. In particular, the interaction between ferulates esterified with short and medium alkyl chain lengths could lead to their "synergistic" effects in fish oil-enriched milk, which could be caused by the change in their partitioning or localization at the interface.
antioxidant partitioning, antioxidants, ferulate ester, ferulic acid, lipid oxidation, omega-3 PUFA, phenolipids, protein oxidation
Effects of Dissolved Oxygen Concentration and Iron Addition on Immediate-early Gene Expression of Magnetospirillum gryphiswaldense MSR-1

We report effects of dissolved oxygen (DO) concentration and iron addition on gene expression of Magnetospirillum gryphiswaldense MSR-1 cells during fermentations, focusing on 0.25-24 h after iron addition. The DO was strictly controlled at 0.5% or 5% O2, and compared with aerobic condition. Uptake of iron (and formation of magnetosomes) was only observed in the 0.5% O2 condition where there was little difference in cell growth and carbon consumption compared to the 5% O2 condition. Quantitative reverse transcription PCR analysis showed a rapid (within 0.25 h) genetic response of MSR-1 cells after iron addition for all the genes studied, except for MgFnr (oxygen sensor gene) and fur (ferric uptake regulator family gene), and which in some cases was oxygen-dependent. In particular, expression of sodB1 (superoxide dismutase gene) and feoB1 (ferrous transport protein B1 gene) were markedly reduced in cultures at 0.5% O2 compared to those at higher oxygen tensions. Moreover, expression of katG (catalase-peroxidase gene) and feoB2 (ferrous transport protein B2 gene) was reduced markedly by iron addition, regardless of oxygen conditions. The data provides a greater understanding of molecular response of MSR-1 cells to environmental conditions associated with oxygen and iron metabolisms, especially relevant to immediate-early stage of fermentation.
Effects of Gliadin consumption on the Intestinal Microbiota and Metabolic Homeostasis in Mice Fed a High-fat Diet

Dietary gluten causes severe disorders like celiac disease in gluten-intolerant humans. However, currently understanding of its impact in tolerant individuals is limited. Our objective was to test whether gliadin, one of the detrimental parts of gluten, would impact the metabolic effects of an obesogenic diet. Mice were fed either a defined high-fat diet (HFD) containing 4% gliadin (n=20), or a gliadin-free, isocaloric HFD (n=20) for 23 weeks. Combined analysis of several parameters including insulin resistance, histology of liver and adipose tissue, intestinal microbiota in three gut compartments, gut barrier function, gene expression, urinary metabolites and immune profiles in intestinal, lymphoid, liver and adipose tissues was performed. Mice fed the gliadin-containing HFD displayed higher glycated hemoglobin and higher insulin resistance as evaluated by the homeostasis model assessment, more hepatic lipid accumulation and smaller adipocytes than mice fed the gliadin-free HFD. This was accompanied by alterations in the composition and activity of the gut microbiota, gut barrier function, urine metabolome, and immune phenotypes within liver and adipose tissue. Our results reveal that gliadin disturbs the intestinal environment and affects metabolic homeostasis in obese mice, suggesting a detrimental effect of gluten intake in gluten-tolerant subjects consuming a high-fat diet.

General information
State: Published
Organisations: National Food Institute, Department of Biotechnology and Biomedicine, Disease Systems Immunology, Research Group for Gut Microbiology and Immunology, Research Group for Analytical Food Chemistry, Systems Metabolic Lipidology, Copenhagen Center for Health Technology, University of Copenhagen, Technical University of Denmark, University Hospital of Schleswig-Holstein
Effects of industrial processing on essential elements and regulated and emerging contaminant levels in seafood

Mitigation of contaminants in industrial processing was studied for prawns (cooked and peeled), Greenland halibut (cold smoked) and Atlantic salmon (cold smoked and trimmed). Raw prawns had significantly higher cadmium, chromium, iron, selenium and zinc content in autumn than in spring, while summer levels typically were intermediate. Peeling raw prawns increased mercury concentration but reduced the concentration of all other elements including inorganic arsenic, total arsenic, chromium, zinc, selenium but especially cadmium, copper and iron (p < 0.05), however interaction between seasons and processing was observed.

Non-toxic organic arsenic in raw Greenland halibut (N = 10) and salmon (N = 4) did not transform to carcinogenic inorganic arsenic during industrial cold smoking. Hence inorganic arsenic was low (<0.003 mg/kg wet weight) in both raw and smoked fillets rich in organic arsenic (up to 9.0 mg/kg for farmed salmon and 0.7 mg/kg for wild caught Greenland halibut per wet weight). Processing salmon did not significantly change any levels (calculated both per wet weight, dry weight or lipid content). Cold smoking decreased total arsenic (17%) and increased PCB congeners (10–22%) in Greenland halibut (wet weight). However PFOS, PCB and PBDE congeners were not different in processed Greenland halibut when corrected for water loss or lipid content.
Effects of industrial processing on regulated and emerging contaminant levels in seafood

General information
State: Published
Authors: Rasmussen, R. R. (Intern), Bøge Søndergaard, A. (Ekstern), Bøknæs, N. (Ekstern), Cederberg, T. L. (Intern), Sloth, J. J. (Intern), Granby, K. (Intern)
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Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

Effects of milling on the extraction efficiency of incurred pesticides in cereals
This study investigated the effects of particle size and milling temperature on the extraction efficiencies of pesticide residues from cereal flour. Samples of cereal grains (barley, oat, rye and wheat) were milled using a centrifugal mill with four different sieves (0.2, 1.0, 3.0 and 5.0 mm) or a knife mill both at room temperature and after freezing of the grain at −80°C overnight. The incurred pesticides in the test materials were extracted by the QuEChERS method and analysed by LC-MS/MS and GC-MS/MS. The particle size distribution for the milled samples was determined using a vibratory sieve shaker. Based on the pesticide levels recovered from each of the different millings and the corresponding particle size distributions, it was confirmed that smaller average particle sizes increase the extraction efficiency up to 31%, with all other factors equal. The cereals milled at room temperature produced lower pesticide extraction efficiencies compared with cereals milled when still frozen, especially for heat-sensitive pesticides. Furthermore, milling frozen grains was easier and resulted in more homogeneous samples with smaller relative particle sizes.

General information
State: Published
Organisations: National Food Institute, Research Group for Analytical Food Chemistry
Authors: Herrmann, S. S. (Intern), Hajeb, P. (Intern), Andersen, G. (Intern), Poulsen, M. E. (Intern)
Number of pages: 11
Pages: 1948-1958
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Volume: 34
Issue number: 11
ISSN (Print): 1944-0049
Electrospinning of food proteins and polysaccharides

Nano-microfibrous structures of biopolymers with a wide range of compositions, morphologies, mechanical properties and bioactivities could be developed using electrospinning technology. This review focuses on the processing, properties, functionalization and potential applications of electrospun biopolymers. Biopolymers include proteins (gelatin, collagen, elastin, silk, soy zein, gliadin, hordein, amaranth, casein, wheat, whey, marine sources proteins), and polysaccharides (chitosan, starch, alginate, cellulose and cellulose derivatives, pullulan, dextran, cyclodextrins).
Electrospinning of Xanthan Polysaccharide

Electrospun pure xanthan polysaccharide nanofibers are prepared using formic acid as a solvent. Morphological studies by scanning electron microscopy show that uniform fibers with average diameters ranging from 128 ± 36.7 to 240 ± 80.7 nm are formed depending on the polysaccharide concentration (0.5 to 2.5 wt/vol%). The correlation between the concentration and the rheological properties of xanthan solutions, with the morphology of the nanofibers is investigated. At the polysaccharide concentrations where nanofiber formation is observed, an increase of the elastic modulus and first normal stress differences is observed. The typical “weak gel-like” and thixotropic properties known for aqueous xanthan solutions, are not observed for the xanthan solutions in formic acid. The Fourier transform infrared spectroscopic and
circular dichroism studies verify that an esterification reaction takes place, where formic acid reacts with the pyruvic acid groups of xanthan. Hence, formate groups neutralize the pyruvic charges which in turn stabilize the helical conformation of xanthan. The results obtained from size-exclusion chromatography reveal a small difference in the molecular weight of the polysaccharide when dissolved in distilled water or in formic acid.

General information
State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science, Center for Nanostructured Graphene, Department of Micro- and Nanotechnology, Self-Organized Nanoporous Materials
Authors: Shekarforoush, E. (Intern), Faralli, A. (Intern), Ndoni, S. (Intern), Mendes, A. C. L. (Intern), Chronakis, I. S. (Intern)
Number of pages: 11
Publication date: 2017
Main Research Area: Technical/natural sciences

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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.945 SJR 0.755
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.01 SJR 0.905 SNIP 0.972
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.847 SNIP 1.072 CiteScore 2.88
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.009 SNIP 1.294 CiteScore 2.81
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.956 SNIP 1.24 CiteScore 2.66
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.963 SNIP 1.181 CiteScore 2.34
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.972 SNIP 1.058 CiteScore 2.18
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.922 SNIP 0.916
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.072 SNIP 0.992
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.952 SNIP 0.942
Scopus rating (2007): SJR 0.819 SNIP 0.854
Scopus rating (2006): SJR 0.939 SNIP 1.155
Scopus rating (2005): SJR 0.948 SNIP 0.943
Scopus rating (2004): SJR 0.818 SNIP 0.915
Scopus rating (2003): SJR 0.981 SNIP 1.083
Scopus rating (2002): SJR 0.557 SNIP 0.67
Electrospun Phospholipid Fibers as Micro-Encapsulation and Antioxidant Matrices

Electrospun phospholipid (asolectin) microfibers were investigated as antioxidants and encapsulation matrices for curcumin and vanillin. These phospholipid microfibers exhibited antioxidant properties which increased after the encapsulation of both curcumin and vanillin. The total antioxidant capacity (TAC) and the total phenolic content (TPC) of curcumin/phospholipid and vanillin/phospholipid microfibers remained stable over time at different temperatures (refrigerated, ambient) and pressures (vacuum, ambient). $^{1}$H-NMR confirmed the chemical stability of both encapsulated curcumin and vanillin within phospholipid fibers. Release studies in aqueous media revealed that the phenolic bioactives were released mainly due to swelling of the phospholipid fiber matrix over time. The above studies confirm the efficacy of electrospun phospholipid microfibers as encapsulation and antioxidant systems.

General information

State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science, Department of Chemistry, Organic Chemistry
Authors: Shekarforoush, E. (Intern), Mendes, A. C. L. (Intern), Baj, V. (Intern), Beeren, S. R. (Intern), Chronakis, I. S. (Intern)
Number of pages: 16
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Main Research Area: Technical/natural sciences

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Journal: Molecules
Volume: 22
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BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.146 SJR 0.855
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.09 SJR 0.825 SNIP 1.257
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.57 SNIP 1.164 CiteScore 2.65
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.738 SNIP 1.3 CiteScore 2.62
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.719 SNIP 1.268 CiteScore 2.61
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.792 SNIP 1.363 CiteScore 2.87
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
Electrospun Polymer Fiber Lasers for Applications in Vapor Sensing

A sensing approach based on laser emission from polymer fiber networks is presented. Poly(methyl methacrylate) (PMMA) fibers doped with a laser dye are fabricated by electrospinning. They form random loop resonators, which show laser emission upon optical pumping. The shift of the spectral position of the narrow lasing modes upon uptake of alcohol vapors (model vapors are methanol and ethanol) serves as sensor signal. Thus, the high sensitivity related to the spectral line shifts of cavity-based transducers can be combined with the fiber’s large surface to volume ratio. The resulting optical sensors feature excellent sensing performance due to the large overlap (more than 80%) of light field and transducer. The shift of the laser modes results from the swelling of the polymer when exposed to solvent vapors. Due to distinctly different diffusion coefficients in polymers, the uptake dynamics reflected in the transient shift of the lasing peaks can be used to discriminate ethanol and methanol vapor in mixtures of them. The sensing mechanism is expected to be applicable to other solvent vapors that cause polymer swelling.

General information
State: Published
Organisations: Department of Micro- and Nanotechnology, National Food Institute, Research Group for Nano-Bio Science, Center for Nanostructured Graphene, Optofluidics, Karlsruhe Institute of Technology KIT
Authors: Krämmer, S. (Ekstern), Laye, F. (Ekstern), Friedrich, F. (Ekstern), Vannahme, C. (Intern), Smith, C. (Intern), Mendes, A. C. L. (Intern), Chronakis, I. S. (Intern), Lahann, J. (Ekstern), Kristensen, A. (Intern), Kalt, H. (Ekstern)
Number of pages: 5
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Main Research Area: Technical/natural sciences

Publication information
Journal: Advanced Optical Materials
Volume: 5
Issue number: 17
Article number: 1700248
ISSN (Print): 2195-1071
Ratings:
BFI (2018): BFI-level 2
Electrostatic Self-Assembly of Polysaccharides into Nanofibers

In this study, the anionic polysaccharide Xanthan gum (X) was mixed with positively charged Chitosan oligomers (ChO), and used as building blocks, to generate novel nanofibers by electrostatic self-assembly in aqueous conditions. Different concentrations, ionic strength and order of mixing of both components were tested and observed to affect the diameter, which ranged from 100 to 500 nm, and morphology of the self-assembled nanofibers. The release of diclofenac, as model drug, from self-assembled xanthan-chitosan nanofibers was demonstrated, suggesting that these nanostructures can be used in applications within life sciences such as drug delivery.

General information

State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science, Westfälische Wilhelms-Universität Münster
Authors: Mendes, A. C. L. (Intern), Strohmenger, T. (Ekstern), Goycoolea, F. (Ekstern), Chronakis, I. S. (Intern)
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Web of Science (2017): Indexed Yes
BFI (2017): BFI-level 1
Scopus rating (2016): CiteScore 2.93 SJR 0.812 SNIP 1.131
BFI (2016): BFI-level 1
Scopus rating (2015): SJR 0.795 SNIP 1.121 CiteScore 2.83
BFI (2015): BFI-level 1
Scopus rating (2014): SJR 0.854 SNIP 1.262 CiteScore 2.81
BFI (2014): BFI-level 1
Scopus rating (2013): SJR 0.82 SNIP 1.266 CiteScore 2.6
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.848 SNIP 1.203 CiteScore 2.34
Emergence of Livestock-Associated Methicillin-Resistant Staphylococcus aureus Bloodstream Infections in Denmark

Background: Livestock-associated methicillin-resistant Staphylococcus aureus clonal complex 398 (LA-MRSA CC398) is causing an increasing number of skin and soft tissue infections (SSTIs) in Denmark and other European countries with industrial pig production. Yet, its impact on MRSA bloodstream infections (BSIs) has not been well studied. Methods: We investigated the clinical epidemiology of all human cases of LA-MRSA CC398 BSI during 2010-2015. Cases of LA-MRSA CC398 BSI were compared to cases of BSI caused by other types of MRSA and cases of SSTI caused by LA-MRSA CC398. Whole-genome sequence analysis was used to assess the phylogenetic relationship among LA-MRSA CC398 isolates from Danish pigs and cases of BSI and SSTI. Results: The number of LA-MRSA CC398 BSIs and SSTIs increased over the years, peaking in 2014, when LA-MRSA CC398 accounted for 16% (7/44) and 21% (211/985) of all MRSA BSIs and SSTIs, corresponding to 1.2 and 37.4 cases of BSI and SSTI per 1 000 000 person-years, respectively. Most patients with LA-MRSA CC398 BSI had no contact to livestock, although they tended to live in rural areas. LA-MRSA CC398 caused 24.3 BSIs per 1000 SSTIs among people with no livestock contact, which is similar to the ratio observed for other types of MRSA. Whole-genome sequence analysis showed that most of the BSI and SSTI isolates were closely related to Danish pig isolates. Conclusions: This study demonstrates that the increasing number of LA-MRSA CC398 BSIs occurred in parallel with a much larger wave of LA-MRSA CC398 SSTIs and an expanding pig reservoir.
Enniatin B and beauvericin are common in Danish cereals and show high hepatotoxicity on a high-content imaging platform

Mycotoxins are fungi-born metabolites that can contaminate foods through mould-infected crops. They are a significant food/feed-safety issue across the globe and represent a substantial financial burden for the world economy. Moreover, with a changing climate and fungal biota, there is now much discussion about emerging mycotoxins that are measurable at significant levels in crops world-wide. Unfortunately, we still know very little about the bioavailability and toxic potentials of many of these less characterized mycotoxins, including the large family of enniatins. In this study, we present new occurrence data for enniatin A, A1, B, B1 and beauvericin in four Danish crops: oat, wheat, and barley from the 2010 harvest, and rye from 2011 harvest. The occurrence of the four enniatins were B > B1 > A1 > A. Enniatin B was detected in 100% of tested samples regardless of crop type. In addition to occurrence data, we report a proof-of-concept study using a human-relevant high-content hepatotoxicity, or “quadroprobe,” assay to screen mycotoxins for their cytotoxic potential. The assay was sensitive for most cytotoxic compounds in the 0.009–100 µM range. Among eight tested mycotoxins (enniatin B, beauvericin, altenariol, deoxynivalenol, aflatoxin B1, andrastin A, citrinin, and penicillic acid), enniatin B and beauvericin showed significant cytotoxicity at a concentration lower than that for aflatoxin B1, which is the archetypal acute hepatotoxic and liver-carcinogenic mycotoxin. Hence, the quadroprobe hepatotoxicity assay may become a valuable assessment tool for toxicity assessment of mycotoxins in the future.
Environmental influences on ovarian dysgenesis - developmental windows sensitive to chemical exposures

A woman's reproductive health and ability to have children directly affect numerous aspects of her life, from personal well-being and socioeconomic standing, to morbidity and lifespan. In turn, reproductive health depends on the development of correctly functioning ovaries, a process that starts early during fetal life. Early disruption to ovarian programming can have long-lasting consequences, potentially manifesting as disease much later in adulthood. A growing body of evidence suggests that exposure to chemicals early in life, including endocrine-disrupting chemicals, can cause a range of disorders later in life, such as those described in the ovarian dysgenesis syndrome hypothesis. In this Review, we discuss four specific time windows during which the ovary is particularly sensitive to disruption by exogenous insults: gonadal sex determination, meiotic division, follicle assembly and the first wave of follicle recruitment. To date, most evidence points towards the germ cell lineage being the most vulnerable to chemical exposure, particularly meiotic division and follicle assembly. Environmental chemicals and pharmaceuticals, such as bisphenols or mild analgesics (including paracetamol), can also affect the somatic cell lineages. This Review summarizes our current knowledge pertaining to environmental chemicals and pharmaceuticals, and their potential contributions to the development of ovarian dysgenesis syndrome. We also highlight knowledge gaps that need addressing to safeguard female reproductive health.

General information
State: Published
Organisations: National Food Institute, Research Group for Molecular and Reproductive Toxicology, Copenhagen Center for Health Technology, University of Aberdeen
Authors: Johansson, H. K. L. (Intern), Svingen, T. (Intern), Fowler, P. A. (Ekstern), Vinggaard, A. M. (Intern), Boberg, J. (Intern)
Pages: 400-414
Environmental spread of microbes impacts the development of metabolic phenotypes in mice transplanted with microbial communities from humans

Microbiota transplantation to germ-free animals is a powerful method to study involvement of gut microbes in the aetiology of metabolic syndrome. Owing to large interpersonal variability in gut microbiota, studies with broad coverage of donors are needed to elucidate the establishment of human-derived microbiotas in mice, factors affecting this process and resulting impact on metabolic health. We thus transplanted faecal microbiotas from humans (16 obese and 16 controls) separately into 64 germ-free Swiss Webster mice caged in pairs within four isolators, with two isolators assigned to each phenotype, thereby allowing us to explore the extent of microbial spread between cages in a well-controlled environment. Despite high group-wise similarity between obese and control human microbiotas, transplanted mice in the four isolators developed distinct gut bacterial composition and activity, body mass gain, and insulin resistance. Spread of microbes between cages within isolators interacted with establishment of the transplanted microbiotas in mice, and contributed to the transmission of metabolic phenotypes. Our findings highlight the impact of donor variability and reveal that inter-individual spread of microbes contributes to the development of metabolic traits. This is of major importance for design of animal studies, and indicates that environmental transfer of microbes between individuals may affect host metabolic traits.

General information
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Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, Department of Systems Biology, Research Group for Analytical Food Chemistry, Holbæk University Hospital, University of Copenhagen
Enzymatic, urease-mediated mineralization of gellan gum hydrogel with calcium carbonate, magnesium-enriched calcium carbonate and magnesium carbonate for bone regeneration applications

Mineralization of hydrogel biomaterials is considered desirable to improve their suitability as materials for bone regeneration. Calcium carbonate (CaCO₃) has been successfully applied as a bone regeneration material, but hydrogel-CaCO₃ composites have received less attention. Magnesium (Mg) has been used as a component of calcium phosphate...
biomaterials to stimulate bone-forming cell adhesion and proliferation and bone regeneration in vivo, but its effect as a component of carbonate-based biomaterials remains uninvestigated. In the present study, gellan gum (GG) hydrogels were mineralized enzymatically with CaCO3, Mg-enriched CaCO3 and magnesium carbonate to generate composite biomaterials for bone regeneration. Hydrogels loaded with the enzyme urease were mineralized by incubation in mineralization media containing urea and different ratios of calcium and magnesium ions. Increasing the magnesium concentration decreased mineral crystallinity. At low magnesium concentrations calcite was formed, while at higher concentrations magnesian calcite was formed. Hydromagnesite (Mg5(CO3)4(OH)2·4H2O) formed at high magnesium concentration in the absence of calcium. The amount of mineral formed and compressive strength decreased with increasing magnesium concentration in the mineralization medium. The calcium:magnesium elemental ratio in the mineral formed was higher than in the respective mineralization media. Mineralization of hydrogels with calcite or magnesian calcite promoted adhesion and growth of osteoblast-like cells. Hydrogels mineralized with hydromagnesite displayed higher cytotoxicity. In conclusion, enzymatic mineralization of GG hydrogels with CaCO3 in the form of calcite successfully reinforced hydrogels and promoted osteoblast-like cell adhesion and growth, but magnesium enrichment had no definitive positive effect. Copyright © 2017 John Wiley & Sons, Ltd.

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Organisations: National Food Institute, Research Group for Nano-Bio Science, Ghent University, AGH University of Science and Technology, Institute for Chemical Processing of Coal (ICHPW)
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BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.01 SJR 0.88
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.76 SJR 0.858 SNIP 0.906
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.924 SNIP 0.922 CiteScore 2.83
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.057 SNIP 1.061 CiteScore 3.16
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.09 SNIP 0.883 CiteScore 2.99
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.138 SNIP 0.831 CiteScore 2.9
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.453 SNIP 1.192 CiteScore 3.61
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.443 SNIP 1.424
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.128 SNIP 1.324
Scopus rating (2008): SJR 0.53 SNIP 0.639
Original language: English
carbonate, composite, enzyme, gellan gum, hydrogel, magnesium, mineralization
Epidemiology of Danish Aeromonas salmonicida subsp salmonicida in Fish Farms Using Whole Genome Sequencing

Furunculosis, a serious infection caused by the bacterium Aeromonas salmonicida subsp. salmonicida is common in sea-reared rainbow trout production in Denmark. Developing an effective control strategy requires knowledge of the epidemiology, as well as the genomic and virulent variability of the Danish A. salmonicida subsp. salmonicida isolates. To obtain this, the genomes of 101 A. salmonicida subsp. salmonicida, including 99 Danish isolates, one Scottish strain and the type strain NCIMB 1102, were sequenced using the Illumina HiSeq platform. Isolates were de novo assembled, examined for presence of plasmids, virulence and iron acquisition proteins, genomic islands, and antibiotic resistance genes. Single Nucleotide Polymorphisms were aligned and subjected to Bayesian temporal phylogenetic and maximum likelihood tree reconstruction using the published genome of A. salmonicida subsp. salmonicida A449 as reference. Bayesian temporal phylogenetic reconstruction suggests that four major introductions of A. salmonicida subsp. salmonicida into Denmark have occurred. The introductions correlate with the freshwater and subsequent seawater expansion of rainbow trout production. Initial transmission of the bacterium could have been from seawater to freshwater or vice versa, and most minor clades include a mixture of strains from different fresh- and seawater farms. Genomic variation of A. salmonicida subsp. salmonicida mostly appeared to be associated with their plasmids and plasmid encoded virulence factors. Nine A. salmonicida subsp. salmonicida isolates harbored worldwide known antibiotic resistance genes against several antibiotics and there is an indication that 33% of the isolates contained the genomic island AsaGEI1b. These findings not only support the usefulness of whole genome sequencing for genetic studies of homogeneous bacteria in general, but provide novel information about the Danish A. salmonicida subsp. salmonicida population, with implications for vaccine development in efforts to better protect Danish rainbow trout in the future.

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Evaluating next-generation sequencing for direct clinical diagnostics in diarrhoeal disease

The accurate microbiological diagnosis of diarrhoea involves numerous laboratory tests and, often, the pathogen is not identified in time to guide clinical management. With next-generation sequencing (NGS) becoming cheaper, it has huge potential in routine diagnostics. The aim of this study was to evaluate the potential of NGS-based diagnostics through direct sequencing of faecal samples. Fifty-eight clinical faecal samples were obtained from patients with diarrhoea as part of the routine diagnostics at Hvidovre University Hospital, Denmark. Ten samples from healthy individuals were also included. DNA was extracted from faecal samples and sequenced on the Illumina MiSeq system. Species distribution was determined with MGmapper and NGS-based diagnostic prediction was performed based on the relative abundance of pathogenic bacteria and Giardia and detection of pathogen-specific virulence genes. NGS-based diagnostic results were compared to conventional findings for 55 of the diarrhoeal samples; 38 conventionally positive for bacterial pathogens, two positive for Giardia, four positive for virus and 11 conventionally negative. The NGS-based approach enabled detection of the same bacterial pathogens as the classical approach in 34 of the 38 conventionally positive bacterial samples and predicted the responsible pathogens in five of the 11 conventionally negative samples. Overall, the NGS-based approach enabled pathogen detection comparable to conventional diagnostics and the approach has potential to be extended for the detection of all pathogens. At present, however, this approach is too expensive and time-consuming for routine diagnostics.

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Viral sewage metagenomics is a novel field of study used for surveillance, epidemiological studies, and evaluation of waste water treatment efficiency. In raw sewage human waste is mixed with household, industrial and drainage water, and virus particles are, therefore, only found in low concentrations. This necessitates a step of sample concentration to allow for sensitive virus detection. Additionally, viruses harbor a large diversity of both surface and genome structures, which makes universal viral genomic extraction difficult. Current studies have tackled these challenges in many different ways employing a wide range of viral concentration and extraction procedures. However, there is limited knowledge of the
efficacy and inherent biases associated with these methods in respect to viral sewage metagenomics, hampering the development of this field. By the use of next generation sequencing this study aimed to evaluate the efficiency of four commonly applied viral concentrations techniques (precipitation with polyethylene glycol, organic flocculation with skim milk, monolithic adsorption filtration and glass wool filtration) and extraction methods (Nucleospin RNA XS, QIAamp Viral RNA Mini Kit, NucliSENS® miniMAG®, or PowerViral® Environmental RNA/DNA Isolation Kit) to determine the virome in a sewage sample. We found a significant influence of concentration and extraction protocols on the detected virome. The viral richness was largest in samples extracted with QIAamp Viral RNA Mini Kit or PowerViral® Environmental RNA/DNA Isolation Kit. Highest viral specificity were found in samples concentrated by precipitation with polyethylene glycol or extracted with Nucleospin RNA XS. Detection of viral pathogens depended on the method used. These results contribute to the understanding of method associated biases, within the field of viral sewage metagenomics, making evaluation of the current literature easier and helping with the design of future studies.

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Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
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Exploration of the phycoremediation potential of Laminaria digitata towards diflubenzuron, lindane, copper and cadmium in a multitrophic pilot-scale experiment

The presence of contaminants in aquatic ecosystems can cause serious problems to the environment and marine organisms. This study aims to evaluate the phycoremediation capacity of macroalgae Laminaria digitata for pesticides (diflubenzuron and lindane) and toxic elements (cadmium and copper) in seawater with the presence or absence of mussels. The photosynthetic activity was monitored in the macroalgae to assess its "physiological status". The results showed that the presence of algae decreased diflubenzuron concentration in mussels by 70% after 120 h of exposure. Additionally, this macroalgae was efficient to reduce lindane, Cu and Cd in seawater; even though not was able to reduce these contaminants in mussels. The studied pollutants did not affect the physiological status of algae. This study reveals that the application of phycoremediation with macroalgae can be an useful and effective mitigation strategy to remove/decrease contaminant levels from the aquatic environment.

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Scopus rating (2014): SJR 1.038 SNIP 1.369 CiteScore 3.12
Exploring Teachers’ Thinking about Teaching and Learning

Professional practice in general is to a large extent based on tacit knowledge (Schön 1983). For university teachers, tacit knowledge includes knowledge about what works – and what does not work – when teaching a specific group of students a specific subject matter in a specific context.

Making tacit knowledge explicit is important for at least two reasons: For the individual it may facilitate a more conscious linking of loose impressions and observations from own teaching practice to general principles of teaching and learning, thus enabling a more systematic interpretation and development of own teaching (Mcalpine and Weston 2002). It is also useful – if not necessary - for communication with others about teaching and learning, e.g. when peer coaching less experienced colleagues, or sharing experience and collaborating on teaching development with colleagues. Teaching Portfolios are a well-known means for the individual teacher to develop a reflective approach to own teaching practice and the underlying values and presumptions, including a process of making tacit knowledge explicit (Smith and Tillema 2006). However, we see a need for methods for sharing, discussing and developing teaching philosophies in a collective process.
The perspectives of introducing such methods are to support a team-oriented approach to teaching and to strengthen communities of practice (Wenger 2008) / communities of learning among teachers.

So how can we do this? The authors have conceived and designed a game to identify and clarify teachers’ values, attitudes and preferences related to their teaching. The core element of the game is a deck of cards each with a statement about teaching and/or learning, e.g. “Students must learn to dare to fail and learn from their mistakes”, “What I teach is what students learn”, and “Blackboards are an overlooked method of teaching”. While the statements do not give the “solution” to what good teaching practice is, their purpose is to start a personal reflection.

During the game, the players go through an individual reflection process leading to the selection of a number of cards with statements each player find relevant and important in relation to the question “What is good teaching?” These are then ranked and discussed in a group of players who are asked see if some consensus can be reached and explore if they can identify common approaches to teaching and learning. This consensus may different from the individual player’s choices.

We have facilitated game sessions at several occasions, among others: at an international engineering education conference, at an annual education day at a university abroad, and at a meeting for study leaders of Bachelor of Engineering programmes. We have collected documentation of the selection and ranking of cards in these sessions, and analysed the data. These data represent the involved teachers’ individual preferences, and consensus reached within groups of players - preferences which may influence their teaching practice, consciously or unconsciously.

The data analysis has raised questions like:
• What patterns can be identified based on the cards that were selected, and the cards that were not?
• What kinds of attitudes towards teaching and learning do the selected cards represent?
• Which selections reflect teaching practices that support active learning?
• What types of statements have participants filled in on blank cards?

The active poster will present data collected and conclusions of the analysis. This will supplement the workshop at the ETALEE 2017 conference (Jensen, Christiansen and Hansen 2017) – that gives conference participants a chance to get a first-hand experience with the game – with giving an opportunity to discuss the outcome of having played the game and help us with input to the further development.
Extensive cardinal parameter model to predict growth of psychrotolerant pseudomonads in salt-reduced preserving seafood

Interest in and demand for preserved seafood with reduced salt/sodium content is increasing. As a consequence of the reduced salt content potential growth of psychrotolerant pseudomonads to unacceptable high concentration where they cause product spoilage is an increasing challenge. Innovation is needed to reformulate these salt-reduced products and this must be done in such a way that other product characteristics compensate for less inhibiting effect due to salt. Numerous simple predictive models are available to predict growth of pseudomonads in foods at different temperatures. A few models include the effect of temperatures and salt. However, these simple secondary models do not include the effect of a broader range of product characteristics and therefore they cannot be used to predict how the inhibiting effect of salt can be replaced by changes in other environmental factors. The objective was to develop an extensive predictive model that allows growth of psychrotolerant pseudomonads to be predicted in brined and marinated seafood with a range of different organic acids. The new model was developed by expanding an existing cardinal parameter-type model for growth of pseudomonads in dairy products and including terms for temperature, pH, aw/NaCl, lactic- and sorbic acids (Martinez-Rios et al., Int. J. Food Microbiol. 216, 110-120, 2016). MIC-values for acetic-, benzoic- and citric acids were determined in broth and terms modelling their antimicrobial effect were added to the model. The new and expanded model included eight environmental factors and their interactive effects. The new model was evaluated under constant and dynamic temperature conditions using challenge tests and storage trials with a total of 78 growth curves in well characterized seafoods including lumpfish roe and brined shrimps. Average bias and accuracy factor values were 1.07 and 1.20 for 69 growth curves at constant temperatures. For nine growth curves at dynamic temperatures 77% of the growth data (log cfu/g) was within the acceptable simulation zone of +/- 0.5 log cfu/g. The new model can be used to facilitate product reformulation as shown here for brined shrimps at 8°C, pH of 5.8 and water phase organic acid concentrations of 3000 ppm (citric), 1200 ppm (benzoic) and 500 ppm (sorbic). When the water phase salt concentration in this product is reduced from 3% to 1% of the growth of psychrotolerant pseudomonads change from none in 42 days to > 7 log cfu/g increase in 8 days. However, by including 500 ppm of acetic acid the reformulated prevent growth of psychrotolerant pseudomonads. The high number of environmental factors included in the new model makes it flexible and suitable to support product development as the effect of substituting one combination of preservatives with another can be predicted.

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Fabrication, characterization, and biocompatibility assessment of a novel elastomeric nanofibrous scaffold: A potential scaffold for soft tissue engineering

With regard to flexibility and strength properties requirements of soft biological tissue, elastomeric materials could be more beneficial in soft tissue engineering applications. The present work investigates the use of an elastic polymer, (polycaprolactone fumarate [PCLF]), for fabricating an electrospun scaffold. PCLF with number-average molecular weight of 13,284 g/mol was synthesized, electrospun PCLF:polycaprolactone (PCL) (70:30) nanofibrous scaffolds were fabricated and a novel strategy (in situ photo-crosslinking along with wet electrospinning) was applied for crosslinking of PCLF in the structure of PCLF:PCL nanofibers was presented. Sol fraction results, Fourier-transform infrared spectroscopy, and mechanical tests confirmed occurrence of crosslinking reaction. Strain at break and Young's modulus of crosslinked PCLF:PCL nanofibers was found to be 114 ± 3.9% and 0.6 ± 0.1 MPa, respectively, and dynamic mechanical analysis results revealed elasticity of nanofibers. MTS assay showed biocompatibility of PCLF:PCL (70:30) nanofibrous scaffolds. Our overall results showed that electrospun PCLF:PCL nanofibrous scaffold could be considered as a candidate for further in vitro and in vivo experiments and its application for engineering of soft tissues subjected to in vivo cyclic mechanical stresses.

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Faecal bacteria on seaweeds in Greenland

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Authors: Kreissig, K. J. (Intern), Hansen, L. T. (Intern), Jensen, P. E. (Intern)
Faecalibacterium Gut Colonization Is Accelerated by Presence of Older Siblings

Faecalibacterium prausnitzii is a highly abundant human gut microbe in healthy individuals, but it is present at reduced levels in individuals with gastrointestinal inflammatory diseases. It has therefore been suggested to constitute a marker of a healthy gut and is associated with anti-inflammatory properties. However, factors affecting the colonization of F. prausnitzii in the human gut during early life are very poorly understood. By analysis of 16S rRNA amplicon sequencing data from three separate infant study populations, we determined the colonization dynamics of Faecalibacterium and factors affecting its establishment in the gut. We found that in particular, the presence of older siblings was consistently associated with Faecalibacterium gut colonization during late infancy and conclude that acquisition of Faecalibacterium is very likely to be accelerated through transfer between siblings. IMPORTANCEFaecalibacterium prausnitzii has been suggested to constitute a key marker of a healthy gut, yet the factors shaping the colonization of this highly oxygen-sensitive, non-spore-forming species in the intestinal environment remain poorly understood. Here, we provide evidence from three separate infant study populations that F. prausnitzii colonization in the gut happens during late infancy and is affected by the number of older siblings in the family. We conclude that Faecalibacterium acquisition is likely to be accelerated by contact between siblings. Bearing in mind the immunoregulatory properties of F. prausnitzii and the well-established protective effects against allergic disorders related to the presence of older siblings, early colonization of this species may have profound consequences for child health.

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Scopus rating (2014): SJR 1.784 SNIP 0.9 CiteScore 3.13
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BFI (2012): BFI-level 1
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Fatty acid composition and phospholipid types used in infant formulas modifies the establishment of human gut bacteria in germ-free mice

Human milk fat contains high concentrations of medium-chained fatty acids (MCFA) and triacylglycerols emulsified by a sphingomyelin-rich phospholipid membrane (milk phospholipids, MPL). Infant formula comprises mainly long-chained fatty acids (LCFA) emulsified with dairy proteins and soy lecithin (SL) lacking sphingomyelin. Sphingomyelin content and saturation level of phospholipids affect the gut lipase activity, which alters the concentrations of lipid hydrolysis products in ileum and colon, and hereby putatively affects the competitive advantage of specific gut bacteria. Thus, differences in phospholipid and FA composition may modulate the establishment of the gut microbiota. We investigated effects of fatty acid (FA) composition and emulsification (MPL vs SL) ingested during establishment of human gut microbiota in germ-free mice, and found that cecal microbiotas from mice given MCFA-rich emulsions were characterized by high relative abundances of Bacteroidaceae and Desulfovibrionaceae, while LCFA-rich emulsions caused higher abundances of Enterobacteriaceae, Erysipelotrichaceae, Coriobacteriaceae and Enterococcaceae. Consumption of SL-emulsified lipids skewed the community towards more Enterococcaceae and Enterobacteriaceae, while MPL increased Bacteroidaceae, Desulfovibrionaceae, Ricknenellaceae and Porphyrmonadaceae. Intake of SL increased cecal concentrations of iso-valeric and iso-butyric acids. This suggests that fat-type and emulsifiers applied in infant formula may have distinct effects
on the establishment of the gut microbiota in formula-fed infants.

**Finding the Needle in the Haystack-the Use of Microfluidic Droplet Technology to Identify Vitamin-Secreting Lactic Acid Bacteria**

Efficient screening technologies aim to reduce both the time and the cost required for identifying rare mutants possessing a phenotype of interest in a mutagenized population. In this study, we combined a mild mutagenesis strategy with high-throughput screening based on microfluidic droplet technology to identify Lactococcus lactis variants secreting vitamin B2 (riboflavin). Initially, we used a roseoflavin-resistant mutant of L. lactis strain MG1363, JC017, which secreted low levels of riboflavin. By using fluorescence-activated droplet sorting, several mutants that secreted riboflavin more efficiently than JC017 were readily isolated from the mutagenesis library. The screening was highly efficient, and candidates with as few as 1.6 mutations per million base pairs (Mbp) were isolated. The genetic characterization revealed that riboflavin...
production was triggered by mutations inhibiting purine biosynthesis, which is surprising since the purine nucleotide GTP is a riboflavin precursor. Purine starvation in the mutants induced overexpression of the riboflavin biosynthesis cluster ribABGH. When the purine starvation was relieved by purine supplementation in the growth medium, the outcome was an immediate downregulation of the riboflavin biosynthesis cluster and a reduction in riboflavin production. Finally, by applying the new isolates in milk fermentation, the riboflavin content of milk (0.99 mg/liter) was improved to 2.81 mg/liter, compared with 0.66 mg/liter and 1.51 mg/liter by using the wild-type strain and the original roseoflavin-resistant mutant JC017, respectively. The results obtained demonstrate how powerful classical mutagenesis can be when combined with droplet-based microfluidic screening technology for obtaining microorganisms with useful attributes.

**IMPORTANCE** The food industry prefers to use classical approaches, e.g., random mutagenesis followed by screening, to improve microorganisms used in food production, as the use of recombinant DNA technologies is still not widely accepted. Although modern automated screening platforms are widely accessible, screening remains as a bottleneck in strain development, especially when a mild mutagenesis approach is applied to reduce the chance of accumulating unintended mutations, which may cause unwanted phenotypic changes. Here, we incorporate a droplet-based high-throughput screening method into the strain development process and readily capture L. lactis variants with more efficient vitamin secretion from low-error-rate mutagenesis libraries. This study shows that useful mutants showing strong phenotypes but without extensive mutations can be identified with efficient screening technologies. It is therefore possible to avoid accumulating detrimental mutations while enriching beneficial ones through iterative mutagenesis screening. Due to the low mutation rates, the genetic determinants are also readily identified.
First detection of linezolid resistance due to the optrA gene in enterococci isolated from food products in Denmark

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First Foods and Gut Microbes
The establishment of the human gut microbiota in early life has been associated with later health and disease. During the 1st months after birth, the microbial composition in the gut is known to be affected by the mode of delivery, use of antibiotics, geographical location and type of feeding(breast/formula). Consequently, the neonatal period and early infancy has attracted much attention. However, after this first period the gut microbial composition continues to develop until the age of 3 years, and these 1st years have been designated "a window of opportunity" for microbial modulation. The beginning and end of this window is currently debated, but it likely coincides with the complementary feeding period, marking the gradual transition from milk- based infant feeding to family diet usually occurring between 6 and 24 months. Furthermore, the 'first 1000 days,' i.e., the period from conception until age 2 years, are generally recognized to be of particular importance for the healthy development of children. While dietary changes are known to affect the adult gut microbiota, there is a gap in our knowledge on how the introduction of new dietary components into the diet of infants/young children affects the gut microbiota development. This perspective paper summarizes the currently very few studies addressing the effects of complementary diet on gut microbiota, and highlights the recent finding that transition to family foods greatly impacts the development of gut microbial diversity. Further, we discuss potential impacts on child health and the need for further studies on this important topic.
First report of metronidazole resistant, nimD-positive, Bacteroides stercoris isolated from an abdominal abscess in a 70-year-old woman

We here present the first case of a metronidazole resistant nimD positive Bacteroides stercoris. The isolate originated from a polymicrobial intra-abdominal abscess in a 70-year-old woman. The nimD gene was detected by use of whole-genome shotgun sequencing and the subsequent use of the ResFinder 2.1 web service.
Flere grøntsager og fuldkornsprodukter i skolemad

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Flow pattern and cleaning performance of a stationary liquid jet operating at conditions relevant for industrial tank cleaning
Cleaning of processing tanks by impinging liquid jets is common practice in the food and biotechnology sectors. However, satisfactory prediction of the cleaning performance of such jets has so far only been achieved in small scale experiments. In the present work, cleaning with a horizontal water jet was studied using a 19m³ tank and settings applicable to industrial operations; nozzle internal diameters, dN, of 2–5.5mm, cleaning distances, L, of 80–2490mm, and flow rates, Q, of 0.05–3.0m³h⁻¹. Experimental data and model predictions of the behaviour of the jet when striking an unsoiled surface showed reasonable agreement for a nozzle with dN=2mm at small cleaning distances (L 80 and 200mm). At greater dN and cleaning distances there was poorer agreement, which was attributed to jet break-up and splatter. Similar observations were made when cleaning a surface soiled with white petroleum jelly. The evolution of the cleaned area was predicted reasonably well for experiments with dN=2mm, L=80mm, and soil layer thicknesses of 0.25–1.49mm. For longer cleaning distances and larger dN only the initial stages of cleaning could be modelled, because jet break-up introduced complexities and momentum losses not accounted for in the mathematical models. The effects of jet break-up can partly be accommodated, in practice, by correcting the jet flow rate for these momentum losses.

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Organisations: National Food Institute, Technical University of Denmark, Alfa Laval Tank Equipment A/S, University of Cambridge
Authors: Feldung Damkjær, N. (Ekstern), Adler-Nissen, J. (Intern), Jensen, B. B. B. (Ekstern), Wilson, D. (Ekstern)
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Food allergy skin sensitization: A comparative study with three different gluten products in Brown Norway rats

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Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, INRA Institut National de La Recherche Agronomique
Authors: Castan, L. (Ekstern), Ballegaard, A. R. (Intern), Bouchaud, G. (Ekstern), Bøgh, K. L. (Intern)
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Framework to Define Structure and Boundaries of Complex Health Intervention Systems: The ALERT Project

Health intervention systems are complex and subject to multiple variables in different phases of implementation. This constitutes a concrete challenge for the application of translational science in real life. Complex systems as health-oriented interventions call for interdisciplinary approaches with carefully defined system boundaries. Exploring individual components of such systems from different viewpoints gives a wide overview and helps to understand the elements and the relationships that drive actions and consequences within the system. In this study, we present an application and assessment of a framework with focus on systems and system boundaries of interdisciplinary projects. As an example on how to apply our framework, we analyzed ALERT [an integrated sensors and biosensors’ system (BEST) aimed at monitoring the quality, health, and traceability of the chain of the bovine milk], a multidisciplinary and interdisciplinary project based on the application of measurable biomarkers at strategic points of the milk chain for improved food security (including safety), human, and ecosystem health (1). In fact, the European food safety framework calls for science-based support to the primary producers’ mandate for legal, scientific, and ethical responsibility in food supply. Because of its
multidisciplinary and interdisciplinary approach involving human, animal, and ecosystem health, ALERT can be considered as a One Health project. Within the ALERT context, we identified the need to take into account the main actors, interactions, and relationships of stakeholders to depict a simplified skeleton of the system. The framework can provide elements to highlight how and where to improve the project development when project evaluations are required.

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Organisations: National Food Institute, Research Group for Genomic Epidemiology, Transport DTU, Department of Management Engineering, Quantitative Sustainability Assessment, Istituto Superiore di Sanita, University of Zurich
Authors: Boriani, E. (Intern), Esposito, R. (Ekstern), Frazzoli, C. (Ekstern), Fantke, P. (Intern), Hald, T. (Intern), R. Rüegg, S. (Ekstern)
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From 2D fluidic array screening to 3D bacterial capturing structures in a point of care system for sepsis diagnosis
A combined 2D microfluidic-microarray high throughput approach is reported to identify universal bacterial capturing ligands that can be tethered on the surface of 3D sponges fabricated by different methods for concentrating of bacterial targets in diagnosis devices. The developed platform allows for the first time the simultaneous monitoring of various ligands’ affinities to different bacteria species in a dynamic condition in vitro. Moreover, it has been feasible to recognize the effect of steric hindrance on the function of capturing motifs through immobilizing spacer molecules with different lengths between the solid surface and ligands. 3D sponges and micropillars are modified with the most potent capturing molecule to assess their bacterial capturing in real blood samples. Next, the 3D structures are placed into a chip with an immense potential to recognize bacteria through imaging and fluorescence intensity concept.

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Organisations: Department of Micro- and Nanotechnology, BioLabChip, Colloids and Biological Interfaces, National Food Institute, Research Group for Analytical and Predictive Microbiology
Authors: Shahbazi, M. (Intern), Kant, K. (Intern), Kaplinsky, J. J. (Intern), Aaydha Chidambara, V. (Intern), Bang, D. D. (Intern), Wolff, A. (Intern)
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microorganisms, biomedical imaging, bioMEMS, bio-optics, blood, lab-on-a-chip, microfluidics, fluorescence intensity, 2D fluidic array screening, 3D bacterial capturing structures, point of care system, sepsis diagnosis, 2D microfluidic-microarray high throughput approach, bacterial capturing ligands, 3D sponges, diagnosis devices, steric hindrance, capturing motifs, spacer molecule immobilization, micropillars, real blood samples, imaging. Microorganisms, Surface treatment, Three-dimensional displays, Surface morphology, Substrates, Two dimensional displays, Peptides, Patient diagnostic methods and instrumentation, Micromechanical and nanomechanical devices and systems, Applied fluid mechanics, Microfluidics and nanofluidics, Optical and laser radiation (medical uses), Optical and laser radiation (biomedical imaging/measurement), MEMS and NEMS device technology

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Fysiske principper bag kunsten at lave god mad i stor scala

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Gaming with Teaching Philosophies
Professional practice in general is to a large extent based on tacit knowledge (Schön 1983). For university teachers, tacit knowledge includes knowledge about what works – and what does not work – when teaching a specific group of students a specific subject matter in a specific context.

Making tacit knowledge explicit is important for at least two reasons: For the individual it may facilitate a more conscious linking of loose impressions and observations from own teaching practice to general principles of teaching and learning, thus enabling a more systematic interpretation and development of own teaching (Mcalpine and Weston 2002). It is also useful – if not necessary - for communication with others about teaching and learning, e.g. when peer coaching less experienced colleagues, or sharing experience and collaborating on teaching development with colleagues. Teaching Portfolios are a well-known means for the individual teacher to develop a reflective approach to own teaching practice and the underlying values and presumptions, including a process of making tacit knowledge explicit (Smith and Tillema 2006). However, we see a need for methods for sharing, discussing and developing teaching philosophies in a collective process. The perspectives of introducing such methods are to support a team-oriented approach to teaching and to strengthen communities of practice (Wenger 2008)/ communities of learning among teachers.

So how can we do this? The authors have conceived and designed a game to identify and clarify teachers' values, attitudes and preferences related to their teaching. The core element of the game is a deck of cards each with a statement about teaching and/or learning, e.g. "Students must learn to dare to fail and learn from their mistakes", "What I teach is what students learn", and "Blackboards are an overlooked method of teaching". While the statements do not give the "solution" to what good teaching practice is, their purpose is to start a personal reflection.

During the game, the players go through an individual reflection process leading to the selection of a number of cards with
statements each player find relevant and important in relation to the question “What is good teaching?” These are then ranked and discussed in a group of players who are asked see if some consensus can be reached and explore if they can identify common approaches to teaching and learning. This consensus may different from the individual player’s choices.

We have tested the game in different scenarios: as part of a training course for experienced teachers, in a study group for faculty members on university pedagogy, among teachers and students at a specific education programme, among directors of Bachelor of Engineering programmes, and at an international conference. Based on our experiences, we have identified a number of possible scenarios where the game can be used:

- Participants in a teachers’ training course. Purpose: to clarify and articulate own teaching philosophy.
- A team of teachers teaching the same course. Purpose: to reach consensus on ground principles.
- Teachers and students in a course or education program. Purpose: to clarify mutual expectations and roles.
- Across an educational institution: Purpose: to create and support an increased awareness and discussion of approaches to good teaching practice.

In cases where the game is played among colleagues who collaborate e.g. on teaching a course or coordinating an education programme, the process may also contribute to developing and strengthening the community of practice they are engaged in.

In the hands-on session, which is a revised version of a previous workshop, we will introduce the ideas and intentions of the game and guide the participants in playing the game. Ample time will be given for individual reflection and collective discussion of identified values and approaches to teaching and the general outcome of playing the game. At the end of the session, we will invite to a discussion of possible applications and use scenarios, and to suggestions of improvement of the game.

**Gastric mucus and mucuslike hydrogels: Thin film lubricating properties at soft interfaces**

Mucus is a viscous slime that plays a vital role in protecting and lubricating biological tissues, in particular, soft epithelium interfaces such as in the stomach, intestines, and esophagus. Previous attempts to generate mucus models that mimic or simulate its characteristics have been predominantly focused on the rheological properties. This study investigates both rheological and tribological shear properties of thin films of gastric mucus from a porcine source and its mimics at compliant soft interfaces. The lubricating efficacy of biological mucus and its mimics was observed to be superior at hydrophilic tribological interfaces compared to hydrophobic ones. Facile spreading of all mucus samples at hydrophilic steel–polydimethylsiloxane (PDMS) interfaces allowed for the retainment of the lubricating films over a wide range of speed, slide/roll ratio, and external load. In contrast, poor wetting at hydrophobic PDMS–PDMS interfaces led to depletion of the mucus samples from the interface with increasing speed. Among the different mucus models investigated in this study, fluid mixtures of commercially available porcine gastric mucin (PGM) and polyacrylic acid (PAA) displayed the most persistent lubricating effects under various tribological experimental conditions. A mixture of PGM and PAA holds a high potential as mucus mimic, not only for its rheological similarity, but also for its excellent lubricity in soft compliant and hydrophilic contacts.
Gene-Based Pathogen Detection: Can We Use qPCR to Predict the Outcome of Diagnostic Metagenomics?
In microbial food safety, molecular methods such as quantitative PCR (qPCR) and next-generation sequencing (NGS) of bacterial isolates can potentially be replaced by diagnostic shotgun metagenomics. However, the methods for pre-analytical sample preparation are often optimized for qPCR, and do not necessarily perform equally well for qPCR and sequencing. The present study investigates, through screening of methods, whether qPCR can be used as an indicator for the optimization of sample preparation for NGS-based shotgun metagenomics with a diagnostic focus. This was used on human fecal samples spiked with $10^3$ or $10^6$ colony-forming units (CFU)/g Campylobacter jejuni, as well as porcine fecal samples spiked with $10^3$ or $10^6$ CFU/g Salmonella typhimurium. DNA was extracted from the samples using variations of two widely used kits. The following quality parameters were measured: DNA concentration, qPCR, DNA fragmentation during library preparation, amount of DNA available for sequencing, amount of sequencing data, distribution of data between samples in a batch, and data insert size; none showed any correlation with the target ratio of the spiking organism detected in sequencing data. Surprisingly, diagnostic metagenomics can have better detection sensitivity than qPCR for samples spiked with $10^3$ CFU/g C. jejuni. The study also showed that qPCR and sequencing results may be different due to inhibition in one of the methods. In conclusion, qPCR cannot uncritically be used as an indicator for the optimization of sample preparation for diagnostic metagenomics.
Generic global regression models for growth prediction of Salmonella in ground pork and pork cuts

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Authors: Buschhardt, T. (Intern), Hansen, T. B. (Intern), Bahl, M. I. (Intern), Schaffner, D. W. (Ekstern), Aabo, S. (Intern)
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Generic global regression models for growth prediction of Salmonella in ground pork and pork cuts

Introduction and Objectives
Models for the prediction of bacterial growth in fresh pork are primarily developed using two-step regression (i.e. primary models followed by secondary models). These models are also generally based on experiments in liquids or ground meat and neglect surface growth. It has been shown that one-step global regressions can result in more accurate models and that bacterial growth on intact surfaces can substantially differ from growth in liquid culture.

Material and Methods
We used a global-regression approach to develop predictive models for the growth of Salmonella for three pork matrices: on the surface of shoulder (neck) and hind part (ham), and in ground pork. We conducted five experimental trials and inoculated essentially sterile pork pieces with a Salmonella cocktail (n = 192). Inoculated meat was aerobically incubated at 4 °C, 7 °C, 12 °C, and 16 °C for 96 h. One part of obtained log-transformed cell counts was used for model development and another for model validation. The Ratkowsky square root model and the relative lag time (RLT) model were integrated into the logistic model with delay. Fitted parameter estimates were compared to investigate the effect of meat structure on bacterial growth and goodness-of-fit was evaluated by root mean squared errors (RMSE). We used the Acceptable Simulation Zone (ASZ) approach and cross-validation with model-independent data to investigate if generic predictive models could accurately describe microbial growth across all studied pork products and compared our models to already existing generic models.

Results
Our results indicated that the growth of Salmonella was affected by product characteristics such as pH and structure, but storage temperature was shown to be the only variable needed to predict growth independent of pH and structural differences. RMSE of 0.54 suggested acceptable goodness-of-fit for the Salmonella generic growth model. Model evaluations of the generic growth model showed that described growth responses on pork neck and in ground pork were highly accurate with 86 and 98% of all model independent observations within the ASZ, respectively. Although growth descriptions showed less accuracy in the case of pork ham, a fail-safe model could still be developed. Model evaluation also showed that our model performed better than generic existing models.

Conclusions
We suggested that generic model with fewer variables might provide a more suitable approach to bacterial growth modeling in fresh pork if pH and the type of pork product are unknown. Our study provides a “ready-to-use” global regression model relevant for a wide range of time and temperature combinations and various fresh pork products. The model should be a useful tool to control growth of Salmonella in meat and set critical limits for temperature during production and storage of fresh pork.

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Genetic clusters and circulation of Salmonella Dublin in Jutland

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Organisations: National Food Institute, Research Group for Analytical and Predictive Microbiology, Research Group for Genomic Epidemiology, University of Copenhagen
Authors: de Knegt, L. V. (Forskerdatabase), Kudirkiene, E. (Ekstern), Sørensen, G. (Intern), Nielsen, L. R. (Ekstern), Olsen, J. E. (Ekstern)
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Genetisk bestemte forskelle i antioxidant enzymaktivitet er ikke associeret med risiko for brystkæft

Genome and Plasmid Sequences of Escherichia coli KV7, an Extended-Spectrum β-Lactamase Isolate Derived from Feces of a Healthy Pig

We present single-contig assemblies for Escherichia coli strain KV7 (serotype O27, phylogenetic group D) and its six plasmids, isolated from a healthy pig, as determined by PacBio RS II and Illumina MiSeq sequencing. The chromosome of 4,997,475 bp and G+C content of 50.75% harbored 4,540 protein-encoding genes.
Genome-wide analyses of Listeria monocytogenes from food-processing plants reveals clonal diversity and dates the emergence of persisting sequence types

Whole genome sequencing is increasing used in epidemiology, e.g. for tracing outbreaks of food-borne diseases. This requires in-depth understanding of pathogen emergence, persistence, and genomic diversity along the food production chain including in food processing plants. We sequenced the genomes of 80 isolates of Listeria monocytogenes sampled from Danish food processing plants over a time-period of 20 years, and analyzed the sequences together with 10 public available reference genomes to advance our understanding of inter- and intra-plant genomic diversity of L. monocytogenes. Except for three persisting sequence types (ST) based on Multi Locus Sequence Typing (MLST) being ST7, ST8 and ST121, long-term persistence of clonal groups was limited, and new clones were introduced continuously, potentially from raw materials. No particular gene could be linked to the persistence phenotype. Using time-based phylogenetic analyses of the persistent STs, we estimate the L. monocytogenes evolutionary rate to be 0.18-0.35 SNPs/year, suggesting that the persistent STs emerged approximately 100 years ago, which correlates with the onset of industrialization and globalization of the food market.
Genome-wide fitness analyses of the foodborne pathogen Campylobacter jejuni in in vitro and in vivo models

Campylobacter is the most common cause of foodborne bacterial illness worldwide. Faecal contamination of meat, especially chicken, during processing represents a key route of transmission to humans. There is a lack of insight into the mechanisms driving C. jejuni growth and survival within hosts and the environment. Here, we report a detailed analysis of C. jejuni fitness across models reflecting stages in its life cycle. Transposon (Tn) gene-inactivation libraries were generated in three C. jejuni strains and the impact on fitness during chicken colonisation, survival in houseflies and under nutrient-rich and -poor conditions at 4 degrees C and infection of human gut epithelial cells was assessed by Tn-insertion site sequencing (Tn-seq). A total of 331 homologous gene clusters were essential for fitness during in vitro growth in three C. jejuni strains, revealing that a large part of its genome is dedicated to growth. We report novel C. jejuni factors essential throughout its life cycle. Importantly, we identified genes that fulfill important roles across multiple conditions. Our comprehensive screens showed which flagella elements are essential for growth and which are vital to the interaction with host organisms. Future efforts should focus on how to exploit this knowledge to effectively control infections caused by C. jejuni.

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Organisations: National Food Institute, Research Group for Microbial Food Safety
Authors: de Vries, S. P. W. (Ekstern), Gupta, S. (Ekstern), Baig, A. (Ekstern), Wright, E. (Ekstern), Wedley, A. (Ekstern), Jensen, A. N. (Intern), Lora, L. L. (Ekstern), Humphrey, S. (Ekstern), Skovgard, H. (Ekstern), Macleod, K. (Ekstern), Pont, E. (Ekstern), Wolanska, D. P. (Ekstern), L'Heureux, J. (Ekstern), Mobegi, F. M. (Ekstern), Smith, D. G. E. (Ekstern), Everest, P. (Ekstern), Zomer, A. (Ekstern), Williams, N. (Ekstern), Wigley, P. (Ekstern), Humphrey, T. (Ekstern), Maskell, D. J. (Ekstern), Grant, A. J. (Ekstern)
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Genomic GC-content affects the accuracy of 16S rRNA gene sequencing based microbial profiling due to PCR bias

Profiling of microbial community composition is frequently performed by partial 16S rRNA gene sequencing on benchtop platforms following PCR amplification of specific hypervariable regions within this gene. Accuracy and reproducibility of this strategy are two key parameters to consider, which may be influenced during all processes from sample collection and storage, through DNA extraction and PCR based library preparation to the final sequencing. In order to evaluate both the reproducibility and accuracy of 16S rRNA gene based microbial profiling using the Ion Torrent PGM platform, we prepared libraries and performed sequencing of a well-defined and validated 20-member bacterial DNA mock community on five separate occasions and compared results with the expected even distribution. In general the applied method had a median coefficient of variance of 11.8% (range 5.5-73.7%) for all 20 included strains in the mock community across five separate sequencing runs, with underrepresented strains generally showing the largest degree of variation. In terms of accuracy, mock community species belonging to Proteobacteria were underestimated, whereas those belonging to Firmicutes were mostly overestimated. This could be explained partly by premature read truncation, but to larger degree their genomic GC-content, which correlated negatively with the observed relative abundances, suggesting a PCR bias against GC-rich species during library preparation. Increasing the initial denaturation time during the PCR amplification from 30 to 120 s resulted in an increased average relative abundance of the three mock community members with the highest genomic GC%, but did not significantly change the overall evenness of the community distribution. Therefore, efforts should be made to optimize the PCR conditions prior to sequencing in order to maximize accuracy.

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Authors: Laursen, M. F. (Intern), Dalgaard, M. D. (Intern), Bahl, M. I. (Intern)
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Genotypes Associated with Listeria monocytogenes Isolates Displaying Impaired or Enhanced Tolerances to Cold, Salt, Acid, or Desiccation Stress

The human pathogen Listeria monocytogenes is a large concern in the food industry where its continuous detection in food products has caused a string of recalls in North America and Europe. Most recognized for its ability to grow in foods during refrigerated storage, L. monocytogenes can also tolerate several other food-related stresses with some strains possessing higher levels of tolerances than others. The objective of this study was to use a combination of phenotypic analyses and whole genome sequencing to elucidate potential relationships between L. monocytogenes genotypes and food-related stress tolerance phenotypes. To accomplish this, 166 L. monocytogenes isolates were sequenced and evaluated for their ability to grow in cold (4°C), salt (6% NaCl, 25°C), and acid (pH 5, 25°C) stress conditions as well as survive desiccation (33% RH, 20°C). The results revealed that the stress tolerance of L. monocytogenes is associated with serotype, clonal complex (CC), full length inlA profiles, and the presence of a plasmid which was identified in 55% of isolates. Isolates with full length inlA exhibited significantly (p <0.001) enhanced cold tolerance relative to those harboring a premature stop codon (PMSC) in this gene. Similarly, isolates possessing a plasmid demonstrated significantly (p = 0.013) enhanced acid tolerance. We also identified nine new L. monocytogenes sequence types, a new inlA PMSC, and several connections between CCs and the presence/absence or variations of specific genetic elements. A whole genome single-nucleotide-variants phylogeny revealed sporadic distribution of tolerant isolates and closely related sensitive and tolerant isolates, highlighting that minor genetic differences can influence the stress tolerance of L. monocytogenes. Specifically, a number of cold and desiccation sensitive isolates contained PMSCs in σB regulator genes (rsbS, rsbU, rsbV). Collectively, the results suggest that knowing the sequence type of an isolate in addition to screening for the presence of a plasmid and PMSC, could help food processors and food agency investigators determine why certain isolates might be persisting in a food processing environment. Additionally, increased sequencing of L. monocytogenes isolates in combination with stress tolerance profiling, will enhance the ability to identify genetic elements associated with higher risk strains.

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Global Microbial Identifier

Human and animal populations are increasingly confronted with emerging and re-emerging infections and often such infections are exchanged between these populations, e.g. through food. A more effective and uniform approach to the prevention of these microbial threats is essential. The technological advances in the next generation sequencing field and decreasing costs of these tests provide novel opportunities in understanding the dynamics of infection—even in real time—through the analysis of microbial genome diversity. The projected significant increase in whole (microbial) genome sequencing (WGS) will likely also enable a much better understanding of the pathogenesis of the infection and the molecular basis of the host response to infection. But the full potential of these advances will only transpire if the data in this area become transferable and thereby comparable, preferably in open-source systems. There is therefore an obvious need to develop a global system of whole microbial genome databases to aggregate, share, mine and use microbiological genomic data, to address global public health and clinical challenges, and most importantly to identify and diagnose infectious diseases. The global microbial identifier (GMI) initiative, aims to build a database of whole microbial genome sequencing data linked to relevant metadata, which can be used to identify microorganisms, their communities and the diseases they cause. It would be a platform for storing whole genome sequencing (WGS) data of microorganisms, for the identification of relevant genes and for the comparison of genomes to detect outbreaks and emerging pathogens. To harness the full potential of WGS, a shared global database of genomes linked to relevant metadata and the necessary software tools needs to be generated, hence the global microbial identifier (GMI) initiative. This tool will ideally be used in amongst others in the diagnosis of infectious diseases in humans and animals, in the identification of microorganisms in food and environment, and to track and trace microbial agents in all arenas globally. This will require standardization and extensive investments in computational analytical tools. In addition, the wider introduction of WGS in clinical diagnostics can accelerate developments in health care in many poor countries. This overview describes the growing network of
stakeholders behind GMI, the contours of the database, and the IT structures needed to serve the GMI user community. It discusses what essentially can be done by a global GMI tool and how the GMI organization could help achieve these goals.

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Glyphosate has limited short-term effects on commensal bacterial community composition in the gut environment due to sufficient aromatic amino acid levels

Recently, concerns have been raised that residues of glyphosate-based herbicides may interfere with the homeostasis of the intestinal bacterial community and thereby affect the health of humans or animals. The biochemical pathway for aromatic amino acid synthesis (Shikimate pathway), which is specifically inhibited by glyphosate, is shared by plants and numerous bacterial species. Several in vitro studies have shown that various groups of intestinal bacteria may be differently affected by glyphosate. Here, we present results from an animal exposure trial combining deep 16S rRNA gene sequencing of the bacterial community with liquid chromatography mass spectrometry (LC-MS) based metabolic profiling of aromatic amino acids and their downstream metabolites. We found that glyphosate as well as the commercial formulation Glyfonova®450 PLUS administered at up to fifty times the established European Acceptable Daily Intake (ADI = 0.5 mg/kg body weight) had very limited effects on bacterial community composition in Sprague Dawley rats during a two-week exposure trial. The effect of glyphosate on prototrophic bacterial growth was highly dependent on the availability of aromatic amino acids, suggesting that the observed limited effect on bacterial composition was due to the presence of sufficient amounts of aromatic amino acids in the intestinal environment. A strong correlation was observed between intestinal concentrations of glyphosate and intestinal pH, which may partly be explained by an observed reduction in acetic acid produced by the gut bacteria. We conclude that sufficient intestinal levels of aromatic amino acids provided by the diet alleviates the need for bacterial synthesis of aromatic amino acids and thus prevents an antimicrobial effect of glyphosate in vivo. It is however possible that the situation is different in cases of human malnutrition or in production animals.

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, Research Group for Analytical Food Chemistry, Copenhagen Center for Health Technology, Aarhus University, University of Copenhagen
Authors: Nielsen, L. N. (Intern), Roager, H. M. (Intern), Casas, M. E. (Ekstern), Frandsen, H. L. (Intern), Gosewinkel, U. (Ekstern), Bester, K. (Ekstern), Licht, T. R. (Intern), Hendriksen, N. B. (Ekstern), Bahl, M. I. (Intern)
Pages: 364-376
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Environmental Pollution
Volume: 233
ISSN (Print): 0269-7491
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
Greenland seaweeds for human consumption

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Research Group for Analytical and Predictive Microbiology
Authors: Kreissig, K. J. (Intern), Hansen, L. T. (Intern)
Number of pages: 1
Publication date: 2017
Event: Poster session presented at Arktisk forskning og teknologi konference 2017, Copenhagen, Denmark.
Main Research Area: Technical/natural sciences
Electronic versions:
Source: PublicationPreSubmission
Source-ID: 140631983
Publication: Research - peer-review › Poster – Annual report year: 2017

Growth parameter estimates of Listeria monocytogenes in cooked chicken: Effect of preparation of inoculum

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Food Safety
Authors: Birk, T. (Intern), Smith Ottosen, S. (Ekstern), Hansen, T. B. (Intern)
Pages: 66-66
Publication date: 2017
Host publication information
Title of host publication: The Danish Microbiological Society Annual Congress 2017 - Programme & Abstracts
Place of publication: Copenhagen, Denmark
Publisher: American Society for Microbiology
Article number: P55
Main Research Area: Technical/natural sciences
Conference: Danish Microbiological Society 2017 Congress, Copenhagen, Denmark, 13/11/2017 - 13/11/2017
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ABSTRACT BOOK
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

Growth parameter estimates of Listeria monocytogenes in cooked chicken: effect of preparation of inoculum

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Food Safety, University College Zealand
Authors: Birk, T. (Intern), Smith Ottosen, S. (Ekstern), Hansen, T. B. (Intern)
Number of pages: 1
Publication date: 2017
Host publication information
Title of host publication: 10th International conference on predictive modelling in food
Place of publication: Cordoba, Spain
Main Research Area: Technical/natural sciences
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Electronic versions:
abstract_poster_P17.pdf
Source: PublicationPreSubmission
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Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017
Growth parameter estimates of Listeria monocytogenes in cooked chicken: effect of preparation of inoculum

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Food Safety, University College Zealand
Authors: Birk, T. (Intern), Smith Ottosen, S. (Ekstern), Hansen, T. B. (Intern)
Number of pages: 1
Publication date: 2017
Event: Poster session presented at 10th International Conference on Predictive Modelling in Food, Cordoba, Spain.
Main Research Area: Technical/natural sciences
Electronic versions:
poster_ICPMF10_tibha_220817.pdf
Publication: Research - peer-review › Poster – Annual report year: 2017

Harnessing the respiration machinery for high-yield production of chemicals in metabolically engineered Lactococcus lactis

When modifying the metabolism of living organisms with the aim of achieving biosynthesis of useful compounds, it is essential to ensure that it is possible to achieve overall redox balance. We propose a generalized strategy for this, based on fine-tuning of respiration. The strategy was applied on metabolically engineered Lacto-coccus lactis strains to optimize the production of acetoin and (R,R)-2,3-butanediol (R-BDO). In the absence of an external electron acceptor, a surplus of two NADH per acetoin molecule is produced. We found that a fully activated respiration was able to efficiently regenerate NAD+, and a high titer of 371 mM (32 g/L) of acetoin was obtained with a yield of 82% of the theoretical maximum. Subsequently, we extended the metabolic pathway from acetoin to R-BDO by introducing the butanediol dehydrogenase gene from Bacillus subtilis. Since one mole of NADH is consumed when acetoin is converted into R-BDO per mole, only the excess of NADH needs to be oxidized via respiration. Either by fine-tuning the respiration capacity or by using a dual-phase fermentation approach involving a switch from fully respiratory to non-respiratory conditions, we obtained 361 mM (32 g/L) R-BDO with a yield of 81% or 365 mM (33 g/L) with a yield of 82%, respectively. These results demonstrate the great potential in using finely-tuned respiration machineries for bio-production.

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Biotechnology and Biorefining, Novo Nordisk Foundation Center for Biosustainability, New Bioactive Compounds
Authors: Liu, J. (Intern), Wang, Z. (Intern), Kandasamy, V. (Intern), Lee, S. Y. (Intern), Solem, C. (Intern), Jensen, P. R. (Intern)
Pages: 22-29
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Metabolic Engineering
Volume: 44
ISSN (Print): 1096-7176
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SJR 3.337 SNIP 1.787
High-fat feeding rather than obesity drives taxonomical and functional changes in the gut microbiota in mice

Background: It is well known that the microbiota of high-fat (HF) diet-induced obese mice differs from that of lean mice, but to what extent, this difference reflects the obese state or the diet is unclear. To dissociate changes in the gut microbiota associated with high HF feeding from those associated with obesity, we took advantage of the different susceptibility of C57BL/6JBornTac (BL6) and 129S6/SvEvTac (Sv129) mice to diet-induced obesity and of their different responses to...
inhibition of cyclooxygenase (COX) activity, where inhibition of COX activity in Bl6 mice prevents HF diet-induced obesity, but in Sv129 mice accentuates obesity.

Results: Using HiSeq-based whole genome sequencing, we identified taxonomic and functional differences in the gut microbiota of the two mouse strains fed regular low-fat or HF diets with or without supplementation with the COX-inhibitor, indomethacin. HF feeding rather than obesity development led to distinct changes in the gut microbiota. We observed a robust increase in alpha diversity, gene count, abundance of genera known to be butyrate producers, and abundance of genes involved in butyrate production in Sv129 mice compared to Bl6 mice fed either a LF or a HF diet. Conversely, the abundance of genes involved in propionate metabolism, associated with increased energy harvest, was higher in Bl6 mice than Sv129 mice.

Conclusions: The changes in the composition of the gut microbiota were predominantly driven by high-fat feeding rather than reflecting the obese state of the mice. Differences in the abundance of butyrate and propionate producing bacteria in the gut may at least in part contribute to the observed differences in obesity propensity in Sv129 and Bl6 mice.

High throughput resistance profiling of Plasmodium falciparum infections based on custom dual indexing and Illumina next generation sequencing-technology

Genetic polymorphisms in P. falciparum can be used to indicate the parasite’s susceptibility to antimalarial drugs as well as its geographical origin. Both of these factors are key to monitoring development and spread of antimalarial drug resistance. In this study, we combine multiplex PCR, custom designed dual indexing and Miseq sequencing for high throughput SNP-profiling of 457 malaria infections from Guinea-Bissau, at the cost of 10 USD per sample. By amplifying and sequencing 15 genetic fragments, we cover 20 resistance-conferring SNPs occurring in pfcr, pfmdr1, pfhrf, pfhrps, as well as the entire length of pfK13, and the mitochondrial barcode for parasite origin. SNPs of interest were sequenced
with an average depth of 2,043 reads, and bases were called for the various SNP-positions with a p-value below 0.05, for 89.8-100% of samples. The SNP data indicates that artemisinin resistance-conferring SNPs in pfK13 are absent from the studied area of Guinea-Bissau, while the pfmdr1 86 N allele is found at a high prevalence. The mitochondrial barcodes are unanimous and accommodate a West African origin of the parasites. With this method, very reliable high throughput surveillance of antimalarial drug resistance becomes more affordable than ever before.

**General information**

**State:** Published

**Organisations:** Department of Biotechnology and Biomedicine, DTU Multi Assay Core, National Food Institute, Research Group for Genomic Epidemiology, Department of Bio and Health Informatics, University of Copenhagen, University of Southern Denmark, Karolinska Institutet, Statens Seruminstitut

**Authors:** Nag, S. (Ekstern), Dalgaard, M. D. (Intern), Kofoed, P. (Ekstern), Ursing, J. (Ekstern), Crespo, M. (Ekstern), Andersen, L. O. (Ekstern), Aarestrup, F. M. (Intern), Lund, O. (Intern), Alifrangis, M. (Ekstern)

**Number of pages:** 13

**Publication date:** 2017

**Main Research Area:** Technical/natural sciences

**Publications information**

**Journal:** Scientific Reports

**Volume:** 7

**Issue number:** 1

**Article number:** 2398

**ISSN (Print):** 2045-2322

**Ratings:**

BFI (2018): BFI-level 1

Web of Science (2018): Indexed yes

BFI (2017): BFI-level 1

Scopus rating (2017): SNIP 1.245 SJR 1.533

Web of Science (2017): Indexed yes

BFI (2016): BFI-level 1

Scopus rating (2016): CiteScore 4.63 SJR 1.692 SNIP 1.354

Web of Science (2016): Indexed yes

BFI (2015): BFI-level 1

Scopus rating (2015): SJR 2.034 SNIP 1.597 CiteScore 5.3

Web of Science (2015): Indexed yes

BFI (2014): BFI-level 1

Scopus rating (2014): SJR 2.163 SNIP 1.554 CiteScore 4.75

Web of Science (2014): Indexed yes

BFI (2013): BFI-level 1

Scopus rating (2013): SJR 1.998 SNIP 1.57 CiteScore 4.06

ISI indexed (2013): ISI indexed yes

Web of Science (2013): Indexed yes

BFI (2012): BFI-level 1

Scopus rating (2012): SJR 1.531 SNIP 0.962 CiteScore 2.44

ISI indexed (2012): ISI indexed yes

Web of Science (2012): Indexed yes

ISI indexed (2011): ISI indexed no

**Original language:** English

**Electronic versions:**

art_3A10.1038_2Fs41598_017_02724_x.pdf

**DOIs:**

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Source: FindIt

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Publication: Research - peer-review › Journal article – Annual report year: 2017

**Hospital epidemiology of methicillin-resistant Staphylococcus aureus (MRSA) in a tertiary care hospital in Moshi Tanzania as determined by whole genome sequencing**

**General information**
How to foster a High-Tech entrepreneurial mind-set – A multidisciplinary engineering course for Bachelor students

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, Department of Micro- and Nanotechnology, National Food Institute, Research Group for Microbial Biotechnology and Biorefining, Office for Study Programmes and Student Affairs, Department of Civil Engineering, Department of Management Engineering, Technology and Innovation Management
Authors: Rootzén, H. (Intern), Berg, R. H. (Intern), Hobley, T. J. (Intern), Andersson, P. H. (Intern), Yoshinaka, Y. (Intern), Jensen, L. B. (Intern)
Publication date: 2017
Main Research Area: Technical/natural sciences
Entrepreneurial mind-set, Multidisciplinary teams, Preparing professionals

HPLC-HRMS Quantification of the Ichthyotoxin Karmitoxin from Karlodinium armiger

Being able to quantify ichthyotoxic metabolites from microalgae allows for the determination of ecologically-relevant concentrations that can be simulated in laboratory experiments, as well as to investigate bioaccumulation and degradation. Here, the ichthyotoxin karmitoxin, produced by Karlodinium armiger, was quantified in laboratory-grown cultures using high-performance liquid chromatography (HPLC) coupled to electrospray ionisation high-resolution time-of-flight mass spectrometry (HRMS). Prior to the quantification of karmitoxin, a standard of karmitoxin was purified from K. armiger cultures (80 L). The standard was quantified by fluorescent derivatisation using Waters AccQ-Fluor reagent and derivatised fumonisin B₁ and fumonisin B₂ as standards, as each contain a primary amine. Various sample preparation methods for whole culture samples were assessed, including six different solid phase extraction substrates. During analysis of culture samples, MS source conditions were monitored with chloramphenicol and valinomycin as external standards over prolonged injection sequences (>12 h) and karmitoxin concentrations were determined using the response factor of a closely eluting iturin A2 internal standard. Using this method the limit of quantification was 0.11 μg·mL⁻¹, and the limit of detection was found to be 0.03 μg·mL⁻¹. Matrix effects were determined with the use of K. armiger cultures grown with 13C-labelled bicarbonate as the primary carbon source.

General information
State: Published
Organisations: National Food Institute, Department of Biotechnology and Biomedicine, Natural Product Discovery, DTU Metabolomics Core, Research Group for Analytical Food Chemistry, Universidade Federal de Sao Paulo, University of Copenhagen
Authors: Andersen, A. J. C. (Intern), Soman De Medeiros, L. (Ekstern), Binzer, S. B. (Ekstern), Rasmussen, S. A. (Intern), Hansen, P. J. (Ekstern), Nielsen, K. F. (Intern), Jørgensen, K. (Intern), Larsen, T. O. (Intern)
Number of pages: 13
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Marine Drugs
Volume: 15
Issue number: 9
Article number: 278
ISSN (Print): 1660-3397
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.537 SJR 0.978
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.83 SJR 0.883 SNIP 1.313
Harmful algal bloom, Ichthyotoxic, Karlotoxin, Polyether, Polyketide, Quantify, Quantitation, Amphidinol

Electronic versions:
marinedrugs_15_00278.pdf

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Source: FindIt
Source-ID: 2373500217
Publication: Research - peer-review › Journal article – Annual report year: 2017

Hvad spiser danske børn og voksne?
Dietary habits in Denmark

Dietary habits in Denmark can be evaluated on basis of the Danish National Survey of diet and physical activity. The survey covers the dietary intake of Danes aged 4-75 y and the diet is recorded for 7 days. The latest survey 2011-13 shows that the dietary composition has changed both in a positive and negative direction since 2003-08.

In the observed changes over time it is important to take into account that participants with low educations are underrepresented in 2011-13 compared to 2011-08. Positive dietary changes may therefore be overestimated while negative changes might be underestimated.

The surveys show that the diet contains more vegetables and fish in 2011-13 than in 2003-08. The content of fatty milk products is reduced while the content of fat reduced milk products has increased. The content of sugar sweetened fizzy drinks has decreased. Simultaneously, the proportion of potatoes and whole meal rye bread has been reduced while the content of meat and meat products has increased. Furthermore, the dietary content of fruits and vegetables rich in dietary fiber has decreased slightly.

Evaluation of the diet against the food based dietary guidelines shows that many Danes still eat unhealthily.

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition
Authors: Fagt, S. (Intern), Pedersen, A. N. (Intern)
Pages: 316-321
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Tandlaegebladet
Hybrid hydrogels by the co-assembly of chitosan with phospholipids

General information
State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science, Westfälische Wilhelms-Universität Münster
Authors: Shekarforoush, E. (Intern), Mendes, A. C. L. (Intern), Engwer, C. (Ekstern), Goycoolea, F. (Ekstern), Chronakis, I. S. (Intern)
Number of pages: 1
Publication date: 2017
Event: Abstract from The Annual European Rheology Conference (AERC2017), Copenhagen, Denmark.
Main Research Area: Technical/natural sciences
Electronic versions:
Elham_Abstract_.pdf

Relations
Activities:
Hybrid hydrogels by the co-assembly of chitosan with phospholipids
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2017

Iceland life expectancy in years (2013): Fact sheet Iceland

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition
Authors: Fagt, S. (Intern), Matthiessen, J. (Intern)
Number of pages: 2
Publication date: 2017

Publication information
Place of publication: Søborg
Publisher: National Food Institute, Technical University of Denmark
Original language: English
Main Research Area: Technical/natural sciences
Electronic versions:
Fact_sheet_Iceland.pdf
Publication: Research - peer-review › Report – Annual report year: 2017
Identification of a novel transposon-associated phosphoethanolamine transferase gene, mcr-5, conferring colistin resistance in d-tartrate fermenting Salmonella enterica subsp. enterica serovar Paratyphi B

Plasmid-mediated mobilized colistin resistance is currently known to be caused by phosphoethanolamine transferases termed MCR-1, MCR-2, MCR-3 and MCR-4. However, this study focuses on the dissection of a novel resistance mechanism in mcr-1-, mcr-2- and mcr-3- negative d-tartrate fermenting Salmonella enterica subsp. enterica serovar Paratyphi B (Salmonella Paratyphi B d Ta+) isolates with colistin MIC values >2mg/L. A selected isolate from the strain collection of the German National Reference Laboratory for Salmonella was investigated by WGS and bioinformatical analysis to identify novel phosphoethanolamine transferase genes involved in colistin resistance. Subsequently PCR screening, S1-PFGE and DNA-DNA hybridization were performed to analyse the prevalence and location of the identified mcr-5 gene. Cloning and transformation experiments in Escherichia coli DH5α and Salmonella Paratyphi B d Ta+ control strains were carried out and the activity of MCR-5 was determined in vitro by MIC testing. In this study, we identified a novel phosphoethanolamine transferase in 14 mcr-1-, mcr-2- and mcr-3- negative Salmonella Paratyphi B d Ta+ isolates with colistin MIC values >2mg/L that were received during 2011-13. The respective gene, further termed as mcr-5 (1644 bp), is part of a 7337bp transposon of the Tn 3 family and usually located on related multi-copy ColE-type plasmids. Interestingly, in one isolate an additional subclone with a chromosomal location of the mcr-5 transposon was observed. Our findings suggest that the transfer of colistin-resistance-mediating phosphoethanolamine transferase genes from bacterial chromosomes to mobile genetic elements has occurred in multiple independent events raising concern regarding their variety, prevalence and impact on public health.

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, Federal Institute for Risk Assessment
Authors: Borowiak, M. (Ekstern), Fischer, J. (Ekstern), Hammerl, J. A. (Ekstern), Hendriksen, R. S. (Intern), Szabo, I. (Ekstern), Malorny, B. (Ekstern)
Pages: 3317–3324
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Antimicrobial Chemotherapy
Volume: 72
Issue number: 12
ISSN (Print): 0305-7453
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SJR 2.419 SNIP 1.568
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 4.21 SJR 2.283 SNIP 1.521
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 2.259 SNIP 1.516 CiteScore 4.06
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 2.298 SNIP 1.765 CiteScore 4.61
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 2.479 SNIP 1.824 CiteScore 4.7
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 2.283 SNIP 1.718 CiteScore 4.35
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 2.341 SNIP 1.769 CiteScore 4.24
Identifying and collecting relevant literature related to the oral toxicity of furan and its methyl analogues, 2-methylfuran and 3-methylfuran

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition
Authors: Nielsen, E. E. (Intern), Bredsdorff, L. (Intern), Olesen, P. T. (Intern), Sharma, A. K. (Intern), Belttoft, V. M. (Intern), Narby, K. K. (Intern)
Number of pages: 29
Publication date: 2017

Publication information
Publisher: European Food Safety Authority
Original language: English

Series: EFSA Supporting Publications
Volume: 14(10)
Number: 1066E
ISSN: 2397-8325
Main Research Area: Technical/natural sciences
Furan, 2-methylfuran, 3-methylfuran, Oral toxicity, Extensive literature search
Electronic versions:
  efs31066e_ELS_okt_2017.pdf
DOIs:
IgE - the main player of food allergy

Food allergy is a growing problem worldwide, presently affecting 2-4% of adults and 5-8% of young children. IgE is a key player in food allergy. Consequently huge efforts have been made to develop tests to detect either the presence of IgE molecules, their allergen binding sites or their functionality, in order to provide information regarding the patient's food allergy. The ultimate goal is to develop tools that are capable of discriminating between asymptomatic sensitization and a clinically relevant food allergy, and between different allergic phenotypes in an accurate and trustworthy manner. This may generate better diagnostic, prognostic and therapeutic monitoring tools for the future.

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, University Medical Centre Utrecht, Hospital for Sick Children
Authors: Broekman, H. C. H. (Ekstern), Eiwegger, T. (Ekstern), Upton, J. (Ekstern), Bøgh, K. L. (Intern)
Number of pages: 8
Pages: 37-44
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Drug Discovery Today: Disease Models
Volume: 17-18
ISSN (Print): 1740-6757
Ratings:
BFI (2018): BFI-level 1
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.167 SJR 0.218
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 0.74 SJR 0.479 SNIP 0.225
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.31 SNIP 0.112 CiteScore 0.55
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.373 SNIP 0.199 CiteScore 0.72
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.288 SNIP 0.229 CiteScore 0.62
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.228 SNIP 0.17 CiteScore 0.61
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.364 SNIP 0.19 CiteScore 0.8
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.33 SNIP 0.178
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.264 SNIP 0.156
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.197 SNIP 0.123
Scopus rating (2007): SJR 0.205 SNIP 0.097
Scopus rating (2006): SJR 0.177 SNIP 0.084
Scopus rating (2005): SJR 0.13 SNIP 0.029
Original language: English
Molecular Medicine, Drug Discovery
DOI:
10.1016/j.ddmod.2016.07.001
Improving institutional memory on challenges and methods for estimation of pig herd antimicrobial exposure based on data from the Danish Veterinary Medicines Statistics Program (VetStat)

With the increasing occurrence of antimicrobial resistance, more attention has been directed towards surveillance of both human and veterinary antimicrobial use. Since the early 2000s, several research papers on Danish pig antimicrobial usage have been published, based on data from the Danish Veterinary Medicines Statistics Program (VetStat). VetStat was established in 2000, as a national database containing detailed information on purchases of veterinary medicine. This paper presents a critical set of challenges originating from static system features, which researchers must address when estimating antimicrobial exposure in Danish pig herds. Most challenges presented are followed by at least one robust solution. A set of challenges requiring awareness from the researcher, but for which no immediate solution was available, were also presented. The selection of challenges and solutions was based on a consensus by a cross-institutional group of researchers working in projects using VetStat data. No quantitative data quality evaluations were performed, as the frequency of errors and inconsistencies in a dataset will vary, depending on the period covered in the data. Instead, this paper focuses on clarifying how VetStat data may be translated to an estimation of the antimicrobial exposure at herd level, by suggesting uniform methods of extracting and editing data, in order to obtain reliable and comparable estimates on pig antimicrobial consumption for research purposes.

General information
State: Published
Organisations: National Veterinary Institute, Epidemiology, National Food Institute, Research Group for Genomic Epidemiology, University of Copenhagen
Authors: Dupont, N. H. (Ekstern), Fertner, M. (Intern), Birkegård, A. C. (Intern), Dalhoff Andersen, V. (Intern), Nielsen, G. B. (Ekstern), Kruse, A. B. (Ekstern), de Knegt, L. V. (Intern)
Number of pages: 25
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: ArXiv
Original language: English
Electronic versions:
P_Vetstat_paper_Versao_Leo_Repository_Preparation_for_ArXiv_01_ArXiv_240517.pdf
Source: FindIt
Source-ID: 2370650759
Publication: Research - peer-review › Journal article – Annual report year: 2017

Improving oxidative stability of liquid fish oil supplements for pets

Omega-3 polyunsaturated fatty acids have produced beneficial health effects in animals and are recommended by veterinarians to pet patients suffering from osteoarthritis. However, these oils are highly susceptible to lipid oxidation. The objectives of this study were to improve oxidative stability of fish oil by adding vegetable oils, mixed tocopherols and rosemary extract, and to formulate a commercial product according to the results obtained. The formulated product was evaluated against commercial fish oil products. An initial screening for antioxidative effect was performed by using Oxipres equipment. The effect of antioxidant and vegetable oil blends was examined in oils stored at 30 and 40°C by measuring peroxide value, volatile compounds with GC-MS and tocopherol content. Addition of vegetable oil and rosemary extract at high level (4000–6000 ppm) plus 600 ppm of mixed tocopherols increased oxidative stability to the same extent as 2000 ppm mixed tocopherols in Oxipres. Overall, oxidative stability of fish oil or fish oil + vegetable oil blends was improved the most by addition of 5000 ppm rosemary extract and 500 ppm mixed tocopherols. A commercial oil blend with composition optimized based on the results of this study performed better than other commercial marine oils tested.

Practical applications: In some commercial oil blends for pets, a high level of vegetable oils is included in order to increase oxidative stability. In this study, vegetable oils are included at 30% level. At this level of vegetable oil inclusion, the omega-3 EPA and DHA content of the blends is at least 21% of total fatty acids for both fish and tuna oil based blends. In this study we wanted to examine, whether we could reduce the level of vegetable oil inclusion without compromising oxidative stability. This study demonstrates how the oxidative stability of omega-3 PUFA formulations for pets can be improved by combining fish oil with vegetable oils and by adding an antioxidant blend consisting of high concentrations of rosemary extract and tocopherol. The results are also of relevance to the manufacturers of dietary supplements.

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Olini Oy
Authors: Thomsen, B. R. (Intern), Grinari, M. (Ekstern), Jacobsen, C. (Intern)
Number of pages: 12
Innovative Methods and Applications in Mucoadhesion Research

The present review is aimed at elucidating relatively new aspects of mucoadhesion/mucus interaction and related phenomena that emerged from a Mucoadhesion workshop held in Munster on 2–3 September 2015 as a satellite event of the ICCC 13th—EUCHIS 12th. After a brief outline of the new issues, the focus is on mucus description, purification, and mucus/mucin characterization, all steps that are pivotal to the understanding of mucus related phenomena and the choice of the correct mucosal model for in vitro and ex vivo experiments, alternative bio/mucomimetic materials are also presented. Then a selection of preparative techniques and testing methods are described (at molecular as well as micro and macroscale) that may support the pharmaceutical development of mucus interactive systems and assist formulators in the scale-up and industrialization steps. Recent applications of mucoadhesive systems (including medical devices)
intended for different routes of administration (oral, gastrointestinal, vaginal, nasal, ocular, and intravesical) and for the
treatment of difficult to treat pathologies or the alleviation of symptoms are described.

**General information**
State: Published
Organisations: Department of Mechanical Engineering, Materials and Surface Engineering, Research Group for Nano-Bio Science, National Food Institute, University of Leeds, University of Erlangen-Nuremberg, University of Pavia, University of Oslo, S.I.I.T. S.r.l Pharmaceutical & Health Food Supplements, University of Copenhagen
Authors: Mackie, A. (Ekstern), Goycoolea, F. M. (Ekstern), Menchicchi, B. (Ekstern), Caramella, C. M. (Ekstern), Saporito, F. (Ekstern), Lee, S. (Intern), Boutrup Stephansen, K. (Intern), Chronakis, I. S. (Intern), Hiorth, M. (Ekstern), Adamczak, M. (Ekstern), Waldner, M. (Ekstern), Nielsen, H. M. (Ekstern), Marcelloni, L. (Ekstern)
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BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.36 SJR 1.025 SNIP 0.784
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.198 SNIP 0.89 CiteScore 3.8
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.316 SNIP 0.974 CiteScore 3.87
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.393 SNIP 1.006 CiteScore 4.05
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.561 SNIP 1.112 CiteScore 3.88
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.408 SNIP 1.102 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.423 SNIP 1.134
BFI (2009): BFI-level 1
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Scopus rating (2008): SJR 1.406 SNIP 1.242
Scopus rating (2007): SJR 1.297 SNIP 1.212
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.065 SNIP 0.993
Scopus rating (2005): SJR 0.825 SNIP 0.809
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 0.621 SNIP 0.747
Scopus rating (2003): SJR 0.908 SNIP 1.177
In silico assessment of virulence factors in strains of Streptococcus oralis and Streptococcus mitis isolated from patients with Infective Endocarditis

Streptococcus oralis and Streptococcus mitis belong to the Mitis group, which are mostly commensals in the human oral cavity. Even though S. oralis and S. mitis are oral commensals, they can be opportunistic pathogens causing infective endocarditis. A recent taxonomic re-evaluation of the Mitis group has embedded the species Streptococcus tigurinus and Streptococcus dentisani into the species S. oralis as subspecies. In this study, the distribution of virulence factors that contribute to bacterial immune evasion, colonization and adhesion was assessed in clinical strains of S. oralis (subsp. oralis, subsp. tigurinus and subsp. dentisani) and S. mitis. Forty clinical S. oralis (subsp. oralis, subsp. dentisani and subsp. tigurinus) and S. mitis genomes were annotated with the pipeline PanFunPro and aligned against the VFDB database for assessment of virulence factors.

Results/Key findings. Three homologues of pavA, psaA and lmb, encoding adhesion proteins, were present in all strains. Seven homologues of nanA, nanB, ply, lytA, lytB, lytC and iga, of importance regarding survival in blood and modulation of the human immune system, were variously present in the genomes. Few S. oralis subspecies specific differences were observed. iga homologues were identified in S. oralis subsp. oralis, whereas lytA homologues were identified in S. oralis subsp. oralis and subsp. tigurinus. Differences in the presence of virulence factors among the three S. oralis subspecies were observed. The virulence gene profiles of the 40 S. mitis and S. oralis (subsp. oralis, subsp. dentisani and subsp. tigurinus) contribute with important new knowledge regarding these species and new subspecies.

General information
State: Published
Organisations: Department of Bio and Health Informatics, Metagenomics, National Food Institute, Research Group for Genomic Epidemiology, Roskilde University, Slagelse Hospital, University of Copenhagen, Copenhagen University Hospital, Vejle Hospital
Authors: Rasmussen, L. H. (Ekstern), Iversen, K. H. (Intern), Dargis, R. (Ekstern), Christensen, J. J. (Ekstern), Skovgaard, O. (Ekstern), Justesen, U. S. (Ekstern), Rosenvinge, F. S. (Ekstern), Moser, C. (Ekstern), Lukjancenko, O. (Intern), Rasmussen, S. (Intern), Nielsen, X. C. (Ekstern)
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Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.14 SJR 0.955 SNIP 0.887
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.115 SNIP 0.978 CiteScore 2.27
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.048 SNIP 1.052 CiteScore 2.26
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Intake and sources of gluten in 20- to 75-year-old Danish adults: a national dietary survey

PURPOSE: Celiac disease, an immunological response triggered by gluten, affects ~1% of the Western population. Information concerning gluten intake in the general population is scarce. We determined intake of gluten from wheat, barley, rye and oat in the Danish National Survey of Diet and Physical Activity 2005-2008. The study population comprised a random cross-sectional sample of 1494 adults 20-75 years, selected from the Danish Civil Registration System.

METHODS: Protein content in wheat, rye, barley and oat was determined from the National Danish Food Composition Table and multiplied with the amount of cereal used in recipes. Amount of gluten was calculated as amount of cereal protein ×0.80 for wheat and oat, ×0.65 for rye and ×0.50 for barley. Dietary intake was recorded daily during seven consecutive days in pre-coded food diaries with open-answer possibilities. RESULTS: Mean total gluten intake was 10.4 ± 4.4 g/day (10th-90th percentiles; 5.4-16.2 g/day), in men 12.0 ± 4.6 g/day and 9.0 ± 3.4 g/day in women. It was higher among men than among women in all age groups (20-75 years; P <0.0001); however, this difference was eliminated when adjusting for energy intake. Intake of different gluten sources tended to be higher in men than in women with the exception of gluten from barley. Total gluten intake decreased with increasing age (P <0.0001) as did gluten intake from wheat (P <0.0001), whereas intake of gluten from rye (P <0.0001) and barley (P = 0.001) increased with increasing age, also when adjusted for energy intake or body weight. CONCLUSION: This study presents representative population-based data on gluten intake in Danish adults. Total gluten intake decreased with increasing age.
Gluten, Wheat, Oats, Barley, Rye, Danish, Adults
The present study provides a more holistic view on consumers' hedonic food experience compared to what is traditionally seen in sensory research, by integrating the hedonic sensory experience and post-ingestive sensations in one study to understand food satisfaction. The study was performed using apple-cherry fruit drinks with different levels of beta-glucans and different sweeteners, sucrose or Stevia rebaudiana. The aims were: 1) to study the hedonic sensory experience, 2) to study time and product effects on post-ingestive sensations and satisfaction, and 3) to study main drivers of satisfaction. A randomized cross-over consumer study was conducted using 66 subjects. Hedonic ratings of sensory perceptions were collected immediately after intake, and subjective ratings of post-ingestive sensations were collected pre intake and in 10Â min intervals up to 40Â min post intake. Significant hedonic differences of sensory properties were found between all fruit drinks, except between the fruit drinks varying in type of sweetener only. Differences in post-ingestive sensations were found immediately and 10Â min post intake between fruit drinks with and without added beta glucan. Satisfaction with sensory attributes was found to be the main driver of food satisfaction, while post-ingestive sensations drove satisfaction as well. While replacing sucrose with Stevia rebaudiana did not affect the hedonic and post-ingestive sensations, addition of beta glucan resulted in both positive and negative post-ingestive sensations. In general, adding beta glucan without compromising satisfaction is difficult. This study show that a detailed description of hedonic sensory evaluation as well as post-ingestive sensations can bring important information about factors driving consumers' hedonic satisfaction.

General information
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Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Aarhus University, University of Copenhagen
Authors: Andersen, B. V. (Intern), Mielby, L. H. (Ekstern), Viemose, I. (Ekstern), Bredie, W. L. P. (Ekstern), Hyldig, G. (Intern)
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Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 4.21 SJR 1.17 SNIP 1.681
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BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.051 SNIP 1.855 CiteScore 3.92
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 0.997 SNIP 1.672 CiteScore 3.18
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.218 SNIP 1.714 CiteScore 3.3
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.956 SNIP 1.715 CiteScore 2.6
ISI indexed (2012): ISI indexed yes
Interfacial Shear Rheology of β-Lactoglobulin - Bovine Submaxillary Mucin Layers Adsorbed at Air/Water Interface

The interfacial rheological properties of solutions of β-lactoglobulin (BLG), as a model food compound, mixed with bovine submaxillary mucin (BSM), a major salivary protein, have been investigated. Time, frequency, stress sweep and flow measurements have been performed at different pHs (7.4, 5.0 and 3.0), to investigate the air/water interfacial properties. All protein layers (BLG, BSM, and BLG-BSM mixtures) formed an elastic network at the air/water interface with low frequency dependence of the interfacial modulus. The results indicated that BLG moves faster as smaller molecule than mucin, and dominate the surface adsorption and the network formation for the BLG-BSM mixtures. Moreover, BLG-BSM protein mixtures exhibited interfacial properties with lower elastic and viscous moduli than BLG, as a result of competitive displacement of BLG proteins with BSMs from the interface. It is suggested that hydrophobic patches of BSM can be imbedded into the BLG monolayer as driven by a strong hydrophobic interaction with air and disrupt the cohesive assembly of BLG, whereas the hydrophilic (negatively charged) parts of the BSM chain are protruding from the interface towards the bulk water.
Interfacial shear rheology, bovine submaxillary mucin, β-lactoglobulin

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Investigation of Lipid Oxidation in High- and Low-Lipid-Containing Topical Skin Formulations

Abstract: Lipid oxidation can impact the odour of skin care products during storage. A study was conducted to identify and monitor representative markers for lipid oxidation in skin care products over time. Four lip care formulations and three skin care formulations with different lipid contents were stored at various cosmetic industry-relevant conditions for 84 days. The skin care products were analysed for lipid hydroperoxides and secondary volatile oxidation products. A trained sensory panel performed an odour difference (triangle) test and odour-profiled the products to detect and describe odour changes during storage. Several potential markers for lipid oxidation were identified. In skin care formulations, peroxide value (PV) analysis was a useful marker for lipid oxidation if the product was exposed to light during storage, but no clear changes were observed for PV in samples stored under other conditions. Furthermore, concentrations of several secondary volatile oxidation products increased during storage, and the highest increase was observed for products exposed to light. Pentanal and heptanal were found to be reliable markers for secondary volatile oxidation products in the skin care formulations (especially during exposure to light), whereas in the lip care formulations the best candidates were pentanal (especially during exposure to light and iron), 2-methyl furan and 3-methyl-3-buten-2-one (especially during exposure to light, iron and high temperatures). Graphical Abstract: [Figure not available: see fulltext.]

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, GlaxoSmithKline
Authors: Raagaard Thomsen, B. (Intern), Frisenfeldt Horn, A. (Intern), Hyldig, G. (Intern), Taylor, R. (Ekstern), Blenkiron, P. (Ekstern), Jacobsen, C. (Intern)
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Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.64 SJR 0.706 SNIP 0.916
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.678 SNIP 0.991 CiteScore 1.66
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.768 SNIP 1.053 CiteScore 1.68
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.812 SNIP 1.069 CiteScore 1.71
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.852 SNIP 1.233 CiteScore 1.81
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.851 SNIP 1.31 CiteScore 1.98
ISI indexed (2011): ISI indexed yes
Investigation of Outbreaks of Salmonella enterica Serovar Typhimurium and Its Monophasic Variants Using Whole-Genome Sequencing, Denmark

Whole-genome sequencing is rapidly replacing current molecular typing methods for surveillance purposes. Our study evaluates core-genome single-nucleotide polymorphism analysis for outbreak detection and linking of sources of Salmonella enterica serovar Typhimurium and its monophasic variants during a 7-month surveillance period in Denmark. We reanalyzed and defined 8 previously characterized outbreaks from the phylogenetic relatedness of the isolates, epidemiologic data, and food traceback investigations. All outbreaks were identified, and we were able to exclude unrelated and include additional related human cases. We were furthermore able to link possible food and veterinary sources to the outbreaks. Isolates clustered according to sequence types (STs) 19, 34, and 36. Our study shows that core-genome single-nucleotide polymorphism analysis is suitable for surveillance and outbreak investigation for Salmonella Typhimurium (ST19 and ST36), but whole genome-wide analysis may be required for the tight genetic clone of monophasic variants (ST34).
Investigation of the effects of time periodic pressure and engpotential gradients on viscoelastic fluid flow in circular narrow confinements

In this paper we present an in-depth analysis and analytical solution for time periodic hydrodynamic flow (driven by a time-dependent pressure gradient and electric field) of viscoelastic fluid through cylindrical micro-and nanochannels. Particularly, we solve the linearized Poisson-Boltzmann equation, together with the incompressible Cauchy momentum equation under no-slip boundary conditions for viscoelastic fluid in the case of a combination of time periodic pressure-driven and electro-osmotic flow. The resulting solutions allow us to predict the electrical current and solution flow rate. As expected from the assumption of linear viscoelasticity, the results satisfy the Onsager reciprocal relation, which is important since it enables an analogy between fluidic networks in this flow configuration and electric circuits. The results especially are of interest for micro-and nanofluidic energy conversion applications. We also found that time periodic electro-osmotic flow in many cases is much stronger enhanced than time periodic pressure-driven flow when comparing the flow profiles of oscillating PDF and EOF in micro-and nanochannels. The findings advance our understanding of time periodic electrokinetic phenomena of viscoelastic fluids and provide insight into flow characteristic as well as assist the design of devices for lab-on-chip applications.

General information
State: Published
Organisations: National Food Institute, Research Group for Analytical and Predictive Microbiology, University of Twente
Authors: Nguyen, T. (Intern), van der Meer, D. (Ekstern), van den Berg, A. (Ekstern), Eijkel, J. C. T. (Ekstern)
Number of pages: 12
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Main Research Area: Technical/natural sciences

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Scopus rating (2016): SJR 0.674 SNIP 0.935 CiteScore 2.33
BFI (2015): BFI-level 1
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Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.819 SNIP 1.208 CiteScore 2.63
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.944 SNIP 1.412 CiteScore 3.19
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.189 SNIP 1.477 CiteScore 3.5
ISI indexed (2012): ISI indexed yes
Investigation of the molecular level interactions between mucins and food proteins: Spectroscopic, tribological and rheological studies

The thesis investigated the structure and molecular-level interaction of β-lactoglobulin (BLG) and mucins, representing major components of the dairy products and saliva/digestion systems, respectively. Mucins are long glycoprotein molecules responsible for the gel nature of the mucous layer covers epithelial surfaces throughout the body. A literature review of the interactions of different mucin types and saliva mucins with several food proteins and food protein emulsions, as well as their functional properties related to the food oral processing is presented at the first chapter of the thesis (Paper V). Most of the studies suggest an electrostatic attraction between positively charged food proteins with negatively charged moieties of mucins (mainly on glycosylated region of mucins).

The structural changes occurring during the interaction between BLG, the major whey protein, and bovine submaxillary mucin (BSM), a major salivary protein, were studied using high and low field Nuclear Magnetic Resonance (NMR), Dynamic Light Scattering (DLS), and Circular Dichroism (CD) spectroscopy. The zeta potentials of the proteins were also measured to provide information on the role of electrostatic forces in the interaction. These spectroscopic results suggested that the interaction between BSM and BLG led to a compact aggregation. The interaction between the two proteins was concluded to be mostly of hydrophilic origin (Paper I). The interaction characteristics between mucins and BLG under tribological stress were investigated by comparing the lubricity of mixed solutions of mucin-BLG with that of neat protein solutions at compliant hydrophobic interfaces. BSM and porcine gastric mucin (PGM) showed distinctly higher adsorbed masses compared to BLG onto polydimethylsiloxane (PDMS) or polystyrene (PS) surfaces. The adsorbed masses of the mixed protein solutions, namely BLG-BSM and BLG-PGM, reduced significantly. The dominant lubrication mechanism of the protein solutions was boundary lubrication. The pH 2 dependent lubricating properties of BLG-BSM mixed solutions appeared to be determined by competitive adsorption of the two proteins onto the substrates, which suggests that they do not form as strong aggregates as BLG-saliva, especially under tribological stress (Paper II). Moreover, the interfacial rheological properties of solutions of BLG mixed with BSM have been investigated. BLG-BSM protein mixtures exhibited interfacial properties with lower elastic and viscous moduli than BLG, as a result of competitive displacement of BLG proteins with BSMs from the interface. It is suggested that hydrophobic patches of BSM can be imbedded into the BLG monolayer as driven by a strong hydrophobic interaction with air and disrupt the cohesive assembly of BLG, whereas the hydrophilic (negatively charged) parts of the BSM chain are protruding from the interface towards the bulk water (Paper III). To elucidate the interaction mechanisms of BLG and two types of mucins, BSM and PGM, specifically focusing on the role of hydrophobic residues of the proteins at different pH conditions, intrinsic fluorescence spectroscopy, the fluorescent dye ANS techniques and high field NMR spectroscopy were used. Results from intrinsic fluorescence spectroscopy indicated stronger hydrophobic interactions of BLG with PGM than with BSM, which was further supported by extrinsic fluorescence spectroscopy. Stronger interactions of BLG with PGM also suggest a more abundant presence of hydrophobic moieties in PGM than BSM. Furthermore, HF-NMR studies indicated that the hydrophilic interaction also contributed to the interactions with both mucins, especially at acidic conditions (Paper IV). In the final Chapter VI, the tribological and physicochemical properties (emulsion particle size, viscosity, contact angle measurements, microscopy) of a model mucus compound, namely highly concentrated BSM, with the negatively charged BLG-stabilized emulsion (at pH 6.8) were determined as an attempt to understand the physicochemical basis of BLG-stabilized emulsion in the oral environment.
General information
State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science, Department of Mechanical Engineering, Materials and Surface Engineering
Authors: Celebioglu, H. Y. (Intern), Chronakis, I. S. (Intern), Lee, S. (Intern), Guðjónsdóttir, M. (Intern)
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Relations
Projects:
Investigation of the molecular level interactions between mucins and food proteins: Spectroscopic, tribological and rheological studies
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Iodine in seaweed - occurrence, speciation, bioavailability and risk assessment

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Authors: Sloth, J. J. (Intern), Rasmussen, R. R. (Intern), Holdt, S. L. (Intern), Hansen, M. (Intern)
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Electronic versions:
EWCPS_2017_Book_of_Abstracts.pdf
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Is it possible to define a “Threshold of Concern for Allergic Sensitisation”?

General information
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Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology
Authors: Madsen, C. B. (Intern)
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Kostens betydning for børn og unges sundhed og overvægt: 2000-2013

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition
Authors: Matthiessen, J. (Intern), Fagt, S. (Intern)
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Kostvaner, sundhedsadfærd og vægtstatus blandt 55-64-årige og 65-75-årige danskere.
Denne rapport beskriver kostvaner, sundhedsadfærd og vægtstatus blandt hjemmeboende 55-64-årige sammenlagt med 65-75-årige mænd og kvinder ud fra KRAM-faktorerne (Kost, Rygning, Alkohol og Motion) med henblik på at kvantificere og kvalificere risikogrupper, hvor forebyggelse vil være mulig.

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Authors: Pedersen, A. N. (Intern), Christensen, L. M. (Intern), Sørensen, M. R. (Intern), Matthiessen, J. (Intern)
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Publication: Research › Report – Annual report year: 2017

Laser-light backscattering response to water content and proteolysis in dry-cured ham
Laser backscattering imaging (LBI) is a low-cost technology proposed to determine non-invasively composition and microstructural characteristics of agro food and dairy products. The aim of this work was to define the effect of different acquisition conditions (wavelength, object distance and angle of laser incidence) and to analyse the laser-light backscattering changes caused by additional hot air drying and proteolysis of dry-cured ham slices. The feasibility of the technology to determine water content and proteolysis (which is related to textural characteristics) of commercial sliced dry-cured ham was also evaluated. Results showed that a red laser (635 nm) is more convenient than a green laser (532 nm) to analyse dry-cured ham but no preferable angle or object distance to evaluate dryness or proteolysis was found. Nevertheless, light scattering parameters were modified depending on the acquisition conditions used. Laser backscattering was influenced by both dryness and proteolysis intensity showing an average light intensity decrease of 0.2 when decreasing water content (1% weight loss) and increasing proteolysis (equivalent to one-hour enzyme action). However, a decrease of scattering area was only detected when the water content was decreased (618 mm² per 1% weight loss). Changes on scattering of light profiles were only observed when the water content changed. Although there is a good correlation between water content and LBI parameters when analysing commercial samples, proteolysis index has an important effect on the response. This fact hinder estimation of dry-cured ham composition and textural characteristics of dry-cured ham. (C) 2017 Elsevier Ltd. All rights reserved.

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Authors: Fulladosa, E. (Ekstern), Rubio-Celorio, M. (Ekstern), Skytte, J. L. (Intern), Munõz, I. (Ekstern), Picouet, P. (Ekstern)
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Scopus rating (2017): SJR 1.502 SNIP 1.69
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.86 SJR 1.492 SNIP 1.709
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.498 SNIP 1.73 CiteScore 3.65
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.38 SNIP 1.717 CiteScore 3.27
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.278 SNIP 1.728 CiteScore 3.14
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.245 SNIP 1.931 CiteScore 3.1
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.209 SNIP 1.723 CiteScore 2.9
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.23 SNIP 1.708
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.213 SNIP 1.691
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 1.076 SNIP 1.44
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.9 SNIP 1.558
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 0.788 SNIP 1.299
Scopus rating (2005): SJR 0.596 SNIP 1.266
Scopus rating (2004): SJR 0.568 SNIP 1.066
Scopus rating (2003): SJR 0.43 SNIP 0.665
Scopus rating (2002): SJR 0.334 SNIP 0.847
Scopus rating (2001): SJR 0.44 SNIP 0.831
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 0.366 SNIP 0.58
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 0.382 SNIP 0.485
Late effects of early exposures to endocrine disrupting chemicals in rats

Endocrine disrupting compounds may interfere with tissues at critical developmental stages and give rise to cancer later in life. This talk will focus on early-life exposure to endocrine disrupting chemicals which is associated with increased risk for carcinogenesis in mammary and prostate glands in experimental models. On the other hand, some naturally occurring endocrine disruptors (phyto-estrogens) have been proposed as protective against mammary cancer. Our recent rat studies showed an increased prevalence of intraductal hyperplasia of mammary glands after perinatal exposure to estrogenic chemicals, and this was associated with early changes in pre-pubertal mammary development. In the prostate, we observed a shift from the general age-related atrophy towards hyperplasia in aging rats that had been exposed perinatally to a mixture of human relevant anti-androgenic chemicals. This causes concern that human perinatal exposure to environmental chemicals may increase the risk of prostate or mammary cancer later in life. Possible modes of action and the human relevance of these findings will be discussed.
Leaching of viruses and other microorganisms naturally occurring in pig slurry to tile drains on a well-structured loamy field in Denmark

The amount of animal manure used in modern agriculture is increasing due to the increase in global animal production. Pig slurry is known to contain zoonotic bacteria such as E. coli, Salmonella spp. and Campylobacter spp., and viruses such as hepatitis E virus and group A rotavirus. Coliform bacteria, present in manure, have previously been shown to leach into tile drains. This poses a potential threat to aquatic environments and may also influence the quality of drinking water. As knowledge is especially scarce about the fate of viruses when applied to fields in natural settings, this project sets out to investigate the leaching potential of six different microorganisms: E. coli and Enterococcus spp. (detected by colony assay), somatic coliphages (using plaque assays), and hepatitis E virus, porcine circovirus type 2, and group A rotavirus (by real-time polymerase chain reaction). All six microorganisms leached through the soil entering the tile drains situated at 1-m depth the first day following pig slurry application. The leaching pattern of group A rotavirus differed substantially from the pattern for somatic coliphages, which are otherwise used as indicators for virus contamination. Furthermore, group A rotavirus was detected in monitoring wells at 3.5-m depth up to 2 months after pig slurry application. The detection of viral genomic material in drainage water and shallow groundwater signifies a potential hazard to human health that needs to be investigated further, as water reservoirs used for recreational use and drinking water are potentially contaminated with zoonotic pathogens.

General information
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Organisations: National Veterinary Institute, Virology, Bacteriology & Parasitology, National Food Institute, Research Group for Microbial Food Safety, University of Copenhagen, Geological Survey of Denmark and Greenland, Aarhus University
Authors: Krog, J. S. (Intern), Forslund, A. (Intern), Larsen, L. E. (Intern), Dalsgaard, A. (Ekstern), Kjaer, J. (Ekstern), Olsen, P. (Ekstern), Schultz, A. C. (Intern)
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Lipid Biotechnology and Biochemistry

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Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application
Authors: Løje, H. (Intern), Nielsen, H. H. (Intern), Hyldig, G. (Intern), Jørgensen, B. M. (Intern)
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Marine phospholipids: The current understanding of their oxidation mechanisms and potential uses for food fortification
There is a growing interest in using marine phospholipids (PL) as ingredient for food fortification due to their numerous health benefits. However, the use of marine PL for food fortification is a challenge due to the complex nature of the degradation products that are formed during the handling and storage of marine PL. For example, nonenzymatic browning reactions may occur between lipid oxidation products and primary amine group from phosphatidylethanolamine or amino acid residues that are present in marine PL. Therefore, marine PL contain products from nonenzymatic browning and lipid oxidation reactions, namely, Strecker aldehydes, pyroles, oxy-polymers, and other impurities that may positively or negatively affect the oxidative stability and quality of marine PL. This review was undertaken to provide the industry and academia with an overview of the current understanding of the quality changes taking place in PL during their production and storage as well as with regards to their utilization for food fortification.

Liquid Holding Capacity and Liquid Leakage of Raw Salmon and Trout Fillets
Liquid loss (i.e. loss of water and liquid fat) is an important property for salmonids when evaluating fish quality in production and as final product. It can be measured by several means, for example by liquid leakage or by liquid holding capacity. The present study examines how liquid leakage and liquid holding capacity of salmon and trout are influenced by fat content. Liquid leakage did not depend on fat content whereas the liquid holding capacity was lower for fish with high fat content. Thus the methods provide supplementary rather than equal information. Furthermore the water loss part was linear depending on liquid loss. The results indicate that fat is more loosely bound in trout than in salmon. These findings may be of immediate relevance to quality control of high-value fat fish products, to assessment of raw material properties, to an efficient treatment in the production and to process control.

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Marine phospholipids: The current understanding of their oxidation mechanisms and potential uses for food fortification
There is a growing interest in using marine phospholipids (PL) as ingredient for food fortification due to their numerous health benefits. However, the use of marine PL for food fortification is a challenge due to the complex nature of the degradation products that are formed during the handling and storage of marine PL. For example, nonenzymatic browning reactions may occur between lipid oxidation products and primary amine group from phosphatidylethanolamine or amino acid residues that are present in marine PL. Therefore, marine PL contain products from nonenzymatic browning and lipid oxidation reactions, namely, Strecker aldehydes, pyroles, oxy-polymers, and other impurities that may positively or negatively affect the oxidative stability and quality of marine PL. This review was undertaken to provide the industry and academia with an overview of the current understanding of the quality changes taking place in PL during their production and storage as well as with regards to their utilization for food fortification.
Maternal protein intake in pregnancy and offspring metabolic health at age 9-16 y: results from a Danish cohort of gestational diabetes mellitus pregnancies and controls

Background: Recent years have seen strong tendencies toward high-protein diets. However, the implications of higher protein intake, especially during developmentally sensitive periods, are poorly understood. Conversely, evidence on the long-term developmental consequences of low protein intake in free-living populations remains limited. Objective: We examined the association of protein intake in pregnancy with offspring metabolic health at age 9-16 y in a longitudinal cohort that oversampled pregnancies with gestational diabetes mellitus (GDM). Design: Six hundred eight women with an index pregnancy affected by gestational diabetes mellitus and 626 controls enrolled in the Danish National Birth Cohort were used for the analysis. Protein (total, animal, vegetable) intake was assessed by using a food frequency questionnaire in gestational week 25. The offspring underwent a clinical examination including fasting blood samples and a dual-energy X-ray absorptiometry scan (subset of 650) from which metabolic outcomes were derived. Multivariable analyses were conducted applying a 1:1 substitution of carbohydrates for protein. Results: The mean +/- SD protein intake in pregnancy was 93 +/- 15 g/d (16% +/- 3% of energy) in GDM-exposed women and 90 +/- 14 g/d (16% +/- 2% of energy) in control women. There were overall no associations between maternal protein intake and offspring fasting insulin and homeostasis model assessment of insulin resistance (HOMA-IR). We found that maternal total protein intake was associated with a tendency for a higher abdominal fat mass percentage (quartile 4 compared with quartile 1: 0.40 SD; 95% CI: -0.03, 0.83 SD; P = 0.07) in GDM-exposed offspring and a tendency for a higher total fat mass percentage among male offspring (quartile 4 compared with quartile 1: 0.33 SD; 95% CI: -0.01, 0.66 SD; P = 0.06), but a small sample size may have compromised the precision of the effect estimates. GDM-exposed offspring of mothers with a protein intake in the lowest decile (12.5% of energy) had lower fasting insulin (ratio of geometric means: 0.82; 95% CI: 0.68, 0.99; P = 0.04) and a tendency toward lower HOMA-IR (ratio of geometric means: 0.82; 95% CI: 0.66, 1.02; P = 0.07), but there was no evidence of associations with body composition. Male offspring seemed to derive a similar benefit from a maternal low protein intake as did GDM-exposed offspring. Conclusions: Overall, our results provide little support for an association of maternal protein intake in pregnancy with measures of offspring metabolic health. Further studies in larger cohorts are needed to determine whether low maternal protein intake in pregnancy may improve glucose homeostasis in GDM-exposed and male offspring.

General information
State: Published
Organisations: National Food Institute, Research Group for Risk-Benefit, Statens Seruminstitute, Rigshospitalet, University of Copenhagen, Aarhus University, University of Iceland
Authors: Maslova, E. (Ekstern), Hansen, S. (Ekstern), Grunnet, L. G. (Ekstern), Strom, M. (Ekstern), Bjerregaard, A. A. (Ekstern), Hjort, L. (Ekstern), Bach Kampmann, F. (Intern), Madsen, C. M. (Ekstern), Thuesen, A. C. B. (Ekstern), Bech, B. H. (Ekstern), Halldorsson, T. I. (Ekstern), Vaag, A. (Ekstern), Olsen, S. F. (Ekstern)
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Scopus rating (2015): SJR 3.899 SNIP 2.394 CiteScore 5.87
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Mechanism of Cytochrome P450 17A1-Catalyzed Hydroxylase and Lyase Reactions

Cytochrome P450 17A1 (CYP17A1) catalyzes C17 hydroxylation of pregnenolone and progesterone and the subsequent C17–C20 bond cleavage (lyase reaction) to form androgen precursors. Compound I (Cpd I) and peroxo anion (POA) are the heme-reactive species underlying the two reactions. We have characterized the reaction path for both the hydroxylase and lyase reactions using density functional theory (DFT) calculations and the enzyme–substrate interactions by molecular dynamics (MD) simulations. Activation barriers for positions subject to hydroxylase reaction have values close to each other and span from 54 to 60 kJ·mol⁻¹ with a small preference for 17α hydroxylation, in agreement with experimental observations. For the lyase reaction, two different types of mechanisms, concerted and stepwise, with identical activation energies (87 kJ·mol⁻¹) were identified. Embedding the DFT-optimized transition states (TSs) for the two reactions into the active site of CYP17A1 showed that the TS for the C17 hydroxylation needs to be distorted by 13 kJ·mol⁻¹, whereas the TS for the 17,20 lyase reaction easily can be accommodated in the protein. Finally, differences in the hydrogen-bond pattern of the substrates were detected both in the CYP17A1–Cpd I and CYP17A1–POA complexes, with the former found
to be more pivotal for the hydroxylation site than the latter, suggesting a possible explanation for the slower conversion of CYP17A1 for 17α-hydroxyprogesterone over 17α-hydroxypregnenolone. The results support the concept that the selectivity of the steroidogenic CYPs is ruled by direct interactions with the enzyme, in contrast to the selectivity of drug-metabolizing CYPs, where the reactivity of the substrates dominates.

**General information**

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Organisations: National Food Institute, Research Group for Molecular and Reproductive Toxicology, University of Copenhagen  
Authors: Bonomo, S. (Intern), Jorgensen, F. S. (Ekstern), Olsen, L. (Ekstern)  
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BFI (2017): BFI-level 1  
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Web of Science (2017): Indexed yes  
BFI (2016): BFI-level 1  
Scopus rating (2016): CiteScore 3.84 SJR 1.474 SNIP 1.193  
BFI (2015): BFI-level 1  
Scopus rating (2015): SJR 1.575 SNIP 1.281 CiteScore 4.27  
BFI (2014): BFI-level 1  
Scopus rating (2014): SJR 1.433 SNIP 1.244 CiteScore 3.88  
BFI (2013): BFI-level 1  
Scopus rating (2013): SJR 1.654 SNIP 1.334 CiteScore 4.4  
ISI indexed (2013): ISI indexed yes  
Web of Science (2013): Indexed yes  
BFI (2012): BFI-level 1  
Scopus rating (2012): SJR 1.518 SNIP 1.342 CiteScore 4.22  
ISI indexed (2012): ISI indexed yes  
Web of Science (2012): Indexed yes  
BFI (2011): BFI-level 1  
Scopus rating (2011): SJR 1.326 SNIP 1.31 CiteScore 4.3  
ISI indexed (2011): ISI indexed yes  
Web of Science (2011): Indexed yes  
BFI (2010): BFI-level 1  
Scopus rating (2010): SJR 1.424 SNIP 1.265  
BFI (2009): BFI-level 1  
Scopus rating (2009): SJR 1.039 SNIP 1.227  
Web of Science (2009): Indexed yes  
BFI (2008): BFI-level 1  
Scopus rating (2008): SJR 1.14 SNIP 1.099  
Scopus rating (2007): SJR 0.984 SNIP 1.298  
Scopus rating (2006): SJR 1.006 SNIP 1.337  
Web of Science (2006): Indexed yes  
Scopus rating (2005): SJR 0.846 SNIP 1.144  
Web of Science (2005): Indexed yes  
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Scopus rating (2003): SJR 0.973 SNIP 1.424
Mellemkødet sladrer om skadelige kemikalier

General information
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Organisations: Copenhagen Center for Health Technology, National Food Institute, Research Group for Molecular and Reproductive Toxicology, Aktuel Naturvidenskab
Authors: Vinggaard, A. M. (Intern), Svingen, T. (Intern), Schwartz, C. V. L. (Intern), Kjær, C. R. (Ekstern)
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Main Research Area: Technical/natural sciences

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ISI indexed (2012): ISI indexed no
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Meta-analysis of proportion estimates of extended-spectrum-beta-lactamase-producing Enterobacteriaceae in East Africa hospitals

General information
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Organisations: Department of Bio and Health Informatics, Genomic Epidemiology, National Food Institute, Research Group for Genomic Epidemiology, KCRI Kilimanjaro Clinical Research Institute, Copenhagen University Hospital
Authors: Sonda, T. (Ekstern), Kumburu, H. (Ekstern), van Zwetselaar, M. (Ekstern), Alifrangis, M. (Ekstern), Lund, O. (Intern), Kibiki, G. (Ekstern), Aarestrup, M. F. F. (Intern)
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Main Research Area: Technical/natural sciences

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Metabolic characterization and transformation of the non-dairy Lactococcus lactis strain KF147, for production of ethanol from xylose

The non-dairy lactic acid bacterium Lactococcus lactis KF147 can utilize xylose as the sole energy source. To assess whether KF147 could serve as a platform organism for converting second generation sugars into useful chemicals, we characterized growth and product formation for KF147 when grown on xylose. In a defined medium KF147 was found to co-metabolize xylose and arginine, resulting in bi-phasic growth. Especially at low xylose concentrations, arginine significantly improved growth rate. To facilitate further studies of the xylose metabolism, we eliminated arginine catabolism by deleting the arcA gene encoding the arginine deiminase. The fermentation product profile suggested two routes for xylose degradation, the phosphoketolase pathway and the pentose phosphate pathway. Inactivation of the phosphoketolase pathway redirected the entire flux through the pentose phosphate pathway whereas over-expression of phosphoketolase increased the flux through the phosphoketolase pathway. In general, significant amounts of the mixed-acid products, including lactate, formate, acetate and ethanol, were formed irrespective of xylose concentrations. To demonstrate the potential of KF147 for converting xylose into useful chemicals we chose to redirect metabolism towards ethanol production. A synthetic promoter library was used to drive the expression of codon-optimized versions of the Zymomonas mobilis genes encoding pyruvate decarboxylase and alcohol dehydrogenase, and the outcome was a strain producing ethanol as the sole fermentation product with a high yield corresponding to 83% of the theoretical maximum. The results clearly indicate the great potential of using the more metabolically diverse non-dairy L. lactis strains for bio-
production based on xylose containing feedstocks.

**General information**
State: Published
Organisations: Department of Systems Biology, National Food Institute, Research Group for Microbial Biotechnology and Biorefining, Department of Biotechnology and Biomedicine, Metabolic Signaling and Regulation
Authors: Petersen, K. V. (Intern), Liu, J. (Intern), Chen, J. (Intern), Martinussen, J. (Intern), Jensen, P. R. (Intern), Solem, C. (Intern)
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- Web of Science (2017): Indexed yes
- BFI (2016): BFI-level 1
- Scopus rating (2016): CiteScore 3.2 SJR 1.29 SNIP 0.969
  - Web of Science (2016): Indexed yes
- BFI (2015): BFI-level 1
- Scopus rating (2015): SJR 1.172 SNIP 0.874 CiteScore 2.91
  - Web of Science (2015): Indexed yes
- BFI (2014): BFI-level 1
- Scopus rating (2014): SJR 1.189 SNIP 1.062 CiteScore 2.98
  - Web of Science (2014): Indexed yes
- BFI (2013): BFI-level 1
- Scopus rating (2013): SJR 1.136 SNIP 1.093 CiteScore 3.01
  - ISI indexed (2013): ISI indexed yes
  - Web of Science (2013): Indexed yes
- BFI (2012): BFI-level 1
- Scopus rating (2012): SJR 0.944 SNIP 0.957 CiteScore 2.4
  - ISI indexed (2012): ISI indexed no
  - Web of Science (2012): Indexed yes
- BFI (2011): BFI-level 1
- Scopus rating (2011): SJR 0.785 SNIP 0.726 CiteScore 1.94
  - ISI indexed (2011): ISI indexed no
- BFI (2010): BFI-level 1
- Scopus rating (2010): SJR 0.787 SNIP 0.798
  - Web of Science (2010): Indexed yes
- BFI (2009): BFI-level 1
- Scopus rating (2009): SJR 0.695 SNIP 0.749
  - BFI (2008): BFI-level 1
- Scopus rating (2008): SJR 0.581 SNIP 0.806
- Scopus rating (2007): SJR 0.568 SNIP 0.709
  - Web of Science (2007): Indexed yes

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Methods for Isolation, Purification, and Propagation of Bacteriophages of Campylobacter jejuni
Here, we describe the methods for isolation, purification, and propagation of Campylobacter jejuni bacteriophages from samples expected to contain high number of phages such as chicken feces. The overall steps are (1) liberation of phages from the sample material; (2) observation of plaque-forming units on C. jejuni lawns using a spot assay; (3) isolation of single plaques; (4) consecutive purification procedures; and (5) propagation of purified phages from a plate lysate to prepare master stocks.

General information
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Organisations: National Food Institute, Research Group for Microbial Food Safety
Authors: Gencay, Y. E. (Ekstern), Birk, T. (Intern), Sørensen, M. C. H. (Ekstern), Brøndsted, L. (Ekstern)
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MGmapper: Reference based mapping and taxonomy annotation of metagenomics sequence reads
An increasing amount of species and gene identification studies rely on the use of next generation sequence analysis of either single isolate or metagenomics samples. Several methods are available to perform taxonomic annotations and a previous metagenomics benchmark study has shown that a vast number of false positive species annotations are a problem unless thresholds or post-processing are applied to differentiate between correct and false annotations. MGmapper is a package to process raw next generation sequence data and perform reference based sequence assignment, followed by a post-processing analysis to produce reliable taxonomy annotation at species and strain level resolution. An in-vitro bacterial mock community sample comprised of 8 genuses, 11 species and 12 strains was previously used to benchmark metagenomics classification methods. After applying a post-processing filter, we obtained 100% correct taxonomy assignments at species and genus level. A sensitivity and precision at 75% was obtained for strain level annotations. A comparison between MGmapper and Kraken at species level, shows MGmapper assigns taxonomy at species level using 84.8% of the sequence reads, compared to 70.5% for Kraken and both methods identified all species with no false positives. Extensive read count statistics are provided in plain text and excel sheets for both rejected and accepted taxonomy annotations. The use of custom databases is possible for the command-line version of MGmapper, and the complete pipeline is freely available as a bitbucket package (https://bitbucket.org/genomicepidemiology/mgmapper). A web-version (https://cge.cbs.dtu.dk/services/MGmapper) provides the basic functionality for analysis of small fastq datasets.

General information
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Organisations: Department of Bio and Health Informatics, Metagenomics, National Food Institute, Research Group for Genomic Epidemiology, Genomic Epidemiology, Department of Systems Biology, Center for Biological Sequence Analysis
Authors: Petersen, T. N. (Intern), Lukjancenko, O. (Intern), Thomsen, M. C. F. (Intern), Sperotto, M. M. (Intern), Lund, O. (Intern), Aarestrup, F. M. (Intern), Sicheritz-Pontén, T. (Intern)
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Micro-algae biomass as an alternative resource for fishmeal and fish oil in the production of fish feed

In recent years, intense efforts have been made to find new, alternate and sustainable aquatic feed ingredients, primarily in anticipation of an increasing world population and predicted insufficient fishmeal supply which is a critical component of aquaculture feed. Now it is becoming increasingly evident that the continued exploitation of industrial fish as a resource
fish feed will ultimately become both environmentally and economically unsustainable. Microalgae are at the base of the entire aquatic food chain and play a major role in the diet of aquatic animals such as fish. Microalgae's main application for aquaculture are related to nutrition, being used as a sole fresh feed or an additive, e.g. source of pigment. Algae produce almost all nutritious compounds which are required for fish. The diverse biochemical composition of microalgae represents them as a promising candidate for the formulation of fish feed. The nutritional composition of microalgae depends on the species, environmental conditions and growth medium composition. Microalgae for use in aquaculture should be non-toxic and possess the essential nutritive constituents, in a reasonable price. Photosynthetic production of algae either in outdoor or indoor photobioreactor systems is costly since cultures must be maintained at low densities. Consequently, large volumes of media must be processed to recover small quantities of algae, and since most algal cells are minuscule, unspecific expensive harvesting processes must be employed. Strategies such as cultivation of microalgae on low price growth media, selection of microalgae capable of growing on such media and produce biomass with desired chemical composition and development of specific harvest and downstream processing represent basic solutions to improve the applicability of microalgae biomass as a fish feed ingredient. Moreover, storage of the algae biomass at optimum conditions minimise the deterioration of valuable compounds. This project has employed the strategies mentioned above to provide a clear concept for the cultivation, processing and the storage of microalgae biomass intended to be used as a fish feed ingredient. A pre-gasified industrial process water with high concentration of ammonia and free from toxic compounds, representing effluent from a local biogas plant was used as a low price growth medium. Therefore, the biomass production benefits from low cultivation price and also from valorization of the nutrients. Screening of various microalgae species has been extensively done to find proper microalgae capable of growing on industrial process water and producing a biomass containing high levels of protein, long-chain polyunsaturated fatty acids (LC PUFA), and bioactive compounds such as natural antioxidant. Effects of growth media composition/concentration and cultivation time on the nutritional composition of the biomass, variations in proteins, lipid, fatty acid composition, amino acids, tocopherols, and pigments were evaluated. Among all studied species including Nannochloropsis salina, nannochloropsis limnetica, Chlorella sorokiniana, Chlorella vulgaris, Chlorella pyrenoidosa, Desmodesmus sp. and Arthospira platensis, the microalgae Chlorella pyrenoidosa grew well on the industrial process water, efficiently valorized the compounds in the growth medium (ammonia and phosphorous) and produced reasonable amounts of the biomass (6.1 g/L). The resulting biomass included very high levels of protein (65.2±1.30% DW) as well as promising amino acid and carotenoid compositions. Chlorella pyrenoidosa was selected as a source of proteins and amino acids while lacking LC PUFA's. The microalgae Nannochloropsis salina which was grown on a mixture of standard growth medium and industrial process water produced a biomass containing high eicosapentaenoic acid (C20:5 n-3, as 44.2% ± 2.30% of total fatty acids), representing a rich source of LC PUFA. Data from laboratory scale experiments were translated to large scale and both of these species have been successfully cultivated in flat panel photobioreactor systems. Chromatographic methods were developed and employed for characterising algal biomass at both pre- and post-harvest stages and were based on the analysis of fatty acids (gas-liquid chromatography) and pigments (high-performance liquid chromatography). These methods represented rapid, routine and reliable control measures to verify the variations in the purity of the biomass the microalgae biomass during cultivation, and its quality during the processing and storage. In this study, a new downstream process set up, which included cross flow microfiltration by SiC (0.1µm) ceramic membranes, heat treatment (75°C&15 seconds) for inactivation of enzymes, up concentration by bowl centrifuge at 6500±500 g and finally drying by the novel swirl/spin flash dryer was developed. This processing concept was specifically designed and tested on microalgae samples as a fish feed ingredient. The process aimed at reducing the energy consumption and minimizing deterioration of value-added bioactive compounds such a carotenoids, and LC PUFA. The method has been tested in the laboratory and large scales. Energy consumption per kg of the product was evaluated as 2.2 KWh, which was estimated as 28% lower than known current processing technologies which are being applied to microalgae. The swirl flash dryer was specifically designed to handle microalgae paste like feeds. Analysis of the pigment and fatty acid composition also revealed that the drying technique had profound adverse effects on the quality of microalgae biomass. As the final part of the study, effects of the storage time (0-56 days), storage temperature (5°C, 20°C and 40°C) and the packaging conditions (under vacuum or ambient pressure) on a high LC PUFA biomass from Nannochloropsis salina was investigated. The storage time and temperature strongly influenced the oxidation reactions, which resulted in deterioration of bioactive compounds such as carotenoids, tocopherols and LC PUFA. The study revealed that the oxidation reactions, which led to the creation of primary and secondary products, occurred mainly during the first days of storage. The storage of freeze-dried microalgae at a low temperature (e.g. 5°C) was found to be more efficient than in oxygen-reduced storage conditions such as vacuum packaging. This project provides imperative data covering all aspects of utilisation of algae biomass as a fish feed ingredient. These findings reveal new opportunities and open new doors toward research, processing and quality control in the microalgae industry.
Microalgae biorefinery symbiosis: screening, production, and process analytical technology

Microalgae treatment of municipal wastewater (WW) has been the focal point of microalgal biotechnology research for several decades. However, this technology did not have a competitive advantage over other WW treatment technologies, which could be implemented in smaller areal footprints. In the past few decades, microalgal WW treatment has made a resurgence with the idea of using biomass from microalgal WW treatment, as a source of lipids for conversion into biodiesel. However, the savings from the treatment of nutrients and organic matter, as well as biodiesel production, are still not competitive with the price of crude oil. In recent years, microalgal research continued with the prospect of a microalgal biorefinery, where microalgal byproducts and coproducts are extracted to valorize the entire microalgal production, in which the sum of the parts of the microalgae is greater than the whole microalgae. However, in large part, the microalgal biorefinery does not comply with the treatment of nutrient-rich municipal WWs, due to regulatory concerns. Only recently, it was realized that bioindustrial WWs are viable and conceivably regulatory compliant nutrient rich waste streams, capable of sustaining microalgal growth, as much as municipal WWs. The concept of an “industrial symbiosis” has also emerged in the past several decades, in which networks of industries cooperate to use waste sources from neighboring industries, in industrial parks, to create added value. The intersection of the microalgae biorefinery and industrial symbiosis, in a microalgae biorefinery symbiosis (MBS), may be the next generation scheme to valorize the microalgal production and promote industrial and global sustainability. Moreover, technological advances in screening, outdoor photobioreactor (PBR) design, macromolecular monitoring and process automation must all be addressed to execute the complex bioprocesses needed to valorize an MBS successfully.

In order to properly identify viable MBS partnerships with industry, microalgal species capable of producing an array of valuable products must first be screened on these potential bioindustrial WW streams for their growth potential. During screening, microalgae may have a preference or aversion for a given bioindustrial WW media, based on the types and ratios of nitrogen (ammonium, nitrate, or urea) in the WW. Furthermore, identifying algae capable of withstanding fluctuations between these nitrogen forms in dynamic WWs, is an important criterion for productivity. However, when screening microalgae on WWs containing different nitrogen sources and concentrations, assimilation of different nitrogen sources can result in starkly different physiochemical changes, specifically pH changes. In many microalgae, ammonium is the preferred nitrogen source, because it can passively transport into the cell and is directly assimilated into amino acids, without relying on light-mediated enzymatic processes to be reduced. However, when microalgae assimilate ammonium, the pH of the system can drop sharply, inhibiting growth after that; however, these pH changes do not directly reflect the microalgae’s affinity to grow on ammonium. By growing batch cultivations of microalgae in 24-well microplates, a microplate reader can be used to measure relative fluorescence of chlorophyll in vivo, during balanced growth, before these pH changes occur. This technique can be used to preempt the effects of pH changes on growth and reflects the true preference or aversion of microalgae to a particular nitrogen source or a WW media. Additionally, along with being spatially high-throughput in a 24-well microplate—where 24 batch reactions can be conducted simultaneously in a small footprint—the early and low detection of growth rates is also more temporally high-throughput than any other screening method. This method can also be used to quickly screen for robust and adaptable microalgae, capable of acclimatizing to different nitrogen sources and fluctuating media as well as to screen for the upper and lower tolerances of the microalgae to various concentrations of the WW. The latter must also be addressed when screening dynamic WW capable of large fluctuations.

Over the years, there have been very few demonstrations of outdoor microalgal growth in enclosed PBRs; demonstrations, which are essential for understanding the feasibility of an MBS as a whole. From microplate scales to large-scales—six orders of magnitude larger—the industrially important screened microalgae Chlorella sorokiniiana was grown on bioindustrial WW, inside a novel, solar tracking, 4000 L, airlift PBR. Despite cold temperatures and low irradiance, the microalgae reached a growth rate of 0.48 day⁻¹, in the four-day period immediately following inoculation of bioindustrial WW containing ammonium, as a primary nitrogen source. After that, after ammonium was depleted and the media was augmented with nitrate, a long lag phase persisted, before undergoing the predominant production phase with a specific growth rate (SGR) of 0.15 day⁻¹ over an 18-day period. It was evident that the transition from ammonium to nitrate metabolism can severely stunt microalgal growth in the outdoor PBR under low temperature and irradiance. More importantly, the delay in growth did not appear to be due to deleterious effects of the contents of bioindustrial WW media, since rapid growth was observed early in the experiment on the unaugmented WW. Moreover, it was demonstrated that microalgae could continue to grow in adverse environmental conditions at large-scales.

The success of the in vivo fluorescence microplate assay and the complexity of these outdoor reactions demonstrate the value of pursuing real-time data of microalgae in vivo at large-scales. The complex and dynamic nature of large-scale outdoor microalgal reactions, when grown on dynamic WW media, encourages the need for on-line, real-time monitoring to improve automation models of PBRs. In outdoor conditions with fluctuating light and temperature, there are several factors that can change the growth of microalgae, at time-scales less than a minute and as low as microseconds, which may not be accounted for in microalgal productivity models. Similarly, fluctuations of WW media are not accounted for in these models, especially in outdoor conditions. However, recent advances in hardware and software can significantly
improve microalgal bioprocess models and automation, by manipulating large, time-resolute data sets, so-called “big data,” which can be acquired through high-selectivity vibrational spectroscopy, such as mid-infrared (MIR), near-infrared (NIR), or Raman vibrational spectroscopies. These large, real-time data sets can now be used to create adaptive models from artificial intelligence/machine learning tools or “black-box” models, to automate large-scale, outdoor PBRs treating WW.

With microalgae, now entering into a new paradigm of food, feed, pharmaceuticals and functional products, on top of biofuels in a biorefinery, there will be a growing need to maintain product quality, regulate, and mitigate contamination, especially in a symbiosis with WW. Vibrational spectroscopies can be used to monitor several microalgal components simultaneously, which can be used to aid fractionation of microalgal compounds in a biorefinery, while improving model building for automation and control of product quality and contamination, where quality can be built into the system. The results and research summarized in this thesis demonstrate that the modernization of microalgal research is becoming increasingly necessary and beneficial to microalgae production in an MBS. The focus of this thesis is to bring together lab-scale demonstrations, scaled up knowledge, and a critical outlook of modern technologies capable of making the MBS a reality.

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Microbial Glycosidases for Nondigestible
There is much interest in the study and production of nondigestible oligosaccharides (NDOs), due to their bioactivities and beneficial effects to the human health. The main approach in the production of NDOs relies on the action of glycosidases performing hydrolysis or transglycosylation of polysaccharides and sugars. In this chapter, a description of the main microbial glycosidases used for NDOs production, their sources, their principal properties, and a description of the production processes with the better results obtained are discussed.

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Authors: Bezerra, T. (Ekstern), Montibra, R. (Ekstern), Hansen, E. B. (Intern), Contiero, J. (Ekstern)
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Microbial Performance of Food Safety Control and Assurance Activities in a Fresh Produce Processing Sector Measured Using a Microbial Assessment Scheme and Statistical Modeling

Current approaches such as inspections, audits, and end product testing cannot detect the distribution and dynamics of microbial contamination. Despite the implementation of current food safety management systems, foodborne outbreaks linked to fresh produce continue to be reported. A microbial assessment scheme and statistical modeling were used to systematically assess the microbial performance of core control and assurance activities in five Kenyan fresh produce processing and export companies. Generalized linear mixed models and correlated random-effects joint models for multivariate clustered data followed by empirical Bayes estimates enabled the analysis of the probability of contamination across critical sampling locations (CSLs) and factories as a random effect. Salmonella spp. and Listeria monocytogenes were not detected in the final products. However, none of the processors attained the maximum safety level for environmental samples. Escherichia coli was detected in five of the six CSLs, including the final product. Among the processing-environment samples, the hand or glove swabs of personnel revealed a higher level of predicted contamination with E. coli, and 80% of the factories were E. coli positive at this CSL. End products showed higher predicted probabilities of having the lowest level of food safety compared with raw materials. The final products were E. coli positive despite the raw materials being E. coli negative for 60% of the processors. There was a higher probability of contamination with coliforms in water at the inlet than in the final rinse water. Four (80%) of the five assessed processors had poor to unacceptable counts of Enterobacteriaceae on processing surfaces. Personnel-, equipment-, and product-related hygiene measures to improve the performance of preventive and intervention measures are recommended.

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Authors: Njage, P. M. K. (Intern), Sawe, C. T. (Ekstern), Onyango, C. M. (Ekstern), Habib, I. (Ekstern), Njagi, E. N. (Ekstern), Aerts, M. (Ekstern), Molenberghs, G. (Ekstern)
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Nowadays, there is an aggressive rate in consumption of noodles and pasta products throughout the world. Consumer acceptability and preference of these functional products can be promoted by the discovery of novel knowledge to improve their formulation and quality. The development of fortified-formulations for noodles and pasta products based on microbial transglutaminase (MTGase) can guarantee the shelf life extension with minimum quality losses. The current review focuses on recent trends and future prospects of MTGase utilization in the structural matrix of noodles and pasta products and represents the quality changes of cooking loss, texture, microstructure, color and sensory attributes of the MTGase-incorporated products. Digestibility, nutritional and health aspects of the MTGase-enriched formulations are also reviewed with a vision toward physical functions and safety outcomes of MTGases isolated from new microbial sources. The high potential of MTGase in developing commercial noodles and pasta products is successfully demonstrated. MTGase by modifying the crystallinity or molecular structure via covalent crosslinks between protein molecules strengthens the doughs stability and the textural characteristics of final products with the low- or high-protein flour. Compared with the control samples, the MTGase-supplemented products indicate slower digestion rates and better sensory and cooking properties without any remarkable color instability.
Microbiota analysis to reveal temperature abuse of fresh pork

Violations of temperature regulations in the meat chain may affect meat safety. Methods are lacking to estimate whether meat has been subjected to temperature abuse. Exposure to too high temperatures may lead to systematic changes in the
Microbiota analysis to reveal temperature abuse of fresh pork

Violations of temperature regulations in the meat chain may affect meat safety. Methods are lacking to estimate whether meat has been subjected to temperature abuse. Exposure to too high temperatures may lead to systematic changes in the diverse bacterial communities of fresh meat. We investigated whether temperature induced changes in the community composition on fresh meat surfaces can reflect the temperature-history (combination of time and temperature). Sterile pieces of pork were inoculated with a carcass swab homogenate, to which Salmonella was added. Changes in the meat microbiota were monitored during aerobic chill-storage (4 °C and 7 °C) and temperature abuse (12 °C and 16 °C) for 96 hours, by culture-based methods and 16S rRNA gene sequencing. Bacterial genera that dominated during prolonged temperature abuse were Acinetobacter, Serratia and Pseudomonas, whereas chill-stored meat was dominated by Pseudomonas only. We also showed that the initial community affects subsequent changes during storage. The results suggest that principal coordinate analysis of beta diversity could be a useful tool to reveal temperature abused meat. Sequence data and culturing data revealed a strong positive association between growth of Escherichia coli and growth of Salmonella, which suggests that Escherichia coli can be used as indicator of temperature-history supporting growth of Salmonella on fresh pork surfaces.

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Microbiota analysis to reveal temperature abuse of fresh pork

Violations of temperature regulations in the meat chain may affect meat safety. Methods are lacking to estimate whether meat has been subjected to temperature abuse. Exposure to too high temperatures may lead to systematic changes in the diverse bacterial communities of fresh meat. We investigated whether temperature induced changes in the community composition on fresh meat surfaces can reflect the temperature-history (combination of time and temperature). Sterile pieces of pork were inoculated with a carcass swab homogenate, to which Salmonella was added. Changes in the meat microbiota were monitored during aerobic chill-storage (4 °C and 7 °C) and temperature abuse (12 °C and 16 °C) for 96 hours, by culture-based methods and 16S rRNA gene sequencing. Bacterial genera that dominated during prolonged temperature abuse were Acinetobacter, Serratia and Pseudomonas, whereas chill-stored meat was dominated by Pseudomonas only. We also showed that the initial community affects subsequent changes during storage. The results suggest that principal coordinate analysis of beta diversity could be a useful tool to reveal temperature abused meat. Sequence data and culturing data revealed a strong positive association between growth of Escherichia coli and growth of Salmonella, which suggests that Escherichia coli can be used as indicator of temperature-history supporting growth of Salmonella on fresh pork surfaces.

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Microbiota analysis to reveal temperature abuse of fresh pork

Violations of temperature regulations in the meat chain may affect meat safety. Methods are lacking to estimate whether meat has been subjected to temperature abuse. Exposure to too high temperatures may lead to systematic changes in the diverse bacterial communities of fresh meat. We investigated whether temperature induced changes in the community composition on fresh meat surfaces can reflect the temperature-history (combination of time and temperature). Sterile pieces of pork were inoculated with a carcass swab homogenate, to which Salmonella was added. Changes in the meat microbiota were monitored during aerobic chill-storage (4 °C and 7 °C) and temperature abuse (12 °C and 16 °C) for 96 hours, by culture-based methods and 16S rRNA gene sequencing. Bacterial genera that dominated during prolonged temperature abuse were Acinetobacter, Serratia and Pseudomonas, whereas chill-stored meat was dominated by Pseudomonas only. We also showed that the initial community affects subsequent changes during storage. The results suggest that principal coordinate analysis of beta diversity could be a useful tool to reveal temperature abused meat. Sequence data and culturing data revealed a strong positive association between growth of Escherichia coli and growth of Salmonella, which suggests that Escherichia coli can be used as indicator of temperature-history supporting growth of Salmonella on fresh pork surfaces.
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Microbiota composition of simultaneously colonized mice housed under either a gnotobiotic isolator or individually ventilated cage regime

Germ-free rodents colonized with microbiotas of interest are used for host-microbiota investigations and for testing microbiota-targeted therapeutic candidates. Traditionally, isolators are used for housing such gnotobiotic rodents due to optimal protection from the environment, but research groups focused on the microbiome are increasingly combining or substituting isolator housing with individually ventilated cage (IVC) systems. We compared the effect of housing systems on the gut microbiota composition of germ-free mice colonized with a complex microbiota and housed in either multiple IVC cages in an IVC facility or in multiple open-top cages in an isolator during three generations and five months. No increase in bacterial diversity as assessed by 16S rRNA gene sequencing was observed in the IVC cages, despite not applying completely aseptic cage changes. The donor bacterial community was equally represented in both housing systems. Time-dependent clustering between generations was observed in both systems, but was strongest in the IVC cages. Different relative abundance of a Rikenellaceae genus contributed to separate clustering of the isolator and IVC communities. Our data suggest that complex microbiotas are protected in IVC systems, but challenges related to temporal dynamics should be addressed.
Mikrobiologisk kvalitet af minkfoder

Modelling Dietary Exposure to Chemical Components in Heat-Processed Meats

Several chemical compounds that potentially increase the risk of developing cancer in humans are formed during heat processing of meat. Estimating the overall health impact of these compounds in the population requires accurate estimation of the exposure to the chemicals, as well as the probability that different levels of exposure result in disease. The overall goal of this study was to evaluate the impact of variability of exposure patterns and uncertainty of exposure data in burden of disease estimates. We focus on the first phase of burden of disease modelling, i.e. the estimation of exposure to selected compounds in the Danish population, based on concentration and consumption data. One of the challenges that arises in the probabilistic modelling of exposure is the presence of “artificial” zero counts in concentration data due to the detection level of the applied tests. Zero-inflated models, e.g. the Poisson-Lognormal approach, are promising tools to address this obstacle. The exposure estimates can then be applied to dose-response models to quantify the cancer risk.

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Molecularly imprinted polymers for sample preparation and biosensing in food analysis: Progress and perspectives

Molecularly imprinted polymers (MIPs) are biomimetics which can selectively bind to analytes of interest. One of the most interesting areas where MIPs have shown the biggest potential is food analysis. MIPs have found use as sorbents in sample preparation attributed to the high selectivity and high loading capacity. MIPs have been intensively employed in classical solid-phase extraction and solid-phase microextraction. More recently, MIPs have been combined with magnetic bead extraction, which greatly simplifies sample handling procedures. Studies have consistently shown that MIPs can effectively minimize complex food matrix effects, and improve recoveries and detection limits. In addition to sample preparation, MIPs have also been viewed as promising alternatives to bio-receptors due to the inherent molecular recognition abilities and the high stability in harsh chemical and physical conditions. MIPs have been utilized as receptors in biosensing platforms such as electrochemical, optical and mass biosensors to detect various analytes in food. In this review, we will discuss the current state-of-the-art of MIP synthesis and applications in the context of food analysis. We will highlight the imprinting methods which are applicable for imprinting food templates, summarize the recent progress in using MIPs for preparing and analysing food samples, and discuss the current limitations in the commercialisation of MIPs technology. Finally, future perspectives will be given.
Molecular Methods for Detection of Antimicrobial Resistance

The increase in bacteria harboring antimicrobial resistance (AMR) is a global problem because there is a paucity of antibiotics available to treat multidrug-resistant bacterial infections in humans and animals. Detection of AMR present in bacteria that may pose a threat to veterinary and public health is routinely performed using standardized phenotypic methods. Molecular methods are often used in addition to phenotypic methods but are set to replace them in many laboratories due to the greater speed and accuracy they provide in detecting the underlying genetic mechanism(s) for AMR. In this article we describe some of the common molecular methods currently used for detection of AMR genes. These include PCR, DNA microarray, whole-genome sequencing and metagenomics, and matrix-assisted laser desorption ionization-time of flight mass spectrometry. The strengths and weaknesses of these methods are discussed, especially in the context of implementing them for routine surveillance activities on a global scale for mitigating the risk posed by AMR worldwide. Based on current popularity and ease of use, PCR and single-isolate whole-genome sequencing seem irreplaceable.

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Authors: Anjum, M. F. (Ekstern), Zankari, E. (Intern), Hasman, H. (Intern)
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Muscle Protein Profiles Used for Prediction of Texture of Farmed Salmon (Salmo salar L.)

A soft texture is undesired in Atlantic salmon as it leads to downgrading and reduced yield, yet it is a factor for which the cause is not fully understood. This lack of understanding highlights the need for identifying the cause of the soft texture and developing solutions by which the processing industry can improve the yield. Changes in muscle protein profiles can occur both pre- and postharvest and constitute an overall characterization of the muscle properties including texture. The aim of this study was to investigate this relationship between specific muscle proteins and the texture of the salmon fillet. Samples for 2D-gel-based proteomics were taken from the fillet above the lateral line at the same position as where the texture had been measured. The resulting protein profiles were analyzed using multivariate data analysis. Sixteen proteins were found to correlate to the measured texture, showing that it is possible to predict peak force based on a small subset of proteins. Additionally, eight of the 16 proteins were identified by tandem mass spectrometry including serum albumin, dipeptidyl peptidase 3, heat shock protein 70, annexins, and a protein presumed to be a titin fragment. It is contemplated that the identification of these proteins and their significance for the measured texture will contribute to further understanding of the Atlantic salmon muscle texture.

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Authors: Johansson, G. Ø. (Intern), Frosch, S. (Intern), Gudjónsdóttir, M. (Ekstern), Wulff, T. (Intern), Jessen, F. (Intern)
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Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application
Authors: Jakobsen, J. (Intern), Mikkelsen, A. ÅE. (Ekstern), Bysted, A. (Intern), Knuthsen, P. (Intern)
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Nanofibrous nonwovens based on dendritic-linear-dendritic poly(ethylene glycol) hybrids
Dendritic-linear-dendritic (DLD) hybrids are highly functional materials combining the properties of linear and dendritic polymers. Attempts to electrospin DLD polymers composed of hyperbranched dendritic blocks of 2,2-bis(hydroxymethyl) propionic acid on a linear poly(ethylene glycol) core proved unsuccessful. Nevertheless, when these DLD hybrids were blended with an array of different biodegradable polymers as entanglement enhancers, nanofibrous nonwovens were successfully prepared by electrospinning. The pseudogeneration degree of the DLDs, the nature of the co-electrospun polymer and the solvent systems used for the preparation of the electrospinning solutions exerted a significant effect on the diameter and morphology of the electrospun fibers. It is worth-noting that aqueous solutions of the DLD polymers and only 1% (w/v) poly(ethylene oxide) resulted in the production of smoother and thinner nanofibers. Such dendritic nanofibrous scaffolds can be promising materials for biomedical applications due to their biocompatibility, biodegradability, multifunctionality, and advanced structural architecture.

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Organisations: National Food Institute, Research Group for Nano-Bio Science, University of Athens, KTH - Royal Institute of Technology, Rhein-Waal University of Applied Sciences
Authors: Kikionis, S. (Ekstern), Ioannou, E. (Ekstern), Andren, O. C. (Ekstern), Chronakis, I. S. (Intern), Fahmi, A. (Ekstern), Malkoch, M. (Ekstern), Toskas, G. (Ekstern), Roussis, V. (Ekstern)
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Scopus rating (2017): SNIP 0.742 SJR 0.543
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.73 SJR 0.588 SNIP 0.792
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.587 SNIP 0.846 CiteScore 1.74
Web of Science (2015): Indexed yes
Nanoscale Coloristic Pigments: Upper Limits on Releases from Pigmented Plastic during Environmental Aging, In Food Contact, and by Leaching

The life cycle of nanoscale pigments in plastics may cause environmental or human exposure by various release scenarios. We investigated spontaneous and induced release with mechanical stress during/after simulated sunlight and rain degradation of polyethylene (PE) with organic and inorganic pigments. Additionally, primary leaching in food contact
and secondary leaching from nanocomposite fragments with an increased surface into environmental media was examined. Standardized protocols/methods for release sampling, detection, and characterization of release rate and form were applied: Transformation of the bulk material was analyzed by Scanning Electron Microscopy (SEM), X-ray-tomography and Fourier-Transform Infrared spectroscopy (FTIR); releases were quantified by Inductively Coupled Plasma Mass Spectrometry (ICP-MS), single-particle-ICP-MS (sp-ICP-MS), Transmission Electron Microscopy (TEM), Analytical Ultracentrifugation (AUC), and UV/Vis spectroscopy. In all scenarios, the detectable particulate releases were attributed primarily to contaminations from handling and machining of the plastics, and were not identified with the pigments, although the contamination of 4 mg/kg (Fe) was dwarfed by the intentional content of 5800 mg/kg (Fe as Fe2O3 pigment). We observed modulations (which were at least partially preventable by UV stabilizers) when comparing as-produced and aged nanocomposites, but no significant increase of releases. Release of pigments was negligible within the experimental error for all investigated scenarios, with upper limits of 10 mg/m2 or 1600 particles/mL. This is the first holistic confirmation that pigment nanomaterials remain strongly contained in a plastic that has low diffusion and high persistence such as the polyolefin High Density Polyethylene (HDPE).

**General information**

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Organisations: National Food Institute, Department of Environmental Engineering, Environmental Chemistry, BASF, Aix-Marseille University, University of Vienna  
Authors: Neubauer, N. (Ekstern), Scifo, L. (Ekstern), Navratilova, J. (Intern), Gondikas, A. (Ekstern), Mackevica, A. (Intern), Borschneck, D. (Ekstern), Chaurand, P. (Ekstern), Vidal, V. (Ekstern), Rose, J. (Ekstern), von der Kammer, F. (Ekstern), Wohlleben, W. (Ekstern)  
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Web of Science (2017): Indexed yes  
BFI (2016): BFI-level 2  
Scopus rating (2016): CiteScore 6.26 SJR 2.559 SNIP 1.902  
Web of Science (2016): Indexed yes  
BFI (2015): BFI-level 2  
Scopus rating (2015): SJR 2.546 SNIP 1.838 CiteScore 5.61  
Web of Science (2015): Indexed yes  
BFI (2014): BFI-level 2  
Scopus rating (2014): SJR 2.777 SNIP 2.003 CiteScore 5.5  
Web of Science (2014): Indexed yes  
BFI (2013): BFI-level 2  
Scopus rating (2013): SJR 2.952 SNIP 2.102 CiteScore 5.52  
ISI indexed (2013): ISI indexed yes  
Web of Science (2013): Indexed yes  
BFI (2012): BFI-level 2  
Scopus rating (2012): SJR 3.115 SNIP 2.043 CiteScore 5.17  
ISI indexed (2012): ISI indexed yes  
Web of Science (2012): Indexed yes  
BFI (2011): BFI-level 2  
Scopus rating (2011): SJR 3.18 SNIP 1.945 CiteScore 5.16  
ISI indexed (2011): ISI indexed yes  
Web of Science (2011): Indexed yes  
BFI (2010): BFI-level 2
Natural antioxidants derived from seaweed material

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Nitrogen-to-protein conversion factor of seaweed varies with season

General information
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Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application
Authors: Silva Marinho, G. (Intern), Holdt, S. L. (Intern)
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Nordic Region life expectancy in years (2013): Fact sheet Nordic Region

General information
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Authors: Fagt, S. (Intern), Matthiessen, J. (Intern)
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Norway life expectancy in years (2013): Fact sheet Norway

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Authors: Fagt, S. (Intern), Matthiessen, J. (Intern)
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Fact_sheet_Norway.pdf
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NOTAT: Anvendelse af Monte Carlo simulering til bestemmelse af effektkriterium for Clostridium perfringens og Bacillus cereus for nedkølingen af varmebehandlede færdigretter

General information
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NOTAT: Anvendelse af Monte Carlo simulering til bestemmelse af effektkriterium for Clostridium perfringens og Bacillus cereus for nedkølingen af varmebehandlde færdigretter

Novel method for on-line rheology measurement in manufacturing of non-Newtonian liquids
Occurrence of flame retardants in European seafood and consumer risk assessment

General information
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Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

Occurrence of halogenated flame retardants in commercial seafood species available in European markets

PBDEs (congeners 28, 47, 99, 100, 153, 154, 183, 209), HBCD (α, β, γ), emerging brominated flame retardants (PBE, HBB and DBDPE), dechloranes (Dec 602, 603, 604, syn- and anti-DP), TBBPA, 2,4,6-TBP and MeO-PBDEs (8 congeners) were analysed in commercial seafood samples from European countries. Levels were similar to literature and above the environmental quality standards (EQS) limit of the Directive 2013/39/EU for PBDEs. Contaminants were found in 90.5% of the seafood samples at n. d.-356 ng/g lw (n. d.-41.1 ng/g ww). DBDPE was not detected and 2,4,6-TBP was detected only in mussels, but at levels comparable to those of PBDEs. Mussel and seabream were the most contaminated species and the Mediterranean Sea (FAO Fishing Area 37) was the most contaminated location. The risk assessment revealed that there was no health risk related to the exposure to brominated flame retardants via seafood consumption. However, a refined risk assessment for BDE-99 is of interest in the future. Moreover, the cooking process concentrated PBDEs and HBB.

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Effect of cooking, Margin of exposure, PBDEs, Risk assessment, 2,4,6-TBP
Original language: English

Effect of cooking, Margin of exposure, PBDEs, Risk assessment, 2,4,6-TBP
Electronic versions:
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10.1016/j.fct.2016.12.034
Source: FindIt
Source-ID: 2350223173
Publication: Research - peer-review › Journal article – Annual report year: 2017
Optimised deconjugation of androgenic steroid conjugates in bovine urine

After administration of steroids to animals the steroids are partially metabolised in the liver and kidney to phase 2 metabolites, i.e., glucuronic acid or sulphate conjugates. During analysis these conjugated metabolites are normally deconjugated enzymatically with aryl sulphatase and glucuronidase resulting in free steroids in the extract. It is well known that some sulphates are not deconjugated using aryl sulphatase; instead, for example, solvolysis can be used for deconjugation of these aliphatic sulphates. The effectiveness of solvolysis on androgenic steroid sulphates was tested with selected aliphatic steroid sulphates (boldenone sulphate, nortestosteron sulphate and testosterone sulphate), and the method was validated for analysis of androgenic steroids in bovine urine using free steroids, steroid sulphates and steroid glucuronides as standards. Glucuronidase and sulphuric acid in ethyl acetate were used for deconjugation and the extract was purified by solid-phase extraction. The final extract was evaporated to dryness, re-dissolved and analysed by LC-MS/MS.

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Organisations: National Food Institute, Research Group for Analytical Food Chemistry, Division of Risk Assessment and Nutrition
Authors: Pedersen, M. (Intern), Frandsen, H. L. (Intern), Andersen, J. H. (Intern)
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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.894 SJR 0.74
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.12 SJR 0.796 SNIP 0.95
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.778 SNIP 0.878 CiteScore 2.11
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.764 SNIP 0.978 CiteScore 2.07
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.041 SNIP 1.168 CiteScore 2.55
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
Scopus rating (2012): SJR 0.906 SNIP 1.123 CiteScore 2.12
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
Scopus rating (2011): SJR 0.912 SNIP 1.099 CiteScore 2.06
ISI indexed (2011): ISI indexed no
Scopus rating (2010): SJR 0.816 SNIP 1.029
Web of Science (2010): Indexed yes
Scopus rating (2009): SJR 0.754 SNIP 1.228
Original language: English
LC-MS/MS, Steroid conjugates, deconjugation, solvolysis
DOIs:
10.1080/19440049.2016.1276637
Optimistic and pessimistic self-assessment of own diets is associated with age, self-rated health and weight status in Danish adults

The aim of this study was to analyse concordance between Danish adults' recorded diet quality and their own assessment of the healthiness and to examine socio-demographic, health and behavioural characteristics associated with an optimistic or pessimistic self-assessment. Data were derived from The Danish National Survey of Diet and Physical Activity 2011-2013 and included a random sample of 3014 adults (18-75 y). Diet quality was evaluated on the basis of seven-day pre-coded food diaries and categorised 'unhealthy', 'somewhat healthy' and 'healthy'. Self-assessment of the healthiness of own diets was registered via personal interviews and categorised healthy enough 'to a high degree', 'to some degree' or 'not at all/only partly'. Highly and somewhat optimistic self-assessment, respectively, were defined as assessing own diets as healthy enough to a high degree or to some degree while having unhealthy diets. Highly and somewhat pessimistic self-assessment, respectively, were defined as assessing own diets as not healthy enough or healthy enough to some degree while having healthy diets. Multiple logistic regression models were used to examine characteristics associated with optimistic and pessimistic self-assessments, respectively. Among individuals with unhealthy diets, 13% were highly optimistic and 42% somewhat optimistic about the healthiness of their diets. Among individuals with healthy diets, 14% were highly pessimistic and 51% somewhat pessimistic about the healthiness of their diets. Highly optimistic self-assessment was associated with increasing age, excellent self-rated health, normal weight and a moderate activity level. Highly pessimistic self-assessment was associated with decreasing age, good self-rated health and being overweight or obese. The findings indicate that people seem to use personal health characteristics as important references when assessing the healthiness of their diets.
Oral bioaccessibility of toxic and essential elements in raw and cooked commercial seafood species available in European markets

The oral bioaccessibility of several essential and toxic elements was investigated in raw and cooked commercially available seafood species from European markets. Bioaccessibility varied between seafood species and elements. Methylmercury bioaccessibility varied between 10 (octopus) and 60 % (monkfish). Arsenic (> 64%) was the toxic element showing the highest bioaccessibility. Concerning essential elements bioaccessibility in raw seafood, selenium (73 %) and iodine (71 %) revealed the highest percentages. The bioaccessibility of elements in steamed products increased or decreased according to species. For example, methylmercury bioaccessibility decreased significantly after steaming in all species, while zinc bioaccessibility increased in fish (tuna and plaice) but decreased in molluscs (mussel and octopus).

Together with human exposure assessment and risk characterization, this study could contribute to the establishment of new maximum permissible concentrations for toxic elements in seafood by the European food safety authorities, as well as recommended intakes for essential elements.

General information

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Organisations: National Food Institute, Research Group for Nano-Bio Science, Portuguese Institute for the Sea and Atmosphere, IRTA - Institute of Agrifood Research and Technology, Aelfloria Srl, IMARES, Hortimare, University of Porto, Institute for Agricultural and Fisheries Research
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BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 2.109 SJR 1.793
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 4.85 SJR 1.731 SNIP 2.095
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.582 SNIP 1.946 CiteScore 4.31
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.557 SNIP 2.01 CiteScore 3.92
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.554 SNIP 2.056 CiteScore 3.87
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.762 SNIP 2.342 CiteScore 3.98
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.911 SNIP 2.383 CiteScore 4.17
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 1.981 SNIP 2.253
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 1.789 SNIP 2.023
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 1.47 SNIP 1.706
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.475 SNIP 2.087
Web of Science (2007): Indexed yes
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 1.028 SNIP 1.526
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 1.077 SNIP 1.438
Scopus rating (2003): SJR 0.876 SNIP 1.248
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 0.966 SNIP 1.235
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 0.785 SNIP 0.975
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 0.588 SNIP 0.961
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 0.654 SNIP 0.921
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Seafood, Toxic/essential elements, Steaming, Bioaccessibility
DOIs:
10.1016/j.foodchem.2017.11.045
Publication: Research - peer-review › Journal article – Annual report year: 2017
The aims of this study were to; 1) investigate the ability of Icelandic brown algae Fucus vesiculosus extracts to inhibit lipid oxidation in granola bars fortified with fish oil-in-water emulsion; 2) investigate whether addition of the seaweed extracts affected the physical microstructure of the oil droplets in granola bars.

The oxidative stability of the bars at 20°C was evaluated over a period of 10 weeks by measuring the development of peroxides and volatile compounds using dynamic headspace gas chromatography mass spectrometry (DHS GC-MS). The physical microstructure was determined using microscopy.

All extracts - except water extract in low concentration - reduced lipid oxidation during 10 weeks of storage when added in a concentration of 0.5 or 1g extract/100g emulsion. EE and AE (in the lowest concentration) were found to be most efficient as antioxidants in the bars. The antioxidant efficacy of these two extracts was among other related to an improved incorporation of the fish oil-in-water emulsions in the bars, high total phenolic content, high radical scavenging activity together with high interfacial affinity of phenolic compounds and probably regeneration of tocopherol.

Practical applications: The work showed the application potential of Fucus vesiculosus extracts as a natural antioxidant in low-moisture foods such as granola bars. These findings implied that the multi-functional nature of these extracts provides not only oxidative stability of the food but also a physical stability.
Oxidative stability of pullulan electrospun fibers containing fish oil: Effect of oil content and natural antioxidants addition

The effect of oil content and addition of natural antioxidants on the morphology and oxidative stability of pullulan ultra-thin fibers loaded with fish oil and obtained by electrospinning was investigated. Pullulan sub-micron fibers containing 10 and 30wt% fish oil were prepared and both presented beads where the oil accumulated. The number of beads was significantly higher in 30wt% oil-loaded fibers. Moreover, fibers containing 30wt% fish oil had a higher oxidative stability when compared to 10wt% oil-loaded fibers, despite its lower encapsulation efficiency (EE) value (67.1±3.1%). The oxidative stability of fibers loaded with 10wt% fish oil (EE=88.5±0.7%) was significantly improved when adding δ-tocopherol (500ppm) and rosemary extract (500ppm) as antioxidants. However, higher concentration of antioxidants (2000ppm δ-tocopherol and 1000ppm rosemary extract) did not further improve the oxidative stability of 10wt% oil-loaded fibers, but had a pro-oxidant effect. Finally, the production of pullulan fibers containing 10wt% fish oil from formic acid solutions increased the oxidative stability of the fibers when compared to the same type of fibers obtained from water solutions. The latter was observed for fibers without and with antioxidants (500ppm of δ-tocopherol and 500ppm of rosemary extract). Practical applications: Encapsulation of omega-3 polyunsaturated fatty acids and addition of antioxidants are the most efficient strategies to protect these lipids against oxidation when incorporating them into food matrices. These results show the feasibility to encapsulate fish oil in pullulan ultra-thin fibers and to improve their oxidative stability by adding natural antioxidants such as δ-tocopherol and rosemary extract. Therefore, this study might open up new opportunities for further technological development in the production of omega-3 nanodelivery systems, which have potential applications in different types of fortified foods. Encapsulation of fish oil in electrospun pullulan fibers stabilized by natural antioxidants.

General information

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Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Research Group for Nano-Bio Science, Technical University of Denmark
Authors: Garcia Moreno, P. J. (Intern), Damberg, C. (Ekstern), Chronakis, I. S. (Intern), Jacobsen, C. (Intern)
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Pathogen concentration integrated molecular analysis for SMARTDIAGNOS: the next generation sepsis diagnosis

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Organisations: National Food Institute, Research Group for Analytical and Predictive Microbiology, Department of Micro-and Nanotechnology, BioLabChip, Research Group for Diagnostic Engineering
Authors: Aayda Chidambara, V. (Intern), Shahbazi, M. (Intern), Dave, V. P. (Intern), Ngo Anh, T. (Intern), Wolff, A. (Intern), Bang, D. D. (Intern)
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BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.953 SJR 1.954
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.34 SJR 2.04 SNIP 0.915
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 2.361 SNIP 1.053 CiteScore 3.72
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 2.344 SNIP 1.08 CiteScore 3.74
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 2.433 SNIP 1.168 CiteScore 4.25
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 2.386 SNIP 1.167 CiteScore 4.32
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
Patterns of infections, aetiological agents, and antimicrobial resistance at a tertiary care hospital in northern Tanzania

Objective
To determine the causative agents of infections and their antimicrobial susceptibility at a tertiary care hospital in Moshi, Tanzania, to guide optimal treatment.

Methods
A total of 590 specimens (stool (56), sputum (122), blood (126) and wound swabs (286)) were collected from 575 patients admitted in the medical and surgical departments. The bacterial species were determined by conventional methods and disk diffusion was used to determine the antimicrobial susceptibility pattern of the bacteria isolates.

Results
A total of 249 (42.2%) specimens were culture-positive yielding a total of 377 isolates. A wide range of bacteria was isolated, the most predominant being Gram-negative bacteria: Proteus spp. (n=48, 12.7%), Escherichia coli (n=44, 11.7%), Pseudomonas spp. (n=40, 10.6%), and Klebsiella spp. (n=38, 10.1%). Wound infections were characterised by multiple isolates (n=293, 77.7%), with the most frequent being Proteus spp. (n=44, 15%), Pseudomonas (n=37, 12.6%), Staphylococcus (n=29, 9.9%), and Klebsiella spp. (n=28, 9.6%). All S. aureus tested were resistant to penicillin (n=22, 100%) and susceptible to vancomycin. Significant resistance to cephalosporins such as cefazolin (n=62, 72.9%), ceftriaxone (n=44, 51.8%) and ceftazidime (n=40, 37.4%) was observed in Gram-negative bacteria; as well as resistance to cefoxitin (n=6, 27.3%) in Staphylococcus aureus.

Conclusion
The study has revealed a wide range of causative agents, with an alarming rate of resistance to the commonly used antimicrobial agents. Furthermore, the bacterial spectrum differs from those often observed in high-income countries. This highlights the imperative of regular generation of data on aetiological agents and their antimicrobial susceptibility patterns especially in infectious disease endemic settings. The key steps would be to ensure the diagnostic capacity at a sufficient number of sites and implement structures to routinely exchange, compare, analyse and report data. Sentinel sites (hospitals) across the country (and region) should report on a representative subset of bacterial species and their susceptibility to drugs at least annually. A central organizing body should collate the data and report to relevant national and international stakeholders.
Patterns of infections, aetiological agents, and antimicrobial resistance at a tertiary care hospital in northern Tanzania

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Authors: Kumburu, H. H. (Ekstern), Sonda, T. (Ekstern), Mmbaga, B. T. (Ekstern), Alifrangis, M. (Ekstern), Lund, O. (Intern), Kibiki, G. (Ekstern), Aarestrup, F. M. (Intern)
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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 1.291 SJR 1.731
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 2.55 SJR 1.583 SNIP 1.182
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.559 SNIP 1.256 CiteScore 2.4
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.315 SNIP 1.102 CiteScore 2.3
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.599 SNIP 1.173 CiteScore 2.7
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.562 SNIP 1.247 CiteScore 2.82
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.576 SNIP 1.133 CiteScore 2.78
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 1.525 SNIP 1.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 1.276 SNIP 1.27
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 1.233 SNIP 1.144
Scopus rating (2007): SJR 1.603 SNIP 1.513
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.399 SNIP 1.384
Paving the way towards complex blood-brain barrier models using pluripotent stem cells

A tissue with great need to be modelled in vitro is the blood-brain barrier (BBB). The BBB is a tight barrier that covers all blood vessels in the brain and separates the brain microenvironment from the blood system. It consists of three cell types (neurovascular unit (NVU)) that contribute to the unique tightness and selective permeability of the BBB and has been shown to be disrupted in many diseases and brain disorders, such as, vascular dementia, stroke, multiple sclerosis and Alzheimer's disease. Given the progress that pluripotent stem cells (PSCs) have made in the last two decades, it is now possible to produce many cell types from the BBB and even partially recapitulate this complex tissue in vitro. In this review, we summarize the most recent developments in PSC differentiation and modelling of the BBB. We also suggest how patient-specific human induced PSCs could be used to model BBB dysfunction in the future. Lastly, we provide perspectives on how to improve production of the BBB in vitro, for example by improving pericyte differentiation protocols and by better modelling the NVU in the dish.
Scopus rating (2009): SJR 1.348 SNIP 0.817
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 1.226 SNIP 0.669
Scopus rating (2007): SJR 1.149 SNIP 0.772
Scopus rating (2006): SJR 0.877 SNIP 0.716
Scopus rating (2005): SJR 0.848 SNIP 0.581
Scopus rating (2004): SJR 0.724 SNIP 0.563
Scopus rating (2003): SJR 0.631 SNIP 0.537
Scopus rating (2002): SJR 0.655 SNIP 0.472
Scopus rating (2001): SJR 0.519 SNIP 0.363
Scopus rating (2000): SJR 1.064 SNIP 0.709
Scopus rating (1999): SJR 1.048 SNIP 0.833
Original language: English
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scd.2017.0003.pdf
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10.1089/scd.2017.0003
Source: FindIt
Source-ID: 2357198290
Publication: Research - peer-review › Review – Annual report year: 2017

Påvirker pesticider tarmens bakteriesamfund - og hvad kan det betyde for sundheden?

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, Research Group for Analytical Food Chemistry, Copenhagen Center for Health Technology, Aarhus University
Authors: Nielsen, L. N. (Intern), Roager, H. M. (Intern), Escola Casas, M. (Ekstern), Frandsen, H. L. (Intern), Gosewinkel, U. (Ekstern), Bester, K. (Ekstern), Licht, T. R. (Intern), Bohse Hendriksen, N. (Ekstern), Bahl, M. I. (Intern)
Pages: 9-13
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Main Research Area: Technical/natural sciences

Publication information
Journal: Miljø og sundhed
Volume: 23
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ISSN (Print): 1601-4146
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Original language: Danish
Electronic versions:
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Source: PublicationPreSubmission
Source-ID: 141854702
Publication: Research › Journal article – Annual report year: 2017

Pectin-zinc-chitosan-polyethylene glycol colloidal nano-suspension as a food grade carrier for colon targeted delivery of resveratrol

The aim of the present study was to develop chitosan-zinc-pectinate-polyethylene glycol (PEG) nanoparticles (NPs) for colon-targeted delivery of resveratrol. The effects of pectin:ZnCl2:chitosan (PZnC) % w/v, pH and ionic strength of media, and addition of PEG on the colloidal stability and release behavior of resveratrol from NPs were examined by Zeta potential, particle size analyzer, scanning electron microscopy (SEM), and Fourier transform-infrared (FTIR) methods. The particle size and Zeta potential of PZnC NPs in the ratio of 10:1:3 % w/v were 399 ± 18 nm and +25 ± 1 mV, respectively. The addition of PEG to PZnC as a solvent for resveratrol (10% w/v) noticeably decreased the size of NPs to approximately 83 ± 4 nm. More than 63% of the resveratrol was encapsulated into the developed NPs; furthermore, a low amount of resveratrol was released during one month, using simulated juice model (pH = 4) as investigated by High Performance Liquid Chromatography (HPLC) analysis of resveratrol. The remaining resveratrol in NPs (~49%) was released in simulated colon fluid in the presence of pectinase. These NPs can be introduced as a novel platform for successful colon
delivery of resveratrol in fruit juice matrix.

**General information**

State: Published
Organisations: National Food Institute, Research Group for Food Production Engineering, Tabriz University of Medical Sciences
Authors: Andishmand, H. (Ekstern), Mahnaz Tabibiazar (Ekstern), Mohamadifar, M. A. (Intern), Hamishehkar, H. (Ekstern)
Pages: 16-22
Publication date: 2017
Main Research Area: Technical/natural sciences

**Publication information**

Journal: International Journal of Biological Macromolecules
Volume: 97
ISSN (Print): 0141-8130
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.307 SJR 0.917
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.84 SJR 0.882 SNIP 1.294
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.808 SNIP 1.303 CiteScore 3.38
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.864 SNIP 1.32 CiteScore 3.13
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.848 SNIP 1.431 CiteScore 3.48
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.787 SNIP 1.302 CiteScore 2.77
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.692 SNIP 1.198 CiteScore 2.73
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.873 SNIP 1.201
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.806 SNIP 1.183
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.751 SNIP 0.968
Scopus rating (2007): SJR 0.643 SNIP 0.994
Scopus rating (2006): SJR 0.509 SNIP 0.807
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 0.593 SNIP 1.185
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 0.598 SNIP 0.926
Scopus rating (2003): SJR 0.539 SNIP 0.98
Peptides: Production, bioactivity, functionality, and applications
Production of peptides with various effects from proteins of different sources continues to receive academic attention. Researchers of different disciplines are putting increasing efforts to produce bioactive and functional peptides from different sources such as plants, animals, and food industry by-products. The aim of this review is to introduce production methods of hydrolysates and peptides and provide a comprehensive overview of their bioactivity in terms of their effects on immune, cardiovascular, nervous, and gastrointestinal systems. Moreover, functional and antioxidant properties of hydrolysates and isolated peptides are reviewed. Finally, industrial and commercial applications of bioactive peptides including their use in nutrition and production of pharmaceuticals and nutraceuticals are discussed.

General information
State: Accepted/In press
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Technical University of Denmark
Authors: Hajfathalian, M. (Ekstern), Ghelichi, S. (Ekstern), García Moreno, P. J. (Intern), Sørensen, A. M. (Intern), Jacobsen, C. (Intern)
Number of pages: 33
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Main Research Area: Technical/natural sciences

Publication information
Journal: Critical Reviews in Food Science and Nutrition
ISSN (Print): 1040-8398
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 1.998 SJR 1.596
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 4.65 SJR 1.569 SNIP 2.063
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.941 SNIP 2.264 CiteScore 5.72
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.041 SNIP 2.417 CiteScore 5.97
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.072 SNIP 2.374 CiteScore 5.83
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.055 SNIP 2.684 CiteScore 5.73
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Whole grains are a key component of a healthy diet, and enabling consumers to easily choose foods with a high whole-grain content is an important step for better prevention of chronic disease. Several definitions exist for whole-grain foods, yet these do not account for the diversity of food products that contain cereals. With the goal of creating a relatively simple whole-grain food definition that aligns with whole-grain intake recommendations and can be applied across all product categories, the Healthgrain Forum, a not-for-profit consortium of academics and industry working with cereal foods, established a working group to gather input from academics and industry to develop guidance on labeling the whole-grain content of foods. The Healthgrain Forum recommends that a food may be labeled as "whole grain" if it contains ≥30% whole-grain ingredients in the overall product and contains more whole grain than refined grain ingredients, both on a dry-weight basis. For the purposes of calculation, added bran and germ are not considered refined-grain ingredients.

Additional recommendations are also made on labeling whole-grain content in mixed-cereal foods, such as pizza and ready meals, and a need to meet healthy nutrition criteria. This definition allows easy comparison across product categories because it is based on dry weight and strongly encourages a move from generic whole-grain labels to reporting the actual percentage of whole grain in a product. Although this definition is for guidance only, we hope that it will encourage more countries to adopt regulation around the labeling of whole grains and stimulate greater awareness and consumption of whole grains in the general population.
Pesticide Residues in Commercial Lettuce, Onion, and Potato Samples From Bolivia—A Threat to Public Health?

Bolivia does not have a surveillance program for pesticide residues in food. The few published studies have suggested that pesticide contamination in food may present a public health problem. Data are lacking for all foods except tomatoes and breast milk. In this study 10 potato, 10 onion, and 10 lettuce samples from La Paz were sampled on August 15, 2015 at a local market and screened for 283 pesticides. Residues of cypermethrin, chlorpyrifos, difenoconazol, or/and λ-cyhalothrin were detected in 50% of the lettuce samples, whereas no pesticides were found in potatoes and onions. In 20% of the lettuce samples, the measurements were above the maximum residue limits, and 2 or 3 pesticides were identified simultaneously. Washing almost halved the pesticide levels, but still 20% of the samples showed measurements above the limits. No samples contained concentrations of pesticides which alone or together would lead to exposures that exceeded the acceptable daily intake or the acute reference dose. To protect consumers from pesticide poisonings and chronic effects, the development of measures for prevention, control, and monitoring of food contamination by pesticides in Bolivia is suggested.

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Dialogos, Fundación Plagbol, University of Southern Denmark
Authors: Skovgaard, M. (Ekstern), Renjel, S. (Ekstern), Jensen, O. C. (Ekstern), Andersen, J. H. (Intern), Condarco, G. (Ekstern), Jors, E. (Ekstern)
Pages: 1-8
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Environmental Health Insights
Volume: 11
Issue number: 0
ISSN (Print): 1178-6302
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Web of Science (2018): Indexed yes
Web of Science (2017): Indexed yes
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Original language: English
Electronic versions:
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DOIs:
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Phycoremediation of diflubenzuron, lindane, copper and cadmium potential by Laminaria digitata

General information
State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science
Pages: 26-26
Publication date: 2017

Phycoremediation potential of brown macroalgae species Saccharina latissimi and Laminaria digitata towards inorganic arsenic in a multitrophic pilot-scale experiment

The presence of organic pollutants and toxic elements in aquatic ecosystems can cause serious problems to the environment and marine organisms and subsequently lead to adverse effects to human health following consumption of contaminated seafood. Hence, technological solutions for the reduction and mitigation of contaminants in the aquatic food production chain are called upon. The phycoremediation technology is a cost-effective algae-based approach that utilizes the ability of macroalgae to concentrate elements and compounds from the environment and to metabolize various molecules in their tissues. Arsenic (As) is a ubiquitous metalloid found in soils, groundwater, surface water, air, and consequently also in various food items. Arsenic is bioaccumulated in the marine food chain and...
total arsenic concentrations in the mg/kg range is usually found in marine organisms. The toxicity of arsenic depends on the chemical species, where inorganic arsenic is considered to be the most toxic form of arsenic. The aim of the present study was to evaluate the phycoremediation capacity of the two brown seaweed species Sugar kelp (Saccharina latissima) and Oarweed (Laminaria digitata) in a controlled multitrophic (water, algae, mussels) pilot experiment with exposure to inorganic arsenic. The results of the experiments indicated that of the two algae species used in the experiment, Laminaria digitata was more efficient for removal of arsenic from seawater and hence a better choice for phycoremediation practises towards this parameter.

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General information

State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science
Authors: Rasmussen, R. R. (Intern), Cunha, S. (Ekstern), Fernandes, J. (Ekstern), Oliveira, C. (Ekstern), Anacleto, P. (Ekstern), Barbosa, V. (Ekstern), Alves, R. N. (Ekstern), Marques, A. T. (Ekstern), H.M. van den Heuvel, F. (Ekstern), Sloth, J. J. (Intern)
Number of pages: 1
Publication date: 2017
Event: Poster session presented at Seafood Safety, Brussels, Belgium.
Main Research Area: Technical/natural sciences
Electronic versions:
ECsafeSEAFOOD_Phycoremediation_iAs_final.pdf
Publication: Research - peer-review › Poster – Annual report year: 2017

Physical and oxidative stability of fish oil-in-water emulsions fortified with enzymatic hydrolysates from common carp (Cyprinus carpio) roe

Physical and oxidative stability of 5% (by weight) cod liver oil-in-water emulsions fortified with common carp (C. carpio) roe protein hydrolysate (CRPH) were examined. CRPH was obtained by enzymatic hydrolysis of discarded roe by using Alcalase 2.4 L for 30, 60, 90, and 120 min to yield different degrees of hydrolysis (DH). All the hydrolysates showed in vitro antioxidant activity in terms of radical scavenging and chelating properties. CRPH-containing emulsions had significantly smaller droplets than control (p

General information

State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Gorgan University of Agricultural Sciences and Natural Resources, Technical University of Denmark
Authors: Ghelichi, S. (Ekstern), Serensen, A. M. (Intern), García Moreno, P. J. (Intern), Hajfathalian, M. (Ekstern), Jacobsen, C. (Intern)
Number of pages: 10
Pages: 1048-1057
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information

Journal: Food Chemistry
Volume: 237
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Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 2.109 SJR 1.793
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 4.85 SJR 1.731 SNIP 2.095
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.582 SNIP 1.946 CiteScore 4.31
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.557 SNIP 2.01 CiteScore 3.92
Web of Science (2014): Indexed yes
A systematic study was carried out in order to evaluate the physical and oxidative stability of high fat omega-3 delivery fish oil-in-water emulsions stabilized with combinations of sodium caseinate (NaCas) and sodium alginate (NaAlg). The influence of 3 factors related to emulsion composition (fish oil content: 50, 60 and 70%; total amount of NaCas and NaAlg: 1.4, 2.1 and 2.8 %; and ratio NaCas:NaAlg: 0.4, 1.2 and 2) on physical (droplet size, viscosity and zeta potential) and oxidative (primary and secondary oxidation products) parameters was evaluated. It was possible to produce emulsions with a combination of NaCas and NaAlg, except when the ratio between NaAlg and aqueous phase was high (0.047 or 0.054). Viscosity of the emulsions significantly increased with increasing fish oil and total stabilizer content. Zeta potential
was significantly affected by total stabilizer content. The content of primary oxidation products in the emulsions was very
low (0.93 meq peroxides/kg oil). Secondary oxidation products were detected in small amounts (<60 ng/g emulsion). Even
though the optimum formulation concerning physical parameters was suggested as 61.8% fish oil content, 1.4% total
stabilizer and 1.2 ratio NaCas:NaAlg by Box-Behnken's design, the formulae 70%-1.4%-1.2 was decided due to high fish
oil content's decreasing effect on droplet size and peroxide value. Practical applications: Physically and oxidatively stable
high fat (50-70%) omega-3 delivery fish oil-in-water emulsions are of high interest to food industry for the production of
omega-3 fortified products. Our results show the feasibility to stabilize high fat delivery fish oil-in-water emulsions using
combinations of NaCas and NaAlg. As these emulsions had high amount of fish oil, food products can be enriched with
smaller amounts of high fat emulsions when compared to low fat delivery emulsions. This results in minor changes of the
product's original structure. Examples for enrichment of food products with omega-3 are dressings, cream cheese, yoghurt
and mayonnaise.

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application
Authors: Yesiltas, B. (Intern), García Moreno, P. J. (Intern), Sørensen, A. M. (Intern), Jacobsen, C. (Intern)
Number of pages: 10
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Main Research Area: Technical/natural sciences

Publication information
Journal: European Journal of Lipid Science and Technology
Volume: 119
Issue number: 11
Article number: 1600484
ISSN (Print): 1438-7697
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.05 SJR 0.776
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.06 SNIP 1.042
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.643 SNIP 0.878 CiteScore 1.85
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.742 SNIP 1.052 CiteScore 1.98
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.863 SNIP 1.122 CiteScore 2.16
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.864 SNIP 1.221 CiteScore 2.06
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.742 SNIP 0.94 CiteScore 1.75
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.799 SNIP 1.05
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.84 SNIP 1.07
Web of Science (2009): Indexed yes
Physical Stability of Oil in Water Emulsions in the Presence of Gamma Irradiated Gum Tragacanth

Gum tragacanth (GT) exuded from an Iranian Astragalus species was γ-irradiated at 0, 0.75, 1.5, 3, 5, 7, 10 kGy and used to stabilize a model oil in water emulsion system. Stability and physicochemical properties of emulsion samples were investigated with respect to the effect of irradiation treatment on functional properties of gum tragacanth. Particle size distribution, interfacial tension, zeta potential, steady shear and oscillatory rheological measurements were used to characterize and evaluate the emulsion samples and obtain more information about the possible stability mechanism. Emulsions were prepared by homogenizing 10% w/w sunflower oil with 90% w/w aqueous gum dispersions and stored quiescently at 25°C for 120 days. Results indicated that using 1.5 kGy irradiated GT was more effective in providing optimum values of apparent viscosity, number mean diameter, electrosteric repulsion and structure strength for getting maximum emulsion stability. GT significantly reduced the interfacial tension of the oil and water system, but no significant differences were observed among all irradiation treated and non-irradiated samples. This study revealed that, GT acts as a bifunctional emulsifier and irradiation treatment has a great positive influence on its ability to reduce droplets collision frequency and stabilize oil in water emulsion.

General information
State: Published
Organisations: National Food Institute, Research Group for Food Production Engineering, Shahid Beheshti University of Medical Sciences
Authors: Meybodi, N. M. (Ekstern), Mohammadifar, M. A. (Intern), Farhoodi, M. (Ekstern), Skytte, J. L. (Intern), Abdolmaleki, K. (Ekstern)
Pages: 909-916
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Dispersion Science and Technology
Volume: 38
Issue number: 6
ISSN (Print): 0193-2691
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.656 SJR 0.375
Web of Science (2017): Indexed yes
Physiological limit of the daily endogenous cholecalciferol synthesis from UV light in cattle

The link between UV light (sunlight) and endogenous cholecalciferol (vitamin D3) synthesis in the skin of humans has been known for more than a 100 years, since doctors for the first time successfully used UV light to cure rickets in children. Years later, it was shown that UV light also had a significant effect on the cholecalciferol status in the body of cattle. The cholecalciferol status in the body is measured as the plasma concentration of 25-hydroxycholecalciferol, which in cattle and humans is the major circulating metabolite of cholecalciferol. Very little is, however, known about the quantitative efficiency of UV light as a source of cholecalciferol in cattle nutrition and physiology. Hence, the aim of this study was to determine the efficiency of using UV light for increasing the plasma 25-hydroxycholecalciferol concentration in cholecalciferol-deprived cattle. Twelve cows deprived of cholecalciferol for 6 months were divided into three treatment groups and exposed to UV light for 30, 90 or 120 min/day during 28 days. UV-light wavelengths ranged from 280 to 415 nm and 30-min exposure to the UV light was equivalent to 60-min average summer-sunlight exposure at 56 °N. Blood samples were collected every 3–4 days and analysed for 25-hydroxycholecalciferol and cholecalciferol. Results showed that increasing the exposure time from 90–120 min/day did not change the slope of the daily increase in plasma 25-hydroxycholecalciferol. Hence, it appears that cholecalciferol-deprived dairy cattle are able to increase their plasma 25-hydroxycholecalciferol concentration by a maximum of 1 ng/ml/day from UV-light exposure.
cholecalciferol, endogenous, repletion, excretion, milk, cattle

DOIs:
10.1111/jpn.12540
**PointFinder: a novel web tool for WGS-based detection of antimicrobial resistance associated with chromosomal point mutations in bacterial pathogens**

**Background**
Antibiotic resistance is a major health problem, as drugs that were once highly effective no longer cure bacterial infections. WGS has previously been shown to be an alternative method for detecting horizontally acquired antimicrobial resistance genes. However, suitable bioinformatics methods that can provide easily interpretable, accurate and fast results for antimicrobial resistance associated with chromosomal point mutations are still lacking.

**Methods**
Phenotypic antimicrobial susceptibility tests were performed on 150 isolates covering three different bacterial species: Salmonella enterica, Escherichia coli and Campylobacter jejuni. The web-server ResFinder-2.1 was used to identify acquired antimicrobial resistance genes and two methods, the novel PointFinder (using BLAST) and an in-house method (mapping of raw WGS reads), were used to identify chromosomal point mutations. Results were compared with phenotypic antimicrobial susceptibility testing results.

**Results**
A total of 685 different phenotypic tests associated with chromosomal resistance to quinolones, polymyxin, rifampicin, macrolides and tetracyclines resulted in 98.4% concordance. Eleven cases of disagreement between tested and predicted susceptibility were observed: two C. jejuni isolates with phenotypic fluoroquinolone resistance and two with phenotypic erythromycin resistance and five colistin-susceptible E. coli isolates with a detected pmrB V161G mutation when assembled with Velvet, but not when using SPAdes or when mapping the reads.

**Conclusions**
PointFinder proved, with high concordance between phenotypic and predicted antimicrobial susceptibility, to be a user-friendly web tool for detection of chromosomal point mutations associated with antimicrobial resistance.
Preparation and characterization of bionanocomposite film based on tapioca starch/bovine gelatin/nanorod zinc oxide

To exploring a nano-packaging materials for using as coating or edible films, tapioca starch/gelatin/nanorod ZnO (ZnOsingle bondN) bionanocomposites were prepared via solution casting technique. The effects of nanofiller addition on the mechanical, physicochemical, and crystalline structures, as well as the barrier properties of bionanocomposite films were investigated. X-ray diffraction analysis showed that the bionanocomposite film incorporated with ZnOsingle bondN at a concentration of 3.5% w/w exhibited high intensity peaks compared with control samples. Results of UV–vis spectra analysis showed that incorporation of ZnOsingle bondN into the films can absorb the whole UV light. Tensile strength of the films was increased from 14 to 18 MPa whereas elongation at breaks decreased from 18 to 8 percent and oxygen permeability decreased from 151.03 to 91.52 cm³ μm/(m²–day) by incorporation of 3.5% ZnOsingle bondN into biopolymer matrix. In summary combined starch/gelatin films supported by ZnOsingle bondN showed better properties compared to starch or gelatin alone. Thus, the bionanocomposite films can be used in food, medicine, and pharmaceutical packaging.
Pre-treatment microbial Prevotella-to-Bacteroides ratio, determines body fat loss success during a 6-month randomized controlled diet intervention

Based on the abundance of specific bacterial genera, the human gut microbiota can be divided into two relatively stable groups that might play a role in personalized nutrition. We studied these simplified enterotypes as prognostic markers for successful body fat loss on two different diets. A total of 62 participants with increased waist circumference were randomly assigned to receive an ad libitum New Nordic Diet (NND) high in fiber/wholegrain or an Average Danish Diet (ADD) for 26 weeks. Participants were grouped into two discrete enterotypes by their relative abundance of Prevotella spp. divided by Bacteroides spp. (P/B ratio) obtained by quantitative PCR analysis. Modifications of dietary effects of pre-treatment P/B group were examined by linear mixed models. Among individuals with high P/B the NND resulted in a 3.15 kg (95%CI 1.55-4.76, P<0.001) larger body fat loss compared to ADD whereas no differences was observed among individuals with low P/B (0.88 kg [95% CI -0.61;2.37, P=0.25]). Consequently, a 2.27 kg (95%CI 0.09;4.45, P=0.041) difference in responsiveness to the diets were found between the two groups. In summary, subjects with high P/B-ratio appeared more susceptible to lose body fat on diets high in fiber and wholegrain than subjects with a low P/B-ratio.
Prevalence and risk factors of CTX-M Enterobacteriaceae in hospitalised patients at a tertiary hospital in Kilimanjaro, Tanzania

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Organisations: Department of Bio and Health Informatics, Genomic Epidemiology, National Food Institute, Research Group for Genomic Epidemiology, KCRI Kilimanjaro Clinical Research Institute, University of Copenhagen, Kilimanjaro Christian Medical College
Authors: Sonda, T. (Ekstern), Kumburu, H. (Ekstern), van Zwetselaar, M. (Ekstern), Alifrangis, M. (Ekstern), Mmbaga, B. (Ekstern), Lund, O. (Intern), Aarestrup, F. M. (Intern), Kibiki, G. (Ekstern)
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Prevalence of Listeria monocytogenes in European cheeses: A systematic review and meta-analysis

Both in Europe and worldwide cheese has caused important outbreaks of listeriosis and can be a vehicle for transmission of Listeria monocytogenes to consumers. A systematic review and meta-analysis were conducted using scientific literature and European Food Safety Authority (EFSA) reports to summarize available data on the prevalence of L. monocytogenes in different types of cheeses produced in Europe. Multilevel random-effects meta-analysis models were used to estimate mean prevalence rates of the pathogen and to compare prevalence between types of cheeses (fresh, mould-ripened, ripened, smear-ripened and brined) and for cheeses produced using pasteurized or un-pasteurized milk. Data from a total of 177428 samples were analysed. The mean prevalence during 2005-2013 and estimated from scientific literature (2.3%; CI: 1.4-3.8%) was more than two times higher than results from EFSA reports (0.9%; CI: 0.7-1.2%). The prevalence differed between types of cheeses including fresh (1.4%; CI: 0.6-3.2%), mould-ripened (2.0%; CI: 0.6-6.3%), ripened (2.2%; CI: 0.9-5.6%), smear-ripened (4.8%; CI: 1.5-14.5%) and brined (8.6%; CI: 1.7-34.4%). Mean prevalence of L. monocytogenes in fresh and soft/semi-soft cheeses were not significantly different (P > 0.05) for cheeses produced using pasteurized or un-pasteurized milk. Furthermore, this systematic review focused on groups/species of microorganisms suitable as indicator organisms for L. monocytogenes in cheeses to reflect the level of production hygiene or as index organisms to assess the prevalence of L. monocytogenes in cheeses. However, no indicator or index organisms were identified. These meta-analyses improve our understanding of L. monocytogenes prevalence in different types of cheeses and provided results that can be useful as input for quantitative risk assessment modelling.

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Organisations: National Food Institute, Research Group for Analytical and Predictive Microbiology
Authors: Martinez Rios, V. (Intern), Dalgaard, P. (Intern)
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Probabilistic quantitative microbial risk assessment model of farmer exposure to Cryptosporidium spp. in irrigation water within Kumasi Metropolis-Ghana

Cryptosporidium is a protozoan parasite which can be transmitted via food and water. Some studies have shown irrigation water to be routes of transmission for Cryptosporidium into the food chain, however, little information is known about Cryptosporidium levels in wastewater used for irrigation in the Kumasi Metropolis of Ghana. Kumasi and for that matter Ghana is not immune to the widespread practice of wastewater irrigation for farm produce in developing countries which has attracted attention of both, policy makers and academia. However, most previous studies of microbial risk assessment focus on the possible health effects and risk estimation for consumers of wastewater irrigated produce, whereas farmers who actually come into direct contact with the wastewater have received little attention. This study estimated the possible risk/diseases from farmer exposure to Cryptosporidium, a zoonotic pathogen causing gastroenteritis. The results indicate high positive levels of Cryptosporidium in the irrigation water, however, the levels of Cryptosporidium decreases during the rainfall seasons, risk assessment results show that, farmers face a higher risk of being infected by Cryptosporidium due to frequent exposure to wastewater. An adoption of a possible on-farm wastewater treatment option was found to reduce the risk of infection of the farmers. The results of this study highlight the need for a proactive policy to integrate a multi-barrier approach to reduce direct contact of farmers with wastewater for irrigation, to minimise risk of infection.

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Authors: Sampson, A. (Ekstern), Owusu-Ansah, E. D. J. (Ekstern), Mills-Robertson, F. C. (Ekstern), Ayi, I. (Ekstern), Abaidoo, R. C. (Ekstern), Hald, T. (Intern), Permin, A. (Intern)
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Probabilistic quantitative microbial risk assessment model of norovirus from wastewater irrigated vegetables in Ghana using genome copies and fecal indicator ratio conversion for estimating exposure dose
The need to replace the commonly applied fecal indicator conversions ratio (an assumption of $10^{-5}$ virus to fecal indicator organism) in Quantitative Microbial Risk Assessment (QMRA) with models based on quantitative data on the virus of interest has gained prominence due to the different physical and environmental factors that might influence the reliability of using indicator organisms in microbial risk assessment. The challenges facing analytical studies on virus enumeration (genome copies or particles) have contributed to the already existing lack of data in QMRA modelling. This study attempts to fit a QMRA model to genome copies of norovirus data. The model estimates the risk of norovirus infection from the intake of vegetables irrigated with wastewater from different sources. The results were compared to the results of a corresponding model using the fecal indicator conversion ratio to estimate the norovirus count. In all scenarios of using different water sources, the application of the fecal indicator conversion ratio underestimated the norovirus disease burden, measured by the Disability Adjusted Life Years (DALYs), when compared to results using the genome copies norovirus data. In some cases the difference was $>2$ orders of magnitude. All scenarios using genome copies met the $10^{-4}$ DALY per person per year for consumption of vegetables irrigated with wastewater, although these results are considered to be highly conservative risk estimates. The fecal indicator conversion ratio model of stream-water and drain-water sources of wastewater achieved the $10^{-6}$ DALY per person per year threshold, which tends to indicate an underestimation of health risk when compared to using genome copies for estimating the dose.
Process analysis and data driven optimization in the salmon industry

Aquaculture supplies around 70% of the salmon in the world and the industry is thus an important player in meeting the increasing demand for salmon products. Such mass production calls for systems that can handle thousands of tonnes of salmon without compromising the welfare of the fish and the following product quality. Moreover, the requirement of increased profit performance for the industry should be met with sustainable production solutions. Optimization during the production of salmon fillets could be one feasible approach to increase the outcome from the same level of incoming raw material. Today a lot of data is gathered in the different links of the value chain regarding raw material characteristics and processing parameters. Yet, even though traceability systems that allow for information transfer are available, this type of information does not follow the fish. This means that valuable information is gathered, but not exploited, and that data from for example the slaughtering companies cannot be included in decision processes related to the further processing of the fish or vice versa. Therefore, the overall aim of the present project has been to investigate if comprehensive collection and analysis of data from the salmon industry could be utilized to extract information that will support the industry in their decision-making processes. Mapping of quality parameters, their fluctuations and influences on yield and texture has been investigated. Additionally, the ability to predict the texture category of the salmon based on protein profile has been explored. The potential effect of the current project was expected to result both in a higher share of products of the highest possible quality, and allocation of products to match raw material to optimal product recipe (for example fillet, portion, smoked etc.). These measures could ensure the industry a higher price for the products, and will have a direct impact on the profit of the filleting companies. The initial work comprised a process analysis of the process line at the collaborating partner Skagerak Salmon A/S where data was gathered on an individual level during filleting. A model was built based on the gathered data enabling prediction of yield after filleting. Moreover, during analysis of the headed salmon it was observed that 78% of the salmon had a larger right side fillet compared to the left side, while all heads had more meat on the left side compared to the right. The heading procedure was identified as the one responsible for the weight difference of the fillets with a potential for increasing the recovery of high value meat i.e. fillet. The difference in fillet size amounted to 23 g per fish, and if recovered 61 tonnes of additional meat a year with a value of 2 million Danish kroner. Furthermore, throughout the project data was gathered covering a total of 11 months in order to investigate the variation in quality parameters. A significant negative correlation between sea temperature at the rearing region and protein content was observed. To the best of my knowledge, no study has reported this previously, and this observation thus segregates from the commonly accepted statement that protein content is a stable parameter in farmed salmon muscle. In the work related to the texture of salmon a model that can predict peak force, and thus texture category, based on protein profile, was built. A total of 16 proteins were required for this prediction, and five proteins; serum albumin, dipeptidyl peptidase 3, heat shock protein 70, annexins, and a protein fragment believed to be titin, were identified. In conclusion, the present project shows how process analysis and extensive data analysis can be used in the salmon industry in the attempt to increase yield. Knowledge of slaughter yield for a certain batch may facilitate optimal planning of the production of salmon fillets by ordering and assigning the right batch to the right product category to obtain an optimal yield and quality. Moreover, it is contemplated that the identification of proteins significant for the measured texture, will contribute to the further understanding of texture. Although more research is still needed in this area, the perspectives extending from the present work may challenge the industry to restructure the information flow of the value chain. This may incorporate an approach that enables all links to receive data that can be used in optimization of processes, and by that achieve an optimal exploitation of the resources in the future.
Processing Challenges and Opportunities of Camel Dairy Products

A review on the challenges and opportunities of processing camel milk into dairy products is provided with an objective of exploring the challenges of processing and assessing the opportunities for developing functional products from camel milk. The gross composition of camel milk is similar to bovine milk. Nonetheless, the relative composition, distribution, and the molecular structure of the milk components are reported to be different. Consequently, manufacturing of camel dairy products such as cheese, yoghurt, or butter using the same technology as for dairy products from bovine milk can result in processing difficulties and products of inferior quality. However, scientific evidence points to the possibility of transforming camel milk into products by optimization of the processing parameters. Additionally, camel milk has traditionally been used for its medicinal values and recent scientific studies confirm that it is a rich source of bioactive, antimicrobial, and antioxidant substances. The current literature concerning product design and functional potential of camel milk is fragmented in terms of time, place, and depth of the research. Therefore, it is essential to understand the fundamental features of camel milk and initiate detailed multidisciplinary research to fully explore and utilize its functional and technological properties.
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Organisations: National Food Institute, Research Group for Microbial Food Safety
Authors: Hansen, T. B. (ed.) (Intern), Aabo, S. (ed.) (Intern)
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Protein from green biomass as a food resource

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Authors: Nørgaard, D. S. (Intern), Duvier Stærmose, M. (Ekstern), Bang-Berthelsen, C. H. (Intern), Jensen, P. R. (Intern)
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Protein-polysaccharide Mixtures as Wall Material in Fish Oil-loaded Nano-microcapsules Obtained by Electrospraying

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QSAR development and profiling of 72,524 REACH substances for PXR activation and CYP3A4 induction

The Pregnane X Receptor (PXR) is a key regulator of enzymes, for example the cytochrome P450 isoform 3A4 (CYP3A4), and transporters involved in the metabolism and excretion of xenobiotics and endogenous compounds. Activation of PXR by xenobiotics causes altered protein expression leading to enhanced or decreased turnover of both xenobiotics and endogenous compounds. This can potentially result in perturbations of normal physiology and adverse effects. Identification of PXR activating and CYP3A4 inducing compounds is included in drug-discovery programs but we still need similar information for the remaining tens-of-thousands of man-made compounds to which humans are potentially exposed. In the present study, we used high-throughput in vitro assay results for 2816 drugs to develop four quantitative structure-activity relationship (QSAR) models with binary outputs for binding to the human PXR ligand binding domain, full-length human and rat PXR activation and human CYP3A4 induction, respectively. Rigorous cross- and blinded external validations demonstrated four robust and highly predictive models with balanced accuracies ranging from 75.4% to 92.7%. The models were applied to screen 72,524 substances pre-registered under the EU chemicals regulation, REACH, and the models could predict 52.6% to 71.9% of the substances within their respective applicability domains. These predictions can, for example, be used for priority setting and in weight-of-evidence assessments of chemicals. Statistical analyses of the experimental drug dataset and the QSAR-predicted set of REACH substances were performed to identify similarities and differences in frequencies of overlapping positive results for PXR binding, PXR activation and CYP3A4 induction between the two datasets.
QSAR Models for Thyroperoxidase Inhibition and Screening of U.S. and EU Chemical Inventories

Thyroperoxidase (TPO) is the enzyme that synthesizes thyroid hormones (THs). TPO inhibition by chemicals can result in decreased TH levels and developmental neurotoxicity, and therefore identification of TPO inhibition is of high relevance in safety evaluation of chemicals. In the present study, we developed two global quantitative structure-activity relationship (QSAR) models for TPO inhibition in vitro. Rigorous cross- and blinded external validations demonstrated that the first model, QSAR1, built from a training set of 877 chemicals, was robust and highly predictive with balanced accuracies of 80.6% (SD = 4.6%) and 85.3%, respectively. The external validation test set was subsequently merged with the training set to constitute a larger training set totaling 1,519 chemicals for a second model, QSAR2, which underwent robust cross-validation with a balanced accuracy of 82.7% (SD = 2.2%). An analysis of QSAR2 identified the ten most discriminating structural features for TPO inhibition and non-inhibition, respectively. Both models were used to screen 72,524 REACH substances and 32,197 U.S. EPA substances, and QSAR2 with the expanded training set had an approximately 10% larger coverage compared to QSAR1. Of the substances predicted within QSAR2's applicability domain, 8,790 (19.3%) REACH substances and 7,166 (19.0%) U.S. EPA substances, respectively, were predicted to be TPO inhibitors. A case study on butyl hydroxyanisole (BHA), which is extensively used as an antioxidant, was included to exemplify how predictions from the developed QSAR2 model may aid in elucidating the modes of action in adverse outcomes of chemicals. Overall, predictions from QSAR2 can for example be used in priority setting of chemicals and in read-across cases or weight-of-evidence assessments.
Quality changes of Antarctic krill powder during long term storage

Krill is a valuable sustainable resource of omega-3 fatty acids and protein, which may be processed into a krill powder for human consumption. The objective of this study was to investigate the stability of krill powder when stored for up to 12 months at room temperature. In addition, the effect of packaging in vacuum was observed. The stability was assessed by changes in concentrations of lipid classes, antioxidants, pyrroles and lipid, and Strecker-derived volatiles. Some degradation occurred during storage at room temperature. Thus, a minor increase in volatiles, an increase in free fatty acids and a concomitant decrease in antioxidants, tocopherol, and astaxanthin was observed. In addition, there was a minor decrease in phospholipids and n-3 fatty acids; however, storage at vacuum improved the oxidative stability of krill powder.

Practical applications: For the use of krill powder in human nutrition, it is important, that the quality and stability is sufficiently high to retain the nutritional value during storage. This study contributes with information about the stability during storage up to 12 months at room temperature and the effect of packaging the powder in vacuum.

Antarctic krill (Euphausia superba) is a shrimp-like marine crustacean. It is rich in omega-3 fatty acids, primarily bound in phospholipids in the sn-2 position of the molecule, making it highly bioavailable. Krill may be processed into powder also rich in protein and astaxanthin. Stability of krill powder, stored for up to 12 months at room temperature, showed slight lipid oxidation.

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Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Rimfrost AS
Authors: Nielsen, N. S. (Intern), Lu, H. F. S. (Intern), Bruheim, I. (Ekstern), Jacobsen, C. (Intern)
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Quantitative assessment of human exposure to extended spectrum and AmpC β-lactamases bearing E. coli in lettuce attributable to irrigation water and subsequent horizontal gene transfer

The contribution of the fresh produce production environment to human exposure with bacteria bearing extended spectrum β-lactamases and AmpC β-lactamases (ESBL/AmpC) has not been reported. High prevalence of ESBLs/AmpC bearing E. coli as well as a high gene transfer efficiency of lettuce and irrigation water E. coli isolates was previously reported. This stochastic modeling was aimed at quantitatively assessing human exposure to ESBL/AmpC bearing E. coli through lettuce attributable to irrigation water and subsequent horizontal gene transfer. Modular process risk approach was used for the quantitative exposure assessment and models were constructed in Ms. Excel spreadsheet with farm to consumption chain accounted for by primary production, processing, retail and consumer storage. Probability distributions were utilised to take into account the variability of the exposure estimates. Exposure resulting from ESBL/AmpC positive E. coli and gene transfer was taken into account. Monte Carlo simulation was carried out using @Risk software followed by sensitivity and scenario analysis to assess most effective single or combinations of mitigation strategies for the ESBL/AmpC positive E. coli events from farm to fork. Three percent of South African lettuce consumers are exposed to lettuce contaminated with about 10(6.4)±10(6.7) (95% CI: 10(5.1)-10(7)) cfu of ESBL/AmpC positive E. coli per serving. The contribution of originally positive isolates and conjugative genetic transfer was 10(6)±10(6.7) (95% CI: 10(5)-10(7)) and 10(5.2)±10(5.6) (95% CI: 10(3.9)-10(5.8)) cfu per serving respectively. Proportion of ESBL/AmpC positive E. coli (Spearman’s correlation coefficient (ρ)=0.85), conjugative gene transfer (ρ=0.05-0.14), washing in chlorine water (ρ=0.18), further rinsing (ρ=0.15), and prevalence of E. coli in irrigation water (ρ=0.16) had highest influence on consumer exposure. The most effective single methods in reducing consumer exposure were reduction in irrigation water microbial quality variation (87.4% reduction), storage period (49.9-87.4% reduction) and growth rate reduction by 75% (90% reduction). Reduction in growth rate together with storage time (92.1-99.4%) and reduction in storage time combined with E. coli concentration in irrigation water (95-96% reduction) were most effective combinations of mitigation measures. The high variation in exposure reflected the high irrigation water quality variation. The exposure levels may impose higher consumer risk than acceptable for irrigation water risk. E. coli contamination and growth related measures, as well as measures to reduce contamination with antimicrobial resistant E. coli from lettuce production environment are recommended. This exposure model could form a basis for the development of similar models assessing the impact of contaminated irrigation water and gene transfer in other microbial hazards, antimicrobial resistance types and fresh produce types.
Dry fermented sausage (salami) is a very popular ready-to-eat product in Southern Brazil, of which the raw materials can be contaminated with pathogens such as Salmonella. This product can put consumers at risk if a failure occurs during the manufacturing process. To investigate this risk, a quantitative microbiological risk assessment was performed. The objective was to assess the impact of Salmonella inactivation during the process of fermenting and drying and the distribution of the bacteria in minced pork used in Italian-Style salami on the consumer health risk, using a modular process risk model (MPRM) approach. A total of 405 scenarios were tested combining five scenarios for sausage fermentation, three maturation times (12, 15, and 24 days), nine scenarios for prevalence and concentrations of Salmonella on pork carcasses, and three scenarios for clustering of cells (homogeneous and heterogeneous). In general, it was observed that the mean exposure to Salmonella due to ingestion of a portion of contaminated salami was very low; “zero risks” (with no cases of salmonellosis among 100,000 consumed portions of salami) were found in 65% of the scenarios (265/405) assessed and low risks were found in the other 35% of the scenarios (140/405). Low risks were observed in all scenarios that included 24 days of maturation (0 to 9.8 × 10⁻⁹; n = 135 scenarios) or ≥2.2 log reduction at any stage of the process (0 to 3 Å—10⁻⁹; n = 189 scenarios). According to the model, 134 of the 135 scenarios presenting log reduction greater than 3.3 during maturation reduced the mean risk to zero. The most important variables, increasing the risk, were lack of fermentation, short maturation period (12 days), and high concentration of Salmonella on the carcass. On the contrary, a negative association (indicating a decreased risk) was observed when 24 days of maturation is applied and or with good fermentation process. If a realistic heterogeneous distribution of bacteria over the sausages is assumed instead of homogeneous distribution, the estimated risk is larger. Although in general the mean risks found here were low, selling dry fermented sausage before complete maturation of the product and failure in fermentation can pose a risk to the consumers from the studied region. It was found that a maturation period of 24 days can be considered safe, even in a situation with high initial levels of contamination.
Recycling of plastic waste: Screening for brominated flame retardants (BFRs)

Flame retardants are chemicals vital for reducing risks of fire and preventing human casualties and property losses. Due to the abundance, low cost and high performance of bromine, brominated flame retardants (BFRs) have had a significant share of the market for years. Physical stability on the other hand, has resulted in dispersion and accumulation of selected BFRs in the environment and receiving biota. A wide range of plastic products may contain BFRs. This affects the quality of waste plastics as secondary resource: material recycling may potentially reintroduce the BFRs into new plastic product cycles and lead to increased exposure levels, e.g. through use of plastic packaging materials. To provide quantitative and qualitative data on presence of BFRs in plastics, we analysed bromophenols (tetrabromobisphenol A (TBBPA), dibromophenols (2,4- and 2,6-DBP) and 2,4,6-tribromophenol (2,4,6-TBP)), hexabromocyclododecane stereoisomers (α-, β- and γ-HBCD), as well as selected polybrominated diphenyl ethers (PBDEs) in samples of household waste plastics, virgin and recycled plastics. A considerable number of samples contained BFRs, with highest concentrations associated with acrylonitrile butadiene styrene (ABS, up to 26,000,000 ng TBBPA/g) and polystyrene (PS, up to 330,000 ng ΣHBCD/g). Abundance in low concentrations of some BFRs in plastic samples suggested either unintended addition in plastic products or degradation of higher molecular weight BFRs. The presence of currently restricted flame retardants (PBDEs and HBCD) identified in the plastic samples illustrates that circular material flows may be contaminated for extended periods. The screening clearly showed a need for improved documentation and monitoring of the presence of BFRs in plastic waste routed to recycling.

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Authors: Boriani, E. (Intern), Piekke, E. N. (Intern), Hald, T. (Intern), Pires, S. M. (Intern), Boberg, J. (Intern), Jakobsen, L. S. (Intern)
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Recycling of plastic waste: Screening for brominated flame retardants (BFRs)

Flame retardants are chemicals vital for reducing risks of fire and preventing human casualties and property losses. Due to the abundance, low cost and high performance of bromine, brominated flame retardants (BFRs) have had a significant share of the market for years. Physical stability on the other hand, has resulted in dispersion and accumulation of selected BFRs in the environment and receiving biota. A wide range of plastic products may contain BFRs. This affects the quality of waste plastics as secondary resource: material recycling may potentially reintroduce the BFRs into new plastic product cycles and lead to increased exposure levels, e.g. through use of plastic packaging materials. To provide quantitative and qualitative data on presence of BFRs in plastics, we analysed bromophenols (tetrabromobisphenol A (TBBPA), dibromophenols (2,4- and 2,6-DBP) and 2,4,6-tribromophenol (2,4,6-TBP)), hexabromocyclododecane stereoisomers (α-, β- and γ-HBCD), as well as selected polybrominated diphenyl ethers (PBDEs) in samples of household waste plastics, virgin and recycled plastics. A considerable number of samples contained BFRs, with highest concentrations associated with acrylonitrile butadiene styrene (ABS, up to 26,000,000 ng TBBPA/g) and polystyrene (PS, up to 330,000 ng ΣHBCD/g). Abundance in low concentrations of some BFRs in plastic samples suggested either unintended addition in plastic products or degradation of higher molecular weight BFRs. The presence of currently restricted flame retardants (PBDEs and HBCD) identified in the plastic samples illustrates that circular material flows may be contaminated for extended periods. The screening clearly showed a need for improved documentation and monitoring of the presence of BFRs in plastic waste routed to recycling.

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Organisations: Department of Environmental Engineering, Residual Resource Engineering, National Food Institute, Research Group for Analytical Food Chemistry, Environmental Chemistry
Authors: Pivnenko, K. (Intern), Granby, K. (Intern), Eriksson, E. (Intern), Astrup, T. F. (Intern)
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Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Waste Management
Volume: 69
ISSN (Print): 0956-053X
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SJR 1.456 SNIP 2.059
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 4 SJR 1.407 SNIP 2.159
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Reduction of Escherichia coli, Salmonella Enteritidis and Campylobacter jejuni in poultry manure by rearing of Musca domestica fly larvae

A major barrier for using animal waste as substrate for production of insects for feed or food is the concern for safety of the end products. In this study we investigated how rearing of fly larvae of Musca domestica in poultry manure influenced the counts of three pathogenic test strains (Escherichia coli, Salmonella Enteritidis and Campylobacter jejuni) and investigated whether these were transferred from manure to larvae, pupae or adults flies. We monitored quantitative microbiological changes over a study period of seven days. We showed that the decay in the numbers of E. coli, S. Enteritidis, and C. jejuni was faster in manure with rearing of fly larvae than in manure without larvae; an 8 log10 reduction
of all three test bacteria was observed within four days in manure with larvae; compared to manure without larvae where a 1 to 2 log10 was observed. We found no sign of propagation of the pathogens in the larvae gut. All test strains were detectable in low numbers at day 4 in the larvae gut but only C. jejuni survived until day 7. In the pupae, only S. Enteritidis was detectable at day 3, and no test strains were found later than day 3. None of the test strain was isolated from adult flies. The total aerobic bacterial count remained at a high level throughout the study both in manure, in larvae and in pupae. In conclusion, our results showed that elimination of the pathogens from the manure was accelerated by larvae rearing, but were still detectable at low number in the larvae gut until end of the larvae stage. This study provides data for evaluation of feed safety of fly larvae reared on animal waste. Furthermore suggests a potential use for reduction of these pathogens in manure.

General information
State: Published
Organisations: National Food Institute, Danish Technological Institute
Authors: Nordentoft, S. (Intern), Fischer, C. (Ekstern), Bjerrum, L. (Ekstern), Heckmann, L. H. (Ekstern), Hald, B. (Intern)
Number of pages: 9
Pages: 145-153
Publication date: 2017
Main Research Area: Technical/natural sciences

Report on collaborative trial: Animal feedingstuffs – Determination of iodine in animal feed by ICPMS

General information
State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science
Authors: Sloth, J. J. (Intern)
Number of pages: 28
Publication date: 2017

Publication information
Place of publication: Søborg
Publisher: National Food Institute, Technical University of Denmark
Original language: English
Main Research Area: Technical/natural sciences
Electronic versions:
Report_on_collaborative_trial_determination_of_iodine_in_animal_feed_by_ICPMS_1_1_.pdf
Publication: Commissioned › Report – Annual report year: 2017
Results from the Danish monitoring programme for pesticide residues from the period 2004–2011

The Danish pesticide residue monitoring programme evaluates compliance with the maximum residue levels established by the EU and monitors the residue levels in foods to enable an evaluation of the exposure of the Danish population to pesticides. The latter part of the programme included 25 different fruits, vegetables and cereals and processed foods. The commodities were chosen based on their contribution to the intake of pesticides in the Danish population. A total of 17,309 samples were collected during 2004–2011. The monitoring showed that the frequencies of pesticides were higher in samples of foreign origin than in samples of Danish origin both for samples with residues above or below the MRLs. Overall, pesticide residues were more frequently found in fruits and vegetables than the other groups of commodities; fruits had higher frequencies than vegetables. Residues above the MRLs were found in 2.6% of the samples. In plant commodities, 163 different substances were found in measurable concentrations. Residues of more than one pesticide (multiple residues) were found in 27% of all samples. A comparison of the frequencies of pesticide residues in commodities from different countries showed that Danish commodities with a lower frequency of pesticides.

General information
State: Published
Organisations: National Food Institute, Research Group for Analytical Food Chemistry, Division of Risk Assessment and Nutrition
Authors: Poulsen, M. E. (Intern), Andersen, J. H. (Intern), Petersen, A. (Intern), Jensen, B. H. (Intern)
Number of pages: 9
Pages: 25-33
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Food Control
Volume: 74
ISSN (Print): 0956-7135
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SJR 1.502 SNIP 1.69
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.86 SJR 1.492 SNIP 1.709
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.498 SNIP 1.73 CiteScore 3.65
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.38 SNIP 1.717 CiteScore 3.27
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.278 SNIP 1.728 CiteScore 3.14
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.245 SNIP 1.931 CiteScore 3.1
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.209 SNIP 1.723 CiteScore 2.9
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.23 SNIP 1.708
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.213 SNIP 1.691
Results of an interlaboratory method performance study for the size determination and quantification of silver nanoparticles in chicken meat by single-particle inductively coupled plasma mass spectrometry (sp-ICP-MS)

Single-particle inductively coupled plasma mass spectrometry (sp-ICP-MS) promises fast and selective determination of nanoparticle size and number concentrations. While several studies on practical applications have been published, data on formal, especially interlaboratory validation of sp-ICP-MS, is sparse. An international interlaboratory study was organized to determine repeatability and reproducibility of the determination of the median particle size and particle number concentration of Ag nanoparticles (AgNPs) in chicken meat. Ten laboratories from the European Union, the USA, and Canada determined particle size and particle number concentration of two chicken meat homogenates spiked with polyvinylpyrrolidone (PVP)-stabilized AgNPs. For the determination of the median particle diameter, repeatability standard deviations of 2 and 5% were determined, and reproducibility standard deviations were 15 and 25%, respectively. The equivalent median diameter itself was approximately 60% larger than the diameter of the particles in the spiking solution. Determination of the particle number concentration was significantly less precise, with repeatability standard deviations of 7 and 18% and reproducibility standard deviations of 70 and 90%.

General information
State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science, Wageningen University, European Commission
Authors: Weigel, S. (Ekstern), Peters, R. J. (Ekstern), Löschner, K. (Intern), Grombe, R. (Ekstern), Linsinger, T. P. (Ekstern)
Number of pages: 10
Pages: 4839-4848
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Analytical and Bioanalytical Chemistry
Volume: 409
Issue number: 20
ISSN (Print): 1618-2642
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.921 SJR 0.978
Web of Science (2017): Indexed yes
Re-wiring of energy metabolism promotes viability during hyperreplication stress in E. coli

Chromosome replication in Escherichia coli is initiated by DnaA. DnaA binds ATP which is essential for formation of a DnaA-oriC nucleoprotein complex that promotes strand opening, helicase loading and replisome assembly. Following initiation, DnaAATP is converted to DnaAADP primarily by the Regulatory Inactivation of DnaA process (RIDA). In RIDA deficient cells, DnaAADP accumulates leading to uncontrolled initiation of replication and cell death by accumulation of DNA strand breaks. Mutations that suppress RIDA deficiency either dampen overinitiation or permit growth despite
overinitiation. We characterize mutations of the last group that have in common that distinct metabolic routes are rewired resulting in the redirection of electron flow towards the cytochrome bd-1. We propose a model where cytochrome bd-1 lowers the formation of reactive oxygen species and hence oxidative damage to the DNA in general. This increases the processivity of replication forks generated by overinitiation to a level that sustains viability.

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Biotechnology and Biorefining, University of Copenhagen, Bispebjerg-Frederiksberg Hospitals
Authors: Charbon, G. (Ekstern), Campion, C. (Ekstern), Chan, S. H. J. (Intern), Bjørn, L. (Ekstern), Weimann, A. (Ekstern), da Silva, L. (Ekstern), Jensen, P. R. (Intern), Løbner-Olesen, A. (Ekstern)
Number of pages: 26
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: P L o S Genetics
Volume: 13
Issue number: 1
Article number: e1006590
ISSN (Print): 1553-7390
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SJR 4.829 SNIP 1.364
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 5.93 SJR 5.457 SNIP 1.512
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 7.009 SNIP 1.773 CiteScore 7.63
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 7.107 SNIP 1.746 CiteScore 7.74
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 7.403 SNIP 1.907 CiteScore 8.17
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 7.415 SNIP 1.852 CiteScore 7.53
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 8.111 SNIP 1.715
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 5.762 SNIP 1.446
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 5.063 SNIP 1.164
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 4.875 SNIP 1.169
Scopus rating (2006): SJR 3.979 SNIP 0.917
Web of Science (2006): Indexed yes
Rheological properties of agar and carrageenan from Ghanaian red seaweeds

Red seaweeds contain unique galactose-rich hydrocolloids, carrageenans and agar, which find use as gelling agents in high value applications. This study examined the chemical and rheological properties of hydrocolloids from selected wild red seaweed species collected in Ghana: Hypnea musciformis and Cryptonemia crenulata, expected to hold carrageenan, contained 21–26% by weight of galactose. A commercial Kappaphycus alvarezi carrageenan sample had 30% galactose residues by weight. Hydropuntia dentata, expected to contain agar, contained 15% by weight of galactose-monomers. Fourier transform infrared spectroscopy (FTIR) analysis on the hydrocolloids extracted from H. musciformis (and K. alvarezi) indicated κ-carrageenan, C. crenulata hydrocolloids were mainly ι-carrageenan, and the H. dentata hydrocolloids were agar. Gelling temperatures ranged from 32 to 36 °C for the κ-carrageenan hydrocolloid samples. The ι-carrageenan and agar samples had gelling temperatures of 70–74 °C and 38–52 °C, respectively. Gel strengths, G’ at 25 °C, of carrageenan samples extracted via alkali-treatment were 4000–6500 Pa. The agar gel strength was 287 Pa. The rheological properties of the H. musciformis κ-carrageenans were comparable with κ-carrageenan from K. alvarezi, whereas the H. dentata agar properties were different from those of a commercial agar sample. This work shows that certain red seaweed species in Ghana contain hydrocolloids with desirable properties for high value applications.

General information
State: Published
Organisations: Department of Chemical and Biochemical Engineering, Center for BioProcess Engineering, National Food Institute, Research Group for Nano-Bio Science, The Danish Polymer Centre
Authors: Rhein-Knudsen, N. (Intern), Ale, M. T. (Intern), Ajalloueian, F. (Intern), Yu, L. (Intern), Meyer, A. S. (Intern)
Pages: 50-58
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Food Hydrocolloids
Volume: 63
ISSN (Print): 0268-005X
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 1.892 SJR 1.991
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 5.1 SJR 2.03 SNIP 2.045
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.802 SNIP 1.924 CiteScore 4.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.232 SNIP 2.554 CiteScore 5.21
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.098 SNIP 2.256 CiteScore 4.81
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.837 SNIP 2.06 CiteScore 3.69
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.618 SNIP 1.911 CiteScore 3.57
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 1.759 SNIP 1.519
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.762 SNIP 1.786
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 1.484 SNIP 1.651
Scopus rating (2007): SJR 1.574 SNIP 1.716
Scopus rating (2006): SJR 1.272 SNIP 1.624
Scopus rating (2005): SJR 1.019 SNIP 1.39
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 1.068 SNIP 1.397
Scopus rating (2003): SJR 1.01 SNIP 1.497
Scopus rating (2002): SJR 1.051 SNIP 1.243
Scopus rating (2001): SJR 0.7 SNIP 0.901
Scopus rating (2000): SJR 0.801 SNIP 1.259
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 0.822 SNIP 1.146
Original language: English
Gelling temperature, Hydrocolloids, Red seaweeds, Rheology
DOI:
10.1016/j.foodhyd.2016.08.023
Source: FindIt
Source-ID: 2328180880
Publication: Research - peer-review › Journal article – Annual report year: 2016

Ringtest for identifikation og resistensbestemmelse af mastitispåtagener 2016

General information
State: Published
Organisations: National Veterinary Institute, Bacteriology & Parasitology, National Food Institute, Division of Risk Assessment and Nutrition
Authors: Astrup, L. B. (Intern), Pedersen, K. (Intern), Trojanova, L. (Intern), Butters, J. (Intern), Larsen, H. K. D. (Intern)
Number of pages: 15
Publication date: 2017

Publication information
Place of publication: Frederiksberg C
Publisher: DTU Veterinærinstituttet
Original language: Danish
Main Research Area: Technical/natural sciences
Electronic versions:
Matitis_ringtest_rapport_2016_WEB.pdf
Source: PublicationPreSubmission
Source-ID: 129445252
Publication: Commissioned › Report – Annual report year: 2017

Risikovurdering af bog (frugten fra bøgetræet) som fødevarer

General information
State: Published
Organisations: National Food Institute, Research Group for Risk-Benefit, Division of Risk Assessment and Nutrition
Authors: Pilegaard, K. (Intern), Eriksen, F. D. (Intern), Ravn-Haren, G. (Intern), Egebjer, M. M. (Intern), Olesen, P. T. (Intern)
Pages: 1-5
Risk assessment of methylmercury in five European countries considering the national seafood consumption patterns

Although seafood is a nutritious protein source, due to marine environmental pollution, seafood may also be a source of contaminants. The results obtained within the FP7-ECsafeSEAFOOD-project show that among the range of studied environmental contaminants certainly methylmercury (MeHg) requires deeper investigation. This paper presents the results of a probabilistic risk assessment for MeHg based on: (1) primary concentration data, as well as secondary data from published papers, and (2) primary species-specific consumption data collected in five European countries (Belgium, Ireland, Italy, Portugal and Spain). The results indicated that in the southern European countries, larger subgroups of the population (up to 11% in Portugal) are potentially at risk for a MeHg exposure above the Tolerable Weekly Intake (TWI) value, while this risk is much lower in Ireland and Belgium. This research confirms the substantial contribution of tuna to MeHg exposure in each of the countries. Also hake, cod, sea bream, sea bass and octopus are identified as important contributors. From this study, it is concluded that a country-specific seafood consumption advice is needed. Policy makers may adopt the results of this study in order to develop consumer advices that optimise health benefits versus potential health risks by providing species-specific information.
The European Food Safety Authority (EFSA) established an Emerging Risks Exchange Network (EREN) to exchange information between EFSA and the Member states (MSs) on possible emerging risks for food and feed safety in 2010. The Network is composed of delegates from MSs and Norway designated through the Advisory Forum of EFSA and observers from the European Commission, EU pre-accession countries, the Food and Drug Administration of the USA and the Food and Agricultural Organisation of the United Nations. Through 2010 to 2014, the EREN met 12 times. The EREN discussed a total of 63 signals of potential emerging issues that were presented and assessed using a standard template developed by the Emerging Risks unit of EFSA (EMRISK). Out of these signals, 39 originated from EFSA, 24 from MSs. The issues discussed were mainly microbiological and chemical hazards, but also food safety issues as result of illegal activity, new consumer consumption trends, biotoxins, new technologies and processes, allergens, animal health, environmental pollution, new analytical methods, new food packaging technology and unknown hazards were on the agenda. Based on the available evidence, EREN recommended whether an issue should be considered emerging or not, and if it merited further consideration, such as generating data on the issue, starting a full risk assessment and/or consultation of other bodies. According to the emerging risks identification process set in place at EFSA, the issues discussed and found of relevance by EREN were sent to the EFSA's Scientific Committee Standing Working Group on Emerging Risks for final evaluation. With four case studies, i.e. the zoonotic potential of Usutu virus, risk of ciguatera fish poisoning in EU, zoonotic aspects of illegally imported wildlife products and benefits and risks of 3D food printing, the method developed to preliminary assess signals of potential emerging issues is presented and discussed.
General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition
Pages: 255-264
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Food Control
Volume: 73
Issue number: Part B
ISSN (Print): 0956-7135
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SJR 1.502 SNIP 1.69
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.86 SJR 1.492 SNIP 1.709
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.498 SNIP 1.73 CiteScore 3.65
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.38 SNIP 1.717 CiteScore 3.27
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.278 SNIP 1.728 CiteScore 3.14
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.245 SNIP 1.931 CiteScore 3.1
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.209 SNIP 1.723 CiteScore 2.9
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.23 SNIP 1.708
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.213 SNIP 1.691
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 1.076 SNIP 1.44
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.9 SNIP 1.558
Web of Science (2007): Indexed yes
Risk to public health from using of pleuromutilin in pigs

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Danish Agriculture and Food Council, Danish Association of the Veterinary Pharmaceutical Industry, State Serum Institute
Authors: Ellis-Iversen, J. (Intern), Alban, L. (Ekstern), Andreasen, M. (Ekstern), Dahl, J. (Ekstern), Wolff Sönksen, U. (Ekstern)
Number of pages: 1
Publication date: 2017
Event: Poster session presented at Joint International Symposium, Berlin, Germany.
Main Research Area: Technical/natural sciences

Role of Sample Processing Strategies at the European Union National Reference Laboratories (NRLs) Concerning the Analysis of Pesticide Residues
The guidance document SANTE 11945/2015 recommends that cereal samples be milled to a particle size preferably smaller than 1.0 mm and that extensive heating of the samples should be avoided. The aim of the present study was therefore to investigate the differences in milling procedures, obtained particle size distributions, and the resulting pesticide residue recovery when cereal samples were milled at the European Union National Reference Laboratories (NRLs) with their routine milling procedures. A total of 23 NRLs participated in the study. The oat and rye samples milled by each NRL were sent to the European Union Reference Laboratory on Cereals and Feedingstuff (EURL) for the determination of the particle size distribution and pesticide residue recovery. The results showed that the NRLs used several different brands and types of mills. Large variations in the particle size distributions and pesticide extraction efficiencies were observed even between samples milled by the same type of mill.

General information
State: Published
Organisations: National Food Institute, Research Group for Analytical Food Chemistry
Authors: Hajeb, P. (Intern), Herrmann, S. S. (Intern), Poulsen, M. E. (Intern)
Number of pages: 9
Pages: 5759-5767
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Agricultural and Food Chemistry
Volume: 65
Issue number: 28
Safe food production in Greenland

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Research Group for Analytical and Predictive Microbiology
Authors: Kreissig, K. J. (Intern)
Number of pages: 1
Publication date: 2017
Event: Poster session presented at Life Science Complex, Kgs. Lyngby, Denmark.
Main Research Area: Technical/natural sciences
Electronic versions:
Poster_Inauguration_life_science_complex_2017_final.pdf
Source: PublicationPreSubmission
Source-ID: 140632081
Publication: Communication › Poster – Annual report year: 2017

Safety assessment of contaminants of emerging concern in seafood: Contributions of the ECsafeSEAFOOD project

General information
State: Published
Organisations: National Food Institute, Research Group for Analytical Food Chemistry
Authors: Marques, A. T. (Ekstern), Rodríguez-Mozaz, S. (Ekstern), Granby, K. (Intern)
Pages: 1-2
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Food and Chemical Toxicology
Volume: 104
ISSN (Print): 0278-6915
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SJR 1.144 SNIP 1.427
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.96 SJR 1.351 SNIP 1.58
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.202 SNIP 1.415 CiteScore 3.44
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.038 SNIP 1.369 CiteScore 3.12
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.02 SNIP 1.506 CiteScore 3.26
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
Samspillet mellem kost og tarmbakterier

**General information**

State: Published  
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology  
Authors: Roager, H. M. (Intern)  
Pages: 6-8  
Publication date: 2017  
Main Research Area: Technical/natural sciences

**Publication information**

Journal: Miljø og sundhed  
Volume: 23  
Issue number: Suppl. 1  
ISSN (Print): 1601-4146  
Ratings:  
ISI indexed (2013): ISI indexed no  
ISI indexed (2012): ISI indexed no  
ISI indexed (2011): ISI indexed no

BFI (2012): BFI-level 1  
Scopus rating (2012): SJR 1.126 SNIP 1.748 CiteScore 3.52  
ISI indexed (2012): ISI indexed yes  
Web of Science (2012): Indexed yes  
BFI (2011): BFI-level 1  
Scopus rating (2011): SJR 1.124 SNIP 1.58 CiteScore 3.36  
ISI indexed (2011): ISI indexed yes  
Web of Science (2011): Indexed yes  
BFI (2010): BFI-level 1  
Scopus rating (2010): SJR 0.93 SNIP 1.221  
BFI (2009): BFI-level 1  
Scopus rating (2009): SJR 0.833 SNIP 1.056  
Web of Science (2009): Indexed yes  
BFI (2008): BFI-level 2  
Scopus rating (2008): SJR 0.771 SNIP 1.163  
Web of Science (2008): Indexed yes  
Scopus rating (2007): SJR 0.803 SNIP 1.441  
Web of Science (2007): Indexed yes  
Scopus rating (2006): SJR 0.884 SNIP 1.379  
Web of Science (2006): Indexed yes  
Scopus rating (2005): SJR 0.897 SNIP 1.205  
Scopus rating (2004): SJR 0.877 SNIP 1.196  
Web of Science (2004): Indexed yes  
Scopus rating (2003): SJR 0.688 SNIP 1.038  
Web of Science (2003): Indexed yes  
Scopus rating (2002): SJR 0.608 SNIP 1.125  
Web of Science (2002): Indexed yes  
Scopus rating (2001): SJR 0.573 SNIP 0.985  
Scopus rating (2000): SJR 0.506 SNIP 0.889  
Web of Science (2000): Indexed yes  
Scopus rating (1999): SJR 0.493 SNIP 0.963  
Original language: English  
DOIs:  
10.1016/j.fct.2017.03.007  
Source: FindIt  
Source-ID: 2355477081  
Publication: Research - peer-review › Journal article – Annual report year: 2017
Sanitary survey af produktionsområder i Løgstør Bredning

According to the Regulation for food products of animal origin (Europa Parlamentets og Rådets Forordning (EF) Nr. 854), microbiological classification of production areas for live bivalve mollusks etc. and the associated sampling plan are required to be based on a so-called ‘sanitary surveys’. A sanitary survey is an assessment of the interactions between potential sources of microbial pollution, climate conditions and oceanography in the area. The EU Commission guidance for making a sanitary survey formed the basis for this report. However, in certain cases, the Danish practice for microbiological sampling frequency and classification made previously on the basis of this, as described in ‘muslingebekendtgørelsen’ is summarized in Appendix 13. The report covers production areas (P)16, P33, P34, P35, P36, P37, P38 and P39 in Løgstør Broads. These production areas coincide currently with the algae area A6. For editorial reasons, the production areas are regarded under one term “Løgstør Broads”, knowing that the production areas also include other bordering geographical areas. The covered production areas within Løgstør Broads are marked as A6. The report recommends a microbiological sampling plan consisting of recommended selected sampling points and sampling frequencies for individual production areas. It is further discussed whether merging of production areas into fewer production areas could be considered in the future. This merge would then reduce the number of sampling points, without compromising food safety. The report is supported by public accessible data from monitoring of microbiological contamination in Løgstør Broads, where the concentration of E. coli is determined in samples of mussels, etc. taken at fixed sampling points. The Danish monitoring of production areas for live bivalve mollusks offers generally a solid set of historical data of E. coli concentrations in clams etc. collected from the positions where mussels have been harvested in the past in Løgstør Broads. The key data set used is the classification of production areas based on samples taken during the past 10 years (2007-2016). Within this data set, 99.2 % of a total of 908 samples contain E. coli A level (<230 E. coli/100 g), and 0 % of a total of 350 samples contain Salmonella. In summary, the sanitary survey of Legstør Broads identifies an area that in general is a microbial homogeneous, stable and microbiologically clean area, and only rare occurrence of critical microbial contamination were found.

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Sanitary survey rapport 2: Nissum Bredning

According to regulation (EC) No 854/2004 of the European Parliament and of the Council of 29 April 2004 laying down specific rules for the organisation of official controls on products of animal origin intended for human consumption, classification of production areas for live bivalve mollusks etc. and the associated sampling plan are required to be based on so-called ‘sanitary surveys’. A sanitary survey is an assessment of the interactions between potential sources of microbial pollution, climate conditions and oceanography in the area. The EU Commission guidance for making a sanitary survey formed the basis for this report. However, in certain cases, the Danish practice for microbiological sampling frequency and classification made previously on the basis of this, as described in ‘muslingebekendtgørelsen’ is summarized in Appendix 13.

The report covers production areas P1, P2, P3 and P4 within Nissum Broads. These production areas coincide currently with the algae monitoring area A1. For editorial reasons, the production areas are regarded under one term as ‘Nissum Broads’, acknowledging that the four production areas only include a proportion of Nissum Broads. The covered production areas within Nissum Broads are marked as A1 on the maps in this report.
The report recommends a microbiological sampling plan consisting of recommended selected sampling points and sampling frequencies for individual production areas. It is further discussed whether merging of production areas into fewer production areas could be considered in the future. This merge would then reduce the number of sampling points, without compromising food safety.

The report is supported by public available data from monitoring of microbiological contamination in Nissum Broads, where the concentration of E. coli is determined in samples of mussels, etc. taken at different sampling points within each area. The report points to the most precautionary fixed sampling points for future monitoring.

In summary, the sanitary survey of Nissum Broads identifies an area that in general is a microbial homogeneous, stable and microbiologically clean area, and only rare occurrences of critical microbial contamination were found.

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Sanitary survey rapport 4: Lillebælt og det Sydfynske Øhav
Denne sanitary survey vurderer de potentielle mikrobiologiske forureningskilder, der kan have betydning for muslingeproduktionen i Lillebælt og det Sydfynske Øhav. Lillebælt og det Sydfynske Øhav er underopdelt i 11 produktionsområder, der er vurderet hver for sig. Bakterien E. coli er anvendt som indikator for mikrobiologisk forurening. I en række appendikser er der beskrevet potentielle kilder til mikrobiologisk forurening og muligheden for spredning eller nedbrydning af eventuel forurening ud fra de fysiske forhold i området. Hvert appendiksk afsluttes med en kort konklusion. Datagrundlaget for rapporten er offentligt tilgængelige data og omfatter statistiske kilder for husdyr, landbrug, datakilder fra tilgrænsende kommuner samt data fra muslingefiskeriet egenkontrol og myndighedernes verifikation af denne. Det konkluderes i rapporten, at Lillebælt og det Sydfynske Øhav generelt er karakteriseret ved lave forekomster af E. coli med relativt få observationer af E. coli i kritiske koncentrationer, men de fleste produktionsområder har dog for få prøvetagninger til at opnå en permanent klassificering. Rapporten indeholder forslag til en prøvetagningsplan, som tager udgangspunkt i EU's retningslinjer for monitorering af mikrobiologisk forurening af muslinger m.m.
Scientific Challenges in the Risk Assessment of Food Contact Materials

Food contact articles (FCAs) are manufactured from food contact materials (FCMs) that include plastics, paper, metal, glass, and printing inks. Chemicals can migrate from FCAs into food during storage, processing, and transportation. Food
contact materials' safety is evaluated using chemical risk assessment (RA). Several challenges to the RA of FCAs exist. We review regulatory requirements for RA of FCMs in the United States and Europe, identify gaps in RA, and highlight opportunities for improving the protection of public health. We intend to initiate a discussion in the wider scientific community to enhance the safety of food contact articles. Based on our evaluation of the evidence, we conclude that current regulations are insufficient for addressing chemical exposures from FCAs. RA currently focuses on monomers and additives used in the manufacture of products, but it does not cover all substances formed in the production processes. Several factors hamper effective RA for many FCMs, including a lack of information on chemical identity, inadequate assessment of hazardous properties, and missing exposure data. Companies make decisions about the safety of some food contact chemicals (FCCs) without review by public authorities. Some chemical migration limits cannot be enforced because analytical standards are unavailable. We think that exposures to hazardous substances migrating from FCAs require more attention. We recommend a) limiting the number and types of chemicals authorized for manufacture and b) developing novel approaches for assessing the safety of chemicals in FCAs, including unidentified chemicals that form during or after production. https://doi.org/10.1289/EHP644.

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Scientific opinion on risks for animal health related to the presence of zearalenone and its modified forms in feed

Zearalenone (ZEN), a mycotoxin primarily produced by Fusarium fungi, occurs predominantly in cereal grains. The European Commission asked EFSA for a scientific opinion on the risk to animal health related to ZEN and its modified forms in feed. Modified forms of ZEN occurring in feed include phase I metabolites α-zearalenol (α-ZEL), β-zearalenol (β-ZEL), α-zearalanol (α-ZAL), β-zearalanol (β-ZAL), zearalanone (ZAN) and phase II conjugates. ZEN has oestrogenic activity and the oestrogenic activity of the modified forms of ZEN differs considerably. For ZEN, the EFSA Panel on Contaminants in the Food Chain (CONTAM) established no observed adverse effect levels (NOAELs) for pig (piglets and gilts), poultry (chicken and fattening turkeys), sheep and fish (extrapolated from carp) and lowest observed effect level (LOAEL) for dogs. No reference points could be established for cattle, ducks, goats, horses, rabbits, mink and cats. For modified forms, no reference points could be established for any animal species and relative potency factors previously established from rodents by the CONTAM Panel in 2016 were used. The dietary exposure was estimated on 17,706 analytical results with high proportions of left-censored data (ZEN about 60%, ZAN about 70%, others close to 100%).

Samples for ZEN were collected between 2001 and 2015 in 25 different European countries, whereas samples for the modified forms were collected mostly between 2013 and 2015 from three Member States. Based on exposure estimates, the risk of adverse health effects of feed containing ZEN was considered extremely low for poultry and low for sheep, dog, pig and fish. The same conclusions also apply to the sum of ZEN and its modified forms.

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Scientific Opinion on the appropriateness to set a group health based guidance value for nivalenol and its modified forms

The EFSA Panel on Contaminants in the Food Chain (CONTAM) reviewed new studies on nivalenol since the previous opinion on nivalenol published in 2013, but as no new relevant data were identified the tolerable daily intake (TDI) for nivalenol (NIV) of 1.2 μg/kg body weight (bw) established on bases of immuno- and haematotoxicity in rats was retained. An acute reference dose (ARfD) of 14 μg/kg bw was established based on acute emetic events in mink. The only phase I metabolite of NIV identified is de-epoxy-nivalenol (DE-NIV) and the only phase II metabolite is nivalenol-3-glucoside (NIV3Glc). DE-NIV is devoid of toxic activity and was thus not further considered. NIV3Glc can occur in cereals amounting up to about 50% of NIV. There are no toxicity data on NIV3Glc, but as it can be assumed that it is hydrolysed to NIV in the intestinal tract it should be included in a group TDI and in a group ARfD with NIV. The uncertainty associated with the present assessment is considered as high and it would rather overestimate than underestimate any risk.

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Scientific opinion on the appropriateness to set a group health based guidance value for T2 and HT2 toxin and its modified forms

The EFSA Panel on Contaminants in the Food Chain (CONTAM) established a tolerable daily intake (TDI) for T2 and HT2 of 0.02 μg/kg body weight (bw) per day based on a new in vivo subchronic toxicity study in rats that confirmed that immune- and haematotoxicity are the critical effects of T2 and using a reduction in total leucocyte count as the critical endpoint. An acute reference dose (ARfD) of 0.3 μg for T2/kg bw was established based on acute emetic events in mink. Modified forms of T2 and HT2 identified are phase I metabolites mainly formed through hydrolytic cleavage of one or more of the three ester groups of T2. Less prominent hydroxylation reactions occur predominantly at the side chain. Phase II metabolism involves conjugation with glucose, modified glucose, sulfate, feruloyl and acetyl groups. The few data on occurrence of modified forms indicate that grain products are their main source. The CONTAM Panel found it appropriate to establish a group TDI and a group ARfD for T2 and HT2 and its modified forms. Potency factors relative to T2 for the modified forms were used to account for differences in acute and chronic toxic potencies. It was assumed that conjugates (phase II metabolites of T2, HT2 and their phase I metabolites), which are not toxic per se, would be cleaved releasing their aglycones. These metabolites were assigned the relative potency factors (RPFs) of their respective aglycones. The RPFs assigned to the modified forms were all either 1 or less than 1. The uncertainties associated with the present assessment are considered as high. Using the established group, ARfD and TDI would overestimate any risk of modified T2 and HT2.

General information
Scientific opinion on the assessment of a decontamination process for dioxins and dioxin-like PCBs in fish oil by physical filtration with activated carbon

Following a request from the European Commission, the EFSA Panel on Contaminants in the Food Chain (CONTAM) provided a scientific opinion on the assessment of a decontamination process consisting in the adsorption with activated carbon and physical filtration of fish oil in order to reduce the amount of dioxins (polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs)) and dioxin-like polychlorinated biphenyls (DL-PCBs). All feed decontamination processes must comply with the acceptability criteria specified in the Commission Regulation (EU) 2015/786. The data provided by the feed business operator were assessed with respect to the efficacy of the process and on information demonstrating that the process does not adversely affect the characteristics and the nature of the product. As described in scientific literature, the process was effective in removing PCDD/Fs (84%) and DL-PCBs (55%), and therefore, it is possible to meet the current EU requirements with respect to these contaminants, assuming that the level of contamination of untreated fish oil was within the range of the tested batches. The Panel considered that the reference to information available in published literature was a pragmatic approach to demonstrate that the use of activated carbon adsorption does not lead to any detrimental changes in the nature of the fish oil; however, it was noted that the process could deplete some beneficial constituents (e.g. vitamins). Information was provided to demonstrate the safe disposal of the waste material. The CONTAM Panel concluded that on the basis of the information submitted by the feed business operator the proposed decontamination process to remove dioxins (PCDD/Fs) and DL-PCBs from the fish oil by means of physical filtration with activated carbon, was compliant with the acceptability criteria provided for in Commission Regulation (EU) 2015/786 of 19 May 2015.

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Scientific opinion on the evaluation of substances as acceptable previous cargoes for edible fats and oils

Shipping of edible fats and oils into Europe is permitted in bulk tanks, provided that the previous cargo is included in a positive list. The European Commission requested EFSA to evaluate the acceptability as previous cargoes for fats and oils the substances calcium lignosulphonate, methyl acetate, ethyl tert-butyl ether (ETBE) and ammonium sulphate. The evaluation was based on the same criteria as those used for the evaluation of the substances currently on the list in the Annex to Commission Directive 96/3/EC as acceptable previous cargoes for edible fats and oils. Methyl acetate and ETBE meet the criteria for acceptability as previous cargoes. Due to uncertainties, mainly with regard to the composition and toxicity of the low molecular mass fraction, and the fact that the toxicological database is limited to the 40–65 grade and does not cover all grades of calcium lignosulphonate shipped as previous cargoes, the EFSA Panel on Contaminants in the Food Chain (CONTAM Panel) concluded that calcium lignosulphonate does not meet the criteria for acceptability as a previous cargo. Only food-grade ammonium sulphate meets the criteria for acceptability as a previous cargo due to uncertainties about impurities in other (non-food) grades.

General information

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Scientific opinion on the risks for public health related to the presence of tetrodotoxin (TTX) and TTX analogues in marine bivalves and gastropods

Tetrodotoxin (TTX) and its analogues are produced by marine bacteria and have been detected in marine bivalves and gastropods from European waters. The European Commission asked EFSA for a scientific opinion on the risks to public health related to the presence of TTX and TTX analogues in marine bivalves and gastropods. The Panel on Contaminants in the Food Chain reviewed the available literature but did not find support for the minimum lethal dose for humans of 2 mg, mentioned in various reviews. Some human case reports describe serious effects at a dose of 0.2 mg, corresponding to 4 μg/kg body weight (bw). However, the uncertainties on the actual exposure in the studies preclude their use for derivation of an acute reference dose (ARfD). Instead, a group ARfD of 0.25 μg/kg bw, applying to TTX and its analogues, was derived based on a TTX dose of 25 μg/kg bw at which no apathy was observed in an acute oral study with mice, applying a standard uncertainty factor of 100. Estimated relative potencies for analogues are lower than that of TTX but are associated with a high degree of uncertainty. Based on the occurrence data submitted to EFSA and reported consumption days only, average and P95 exposures of 0.00–0.09 and 0.00–0.03 μg/kg bw, respectively, were calculated. Using a large portion size of 400 g bivalves and P95 occurrence levels of TTX, with exception of oysters, the exposure was below the group ARfD in all consumer groups. A concentration below 44 μg TTX equivalents/kg shellfish meat, based on a large portion size of 400 g, was considered not to result in adverse effects in humans. Liquid chromatography with tandem mass spectroscopy (LC–MS/MS) methods are the most suitable for identification and quantification of TTX and its analogues, with LOQs between 0.1 and 25 μg/kg.
Scientific Opinion on the safety of alginate-konjac-xanthan polysaccharide complex (PGX) as a novel food pursuant to Regulation (EC) No 258/97

Following a request from the European Commission, the EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA) was asked to deliver a scientific opinion on alginate-konjac-xanthan polysaccharide complex (PGX) as a novel food (NF) submitted pursuant to Regulation (EC) No 258/97. The NF is an off-white granular powder composed of three non-starch polysaccharides: konjac glucomannan, xanthan gum and sodium alginate. The information provided on the composition, the specifications, the batch-to-batch variability and the stability of the NF is sufficient and does not raise safety concerns. The production process is sufficiently described and does not raise concerns about the safety of the NF. The applicant intends to add the NF to a variety of foods as well as to market the NF in capsules. The recommended maximum daily intake of the NF from fortified foods and food supplements is 15 g. The target population proposed by the applicant is adults from 18 to 64 years of age. Considering the no observed adverse effect level of 1.8 g/kg body weight (bw) per day in a subchronic toxicity study with PGX and the highest mean and 95th percentile anticipated daily intake of NF from fortified foods, the margin of exposure (MoE) is 12 and 6, respectively, whereas the MoE for the NF from food supplements is 9. The Panel concludes that the safety of the novel food, PGX, for the intended uses and use levels as proposed by the applicant, has not been established.
Scientific Opinion on the safety of cranberry extract powder as a novel food ingredient pursuant to Regulation (EC) No 258/97

Following a request from the European Commission, the EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA) was asked to deliver an opinion on cranberry extract powder as a novel food (NF) submitted pursuant to Regulation (EC) No 258/97 of the European Parliament and of the Council. The NF contains about 55–60% proanthocyanidins (PACs). The Panel considers that the information provided on the composition, the specifications, batch-to-batch variability and stability of the NF is sufficient and does not raise safety concerns. Cranberry extract powder is produced from cranberry juice concentrate through an ethanolic extraction using an adsorptive resin column to retain the phenolic components. The Panel considers that the production process is sufficiently described and does not raise concerns about the safety of the novel food. The NF is intended to be added to beverages and yogurts to provide 80 mg PACs per serving. The target population is the adult general population. The mean and 95th percentile estimates for the all-user intakes from all proposed food-uses are 68 and 192 mg/day, respectively, for female adults, and 74 mg/day and 219 mg/day, respectively, for male adults. Taking into account the composition of the novel food and the intended use levels, the Panel considers that the consumption of the NF is not nutritionally disadvantageous. While no animal toxicological studies have been conducted on the NF, a number of human clinical studies have been conducted with cranberry products. Considering the composition, manufacturing process, intake, history of consumption of the source and human data, the Panel considers that the data provided do not give reasons for safety concerns. The Panel concludes that the cranberry extract powder is safe as a food ingredient at the proposed uses and use levels.

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Scientific opinion on the safety of proline-specific oligopeptidase as a novel food pursuant to Regulation (EC) No 258/97

Following a request from the European Commission, the EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA) was asked to deliver an opinion on proline-specific oligopeptidase (Tolerase® G) as a novel food ingredient submitted pursuant to Regulation (EC) No 258/97 of the European Parliament and of the Council, taking into account the comments and objections of a scientific nature raised by Member States. The novel food is an enzyme preparation of prolyl-oligopeptidase produced with a genetically modified Aspergillus niger self clone strain. The target population is the general adult population. The results from a bacterial reverse mutation test and an in vitro chromosome aberration test did not indicate genotoxicity. The Panel considers that the reported effects observed in a 90-day rat study are treatment-related effects and can be attributed to the higher energy consumption by these animals. Taking into account the intended maximum use level for Tolerase® G, its daily consumption would correspond to 2,746 mg TOS/person or to 39.2 mg TOS/kg body weight (bw) per day, when considering a default body weight of 70 kg for an adult person. The margin between this value and the dose in the rats, which caused effects attributable to the excess energy intake, is approximately 45. Noting this margin, the Panel considers that it is unlikely that such effects would occur in human at the intended use levels. The Panel concludes that the NF, Tolerase® G, is safe for the intended use at the intended use level.

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Scientific Opinion on the safety of synthetic N-acetyl-D-neuraminic acid as a novel food pursuant to Regulation (EC) No 258/97

Following a request from the European Commission, the EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA) was asked to deliver a scientific opinion on synthetic N-acetyl-D-neuraminic acid (NANA) as a novel food (NF) submitted pursuant to Regulation (EC) No 258/97. The information on the composition, the specifications, the batch-to-batch variability, stability and production process of the NF is sufficient and does not raise concerns about the safety of the NF. The NF is intended to be marketed as an ingredient in formulae and foods for infants and young children as well as an ingredient in a variety of foods and in food supplements for the general population. NANA is naturally present in human milk, in a bound and free form. The Margin of Exposure, which was based on the no-observed-adverse effect level (NOAEL) of 493 mg/kg body weight (bw) per day from a subchronic study and the anticipated daily intake of the NF, was considered to be sufficient for fortified foods for the general population and for food supplements for individuals above 10 years of age, as the anticipated daily intake was in the range of the exposure to free NANA from the consumption of early human milk, which is considered to be safe. The Panel concludes that the NF is safe when added to foods other than food supplements at the proposed uses and use levels for the general population; is safe in food supplements alone at the proposed uses and use levels for individuals above 10 years of age; is safe at the combined intake from fortified foods plus food supplements in individuals above 10 years of age; the safety of the NF is not established in food supplements alone at the proposed uses and use levels for individuals below 10 years of age.
Scientific principles for the identification of endocrine-disrupting chemicals: a consensus statement

Endocrine disruption is a specific form of toxicity, where natural and/or anthropogenic chemicals, known as "endocrine disruptors" (EDs), trigger adverse health effects by disrupting the endogenous hormone system. There is need to harmonize guidance on the regulation of EDs, but this has been hampered by what appeared as a lack of consensus among scientists. This publication provides summary information about a consensus reached by a group of world-leading scientists that can serve as the basis for the development of ED criteria in relevant EU legislation. Twenty-three international scientists from different disciplines discussed principles and open questions on ED identification as outlined in a draft consensus paper at an expert meeting hosted by the German Federal Institute for Risk Assessment (BfR) in Berlin, Germany on 11-12 April 2016. Participants reached a consensus regarding scientific principles for the identification of EDs. The paper discusses the consensus reached on background, definition of an ED and related concepts, sources of uncertainty, scientific principles important for ED identification, and research needs. It highlights the difficulty in retrospectively reconstructing ED exposure, insufficient range of validated test systems for EDs, and some issues impacting on the evaluation of the risk from EDs, such as non-monotonic dose-response and thresholds, modes of action, and exposure assessment. This report provides the consensus statement on EDs agreed among all participating scientists. The meeting facilitated a productive debate and reduced a number of differences in views. It is expected that the consensus reached will serve as an important basis for the development of regulatory ED criteria.

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Scientific report on human and animal dietary exposure to ergot alkaloids

The ergot alkaloids (EAs) are mycotoxins produced by several species of fungi in the genus Claviceps. In Europe, Claviceps purpurea is the most widespread species and it commonly affects cereals such as rye, wheat, triticale, barley, millets and oats. Food and feed samples used to estimate human and animal dietary exposure were analysed for the 12 main C. purpurea EAs: ergometrine, ergosine, ergocornine, ergotamine, ergocristine, ergocryptine (α- and β-isomers) and their corresponding –inine (S)-epimers. The highest levels of EAs were reported in rye and rye-containing commodities. In humans, mean chronic dietary exposure was highest in 'Toddlers' and 'Other children' with maximum UB estimates of 0.47 and 0.46 μg/kg bw per day, respectively. The 95th percentile exposure was highest in 'Toddlers' with a maximum UB estimate of 0.86 μg/kg bw per day. UB estimations were on average fourfold higher than LB estimations. Average acute exposure (MB estimations) ranged from 0.02 μg/kg bw per day in 'Infants' up to 0.32 μg/kg bw per day estimated in 'Other children'. For the 95th percentile acute exposure, the highest estimate was for a dietary survey within the age class 'Other children' (0.98 μg/kg bw per day). Dietary exposure estimates for animals, assuming a mean concentration scenario, varied between 0.31–0.46 μg/kg bw per day in beef cattle and 6.82–8.07 μg/kg bw per day (LB–UB) in piglets, while exposure estimates assuming a high concentration scenario (95th percentile) varied between 1.43–1.45 μg/kg bw per day and 16.38–16.61 μg/kg bw per day (LB–UB) in the same species. A statistically significant linear relationship between the content of sclerotia and the levels of EAs quantified was observed in different crops (barley, oats, rye, triticale and wheat grains). However, the absence of sclerotia cannot exclude the presence of EAs as samples with no sclerotia identified showed measurable levels of EAs ('false negatives').
Seaweeds as a new food resource from Greenland

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Research Group for Analytical and Predictive Microbiology
Authors: Kreissig, K. J. (Intern), Hansen, L. T. (Intern)
Number of pages: 1
Publication date: 2017

Host publication information
Title of host publication: Book of Abstracts Sustain 2017
Place of publication: Kgs. Lyngby, Denmark
Publisher: Technical University of Denmark (DTU)
Article number: Sustain Abstract F-10
Main Research Area: Technical/natural sciences
Conference: Sustain 2017, Kgs. Lyngby, Denmark, 06/12/2017 - 06/12/2017
Electronic versions:
ABSTRACT BOOK
SustainAbstracts2017c.compressed_68.pdf
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

Sensitising capacity of five different wheat products through the skin

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, Fujita Health University, National Institute of Health Sciences Tokyo
Number of pages: 1
Pages: 37-37
Publication date: 2017

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Title of host publication: Proceedings of the 3rd International ImpARAS Conference
Place of publication: Helsingør, Denmark
Article number: 018
Main Research Area: Technical/natural sciences
Conference: 3rd International ImpARAS Conference, Helsingør, Denmark, 10/10/2017 - 10/10/2017
Sensitising capacity of unmodified and acid hydrolysed gluten through the skin—a comparative study in naïve vs tolerant Brown Norway rats

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology
Authors: Ballegaard, A. R. (Intern), Madsen, C. B. (Intern), Bøgh, K. L. (Intern)
Pages: 316-316
Publication date: 2017
Conference: European Academy of Allergy and Clinical Immunology Congress 2017, Helsinki, Finland, 17/06/2017 - 17/06/2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Allergy: European Journal of Allergy and Clinical Immunology
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Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 2.332 SJR 2.702
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 6.23 SJR 2.841 SNIP 2.521
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 3.17 SNIP 2.17 CiteScore 5.73
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 2.529 SNIP 2.161 CiteScore 5.51
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 2.218 SNIP 1.939 CiteScore 4.91
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 2.126 SNIP 1.853 CiteScore 4.81
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 2.221 SNIP 1.801 CiteScore 4.89
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.898 SNIP 1.86
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.735 SNIP 0.982
Short-term effect of oral amoxicillin treatment on the gut microbial community composition in farm mink (Neovison vison)

It is well documented that antibiotics have pronounced modulatory effects on the intestinal bacterial community of both humans and animals, with potential health consequences. The gut microbiota of mink has however attracted little attention due to low bacterial load and fast gastrointestinal transit time, questioning its relevance. In this study, we hypothesise that oral amoxicillin treatment affects the gut microbiota in mink. This was investigated in a controlled trial including 24 animals of which 12 were treated with amoxicillin for 7 days. By applying 16S rRNA gene sequencing, we found that the faecal microbiota was markedly altered already after 2 days of treatment, with a surprising increase in diversity to resemble the feed. The diversity within the mucosa at termination was however reduced, which indicates this compartment as an important colonisation site in mink. No impact on blood biochemistry, lipid metabolism, serum amyloid A, vitamins A and E and histomorphology of the gut and liver was found; however, a slight decrease in fat digestibility was observed. We suggest that early-life use of amoxicillin in mink production may be counteractive as dysbiosis of the microbiota during infancy is increasingly being recognised as a risk factor for future health.

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, University of Copenhagen, Danish Fur Breeders Research Centre, Aarhus University
Authors: Marker, L. M. (Ekstern), Hammer, A. S. (Ekstern), Andresen, L. (Ekstern), Isaack, P. (Ekstern), Clausen, T. (Ekstern), Byskov, K. (Ekstern), Honoré, O. L. (Ekstern), Jensen, S. K. (Ekstern), Bahl, M. I. (Intern)
Number of pages: 10
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Fems Microbiology Ecology
Volume: 93
Issue number: 7
Article number: fix092
ISSN (Print): 0168-6496
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.85
Siloxanes in silicone products intended for food contact: Selected samples from the Norwegian market in 2016

Silicone is used in food contact materials due to its excellent physical and chemical properties. It is thermostable and flexible and is used in bakeware and kitchen utensils. Silicone is also used to coat paper to make it water and fat resistant. There is no specific regulation in EU which covers silicone as food contact materials, but in Regulation 1935/2004 on materials intended to come into contact with food it is stated that materials should be manufactured so it do not transfer their constituents to food in quantities which could endanger human health. Silicone may contain residual siloxane oligomers which might migrate to the food when the product is being used. DTU has proposed two action limits for low molecular weight siloxanes in food contact materials. For the sum of cyclic siloxanes D3 to D8 the limits are 12 mg/kg food for adults and 2 mg/kg food for children. For the sum of cyclic siloxanes D3 to D13 and linear siloxanes L3-L13 the limit is 60 mg/kg food. In 49 samples of silicone products intended for food contact from the Norwegian markets content of siloxanes has been measured. Coated paper for baking constituted 8 of the samples and in none of those samples siloxanes were found above the detection limits. In all of the 41 remaining samples siloxanes were found in content above the quantification limits. The siloxanes were predominately cyclic siloxanes. The types of products were baking moulds and mats, muffin cups, kitchen utensils, boxes and teats. Compared to the proposed actions limits for the sum of D3 to D8 and for the sum of D3 to D13 plus L3 to L13, 24 of the samples exceeded these limits. However, the contents were determined by extraction of the total amount of the analysed siloxanes. After migration test to evaluate the migration of siloxanes into a food simulant it could be concluded, that none of the samples would exceed the action limits based on migration estimation. The silicone product exhibited a wide range of siloxane concentrations and a hypothesis could be
that the products with the highest siloxane content were not properly cured. Based on the available sample documentation obtained from the producers it was not possible to draw any conclusion about this aspect.

**Simultaneous on-line detection of SiO2, TiO2 and Al2O3 particles in toothpaste by asymmetric flow field-flow fractionation hyphenated to inductively coupled plasma mass spectrometry**

**Single particle ICP-MS for the detection of inorganic nanoparticles in food and biological samples**
Six Open Questions about the Migration of Engineered Nano-Objects from Polymer-Based Food Contact Materials: A Review

The use of nanomaterials in food contact applications has created enormous interest in recent years. The potential migration of engineered nano-objects (ENOs) from food contact materials (FCMs) is one of the most important concerns regarding potential human exposure to ENOs and health risks. Current research focusing on FCMs has often reached inconsistency regarding migration of ENOs. The scope of this critical review is to give a concise overview of the most relevant aspects of the subject, and to identify and discuss the major open questions in relation to migration of ENOs from FCMs. This includes the very fundamental questions whether ENOs can migrate from FCMs at all and what the potential release mechanisms of ENOs could be. The inconsistency of findings from experimental studies is highlighted based on the example of silver nanoparticle migration from polymer-based FCMs. Challenges in detection and characterization of ENOs in migration studies and the suitability of the most frequently used analytical techniques are discussed. Further, this review questions the suitability of standard food simulants and migration test conditions for FCMs as well as of conventional mathematical migration models. Considerations regarding the risk for the consumer associated with migrating ENOs from FCMs are discussed.

General information
State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science, Division of Risk Assessment and Nutrition
Authors: Jokar, M. (Intern), Pedersen, G. A. (Intern), Löschner, K. (Intern)
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Main Research Area: Technical/natural sciences

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ISSN (Print): 1944-0049
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BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.894 SJR 0.74
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.12 SJR 0.796 SNIP 0.95
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.778 SNIP 0.878 CiteScore 2.11
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.764 SNIP 0.978 CiteScore 2.07
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.041 SNIP 1.168 CiteScore 2.55
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
Scopus rating (2012): SJR 0.906 SNIP 1.123 CiteScore 2.12
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
Scopus rating (2011): SJR 0.912 SNIP 1.099 CiteScore 2.06
ISI indexed (2011): ISI indexed no
Scopus rating (2010): SJR 0.816 SNIP 1.029
Web of Science (2010): Indexed yes
Scopus rating (2009): SJR 0.754 SNIP 1.228
Original language: English
Electronic versions:
Six_open_questions_about_the_migration_of_engineered_nano_objects_from_polymer_based_food_contact_materials_a_review.pdf
Solid-phase PCR for rapid multiplex detection of Salmonella spp. at the subspecies level, with amplification efficiency comparable to conventional PCR

Solid-phase PCR (SP-PCR) has attracted considerable interest in different research fields since it allows parallel DNA amplification on the surface of a solid substrate. However, the applications of SP-PCR have been hampered by the low efficiency of the solid-phase amplification. In order to increase the yield of the solid-phase amplification, we studied various parameters including the length, the density, as well as the annealing position of the solid support primer. A dramatic increase in the signal-to-noise (S/N) ratio was observed when increasing the length of solid support primers from 45 to 80 bp. The density of the primer on the surface was found to be important for the S/N ratio of the SP-PCR, and the optimal S/N was obtained with a density of $1.49 \times 10^{11}$ molecules/mm$^2$. In addition, the use of solid support primers with a short overhang at the 5’ end would help improve the S/N ratio of the SP-PCR. With optimized conditions, SP-PCR can achieve amplification efficiency comparable to conventional PCR, with a limit of detection of 1.5 copies/μl (37.5 copies/reaction). These improvements will pave the way for wider applications of SP-PCR in various fields such as clinical diagnosis, high-throughput DNA sequencing, and single-nucleotide polymorphism analysis. Graphical abstract Schematic representation of solid-phase PCR.

General information
State: Published
Organisations: National Food Institute, Research Group for Analytical and Predictive Microbiology, Department of Micro- and Nanotechnology, BioLabChip, National Veterinary Institute, PCR
Authors: Chin, W. H. (Intern), Sun, Y. (Intern), Høgberg, J. (Intern), Hung, T. Q. (Intern), Wolff, A. (Intern), Bang, D. D. (Intern)
Number of pages: 12
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Publication date: 2017
Main Research Area: Technical/natural sciences

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Journal: Analytical and Bioanalytical Chemistry
Volume: 409
Issue number: 10
ISSN (Print): 1618-2642
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
Solutions to practical challenges in developing dispersion procedures for nanoparticle characterization and toxicological testing

General information
Spatial patterns of antimicrobial resistance genes in a cross-sectional sample of pig farms with indoor non-organic production of finishers

Antimicrobial resistance (AMR) in pig populations is a public health concern. There is a lack of information of spatial distributions of AMR genes in pig populations at large scales. The objective of the study was to describe the spatial pattern of AMR genes in faecal samples from pig farms and to test if the AMR genes were spatially randomly distributed with respect to the geographic distribution of the pig farm population at risk. Faecal samples from 687 Danish pig farms were collected in February and March 2015. DNA was extracted and the levels of seven AMR genes (ermB, ermF, sulI, sulII, tet(M), tet(O) and tet(W)) were quantified on a high-throughput real-time PCR array. Spatial differences for the levels of the AMR genes measured as relative quantities were evaluated by spatial cluster analysis and creating of risk maps using kriging analysis and kernel density estimation. Significant spatial clusters were identified for ermB, ermF, sulII and tet(W). The broad spatial trends in AMR resistance evident in the risk maps were in agreement with the results of the cluster analysis. However, they also showed that there were only small scale spatial differences in the gene levels. We conclude that the geographical location of a pig farm is not a major determinant of the presence or high levels of AMR genes assessed in this study.
Statement on the presence of free gossypol in whole cottonseed

The European Commission asked EFSA to assess information provided by the Spanish Ministry of Agriculture, Food and Environment, on the toxicity of free gossypol in relation to the use of whole cotton seed in feed for ruminants, in particular dairy cows, and, if necessary, to update the previous opinion of the EFSA Panel on Contaminants in the Food Chain (CONTAM) on gossypol as an undesirable substance in animal feed. Gossypol is a polyphenolic compound that exists in a racemic mixture of (+)-gossypol and (-)-gossypol isomers. It occurs in free or (protein-) bound forms in cottonseeds. The most commonly used cottonseeds in feed are from Upland and Pima varieties. The Pima variety is considered more toxic due to a higher content of the (-)-gossypol isomer. Upland whole cottonseeds (WCS) are fed with no further processing (after delinting); Pima varieties normally undergo further processing (grinding or cracking). It is claimed that WCS have a greater retention time in the rumen, which results in an increased detoxifying activity, compared to a shorter ruminal retention time, in the case of cracked cottonseed or cottonseed meal products. Increased erythrocyte fragility has been observed in cows given WCS Upland varieties at similar exposure levels as those resulting from an inclusion rate of 10% of WCS containing gossypol at 7,000 mg/kg in feed – the maximum permitted level of gossypol in WCS suggested by the Spanish Delegation. The information from the Spanish delegation does not differentiate between varieties in their suggestion for an increase in the maximum permitted content of free gossypol for WCS. As both Upland and Pima varieties are grown in the EU and are used for animal feed, both varieties of WCS should be considered. The CONTAM Panel considered it not necessary to update the previous opinion.

General information
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Organisations: National Food Institute
Authors: EFSA publication
Number of pages: 15
Publication date: 2017

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Publisher: European Food Safety Authority
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ISSN: 1831-4732
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Whole cottonseed, Feed, Ruminants, Free gossypol, Toxicity
Electronic versions:
Gossypol_in_cottonseed_2017.pdf
DOIs:
10.2903/j.efsa.2017.4850
Source: PublicationPreSubmission
Source-ID: 134304438
Publication: Commissioned › Report – Annual report year: 2017

Statement on the risks for human health related to the presence of pyrrolizidine alkaloids in honey, tea, herbal infusions and food supplements

EFSA was asked by the European Commission to deliver a scientific opinion on the risks for human health related to the presence of pyrrolizidine alkaloids (PAs) in honey, tea, herbal infusions and food supplements and to identify the PAs of relevance in the aforementioned food commodities and in other feed and food. PAs are a large group of toxins produced by different plant species. In 2011, the EFSA Panel on Contaminants in the Food Chain (CONTAM Panel) assessed the risks related to the presence of PAs in food and feed. Based on occurrence data limited to honey, the CONTAM Panel concluded that there was a possible health concern for those toddlers and children who are high consumers of honey. A new exposure assessment including new occurrence data was published by EFSA in 2016 and was used to update the...
risk characterisation. The CONTAM Panel established a new Reference Point of 237 μg/kg body weight per day to assess the carcinogenic risks of PAs, and concluded that there is a possible concern for human health related to the exposure to PAs, in particular for frequent and high consumers of tea and herbal infusions. The Panel noted that consumption of food supplements based on PA-producing plants could result in exposure levels causing acute/short-term toxicity. From the analysis of the available occurrence data, the CONTAM Panel identified a list of 17 PAs of relevance for monitoring in food and feed. The Panel recommended continuing the efforts to monitor the presence of PAs in food and feed, including the development of more sensitive and specific analytical methods. A recommendation was also issued on the generation of data to identify the toxic and carcinogenic potency of the PAs commonly found in food.

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Organisations: National Food Institute
Authors: EFSA publication
Number of pages: 34
Publication date: 2017

Publication information
Place of publication: Parma, Italy
Publisher: Europen Food Safety Authority
Original language: English

Series: EFSA Journal
Volume: 15(7)
Number: 4908
ISSN: 1831-4732
Main Research Area: Technical/natural sciences
Electronic versions:
Pyrrolizidin_Risk_2017.pdf
DOIs: 10.2903/j.efsa.2017.4908
Source: PublicationPreSubmission
Source-ID: 134304475
Publication: Commissioned › Report – Annual report year: 2017

Statement on the safety of EstroG-100™ as a novel food pursuant to Regulation (EC) No 258/97
Following a request from the European Commission, the EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA) was asked to update its scientific opinion on the safety of EstroG-100™ as a novel food (NF) in the light of additional information submitted by the applicant. In its previous scientific opinion of 2016, the Panel concluded that EstroG-100™, which is a hot-water extract of a mixture of three herbal roots, is safe for the use in food supplements at the maximum intake level of 175 mg/day in post-menopausal women, which is lower than the maximum intake level proposed by the applicant (514 mg/day). The Panel reached its conclusions based on the effects of EstroG-100™ on liver and haematology as observed in several oral toxicity studies, the lack of information on liver and haematological parameters in human studies and the absence of chronic toxicity data. In view of the Panel's conclusion on the safety of EstroG-100™, the applicant has now provided additional information on haematological and liver parameters for the human intervention study with EstroG-100™ and historical control data related to the subchronic 90-day oral toxicity study with EstroG-100™. After assessing the additional information provided by the applicant, the Panel considers that the conclusion of the scientific opinion on the safety of EstroG-100™ does not need to be revised, and thus, the Panel reconfirms that the NF is safe for the use in food supplements at the maximum intake level of 175 mg/day in post-menopausal women.

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Organisations: National Food Institute, Research Group for Risk-Benefit
Authors: EFSA Journal
Number of pages: 8
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Place of publication: Parma, Italy
Publisher: Europen Food Safety Authority
Original language: English

Series: EFSA Journal
Volume: 15(5)
Number: 4778
ISSN: 1831-4732
Storage conditions affect oxidative stability and nutritional composition of freeze-dried Nannochloropsis salina: Oxidation of dried Nannochloropsis salina during storage

Microalgae biomass is known as a promising sustainable source of bioactive compounds. Application of microalgae biomass in food and feed products requires information regarding storage stability and optimized storage conditions to minimize unwanted deterioration which downgrades the bioactive composition of microalgae biomass. In order to investigate the worsening of the nutritional quality of freeze-dried biomass, a multifactorial storage experiment was conducted on a high EPA (eicosapentaenoic acid) Nannochloropsis salina biomass. The storage time (0–56 days), storage temperature (5, 20, and 40 °C) and packaging conditions (under vacuum and ambient pressure) used as main factors. During the 56 days of storage, both time and temperature strongly influenced the oxidation reactions which result in deterioration of bioactive compounds such as carotenoids, tocopherols, and EPA. Lipid deterioration occurred both due to enzyme-induced lipolysis and autoxidation. Carotenoids and α-tocopherol contents decreased during storage, but may still have prevented EPA from higher oxidative deteriorations due to their powerful antioxidant properties. Oxidation reactions, which resulted in the creation of primary and secondary volatile oxidation products, occurred mainly at the first days of storage. The resulting volatile compounds (measured by head space gas chromatography-mass spectrometry) declined further until day 56, probably due to reaction with amino acids, or decomposition to low molecular weight tertiary oxidation compounds. Storage of microalgae at low temperature is more effective than vacuum packaging. Practical Applications: Microalgae are known as a sustainable source of bioactive compounds, and their industrial scale application is growing very fast. Application of microalgae biomass in food, feed, or cosmetics requires the knowledge of the optimum storage conditions to prevent the value-added compounds from deterioration. Results of this study improve our understanding of the chemical deterioration under different storage conditions and can help the producers/customers to extend the shelf life of microalgae biomass by choosing correct storage conditions.
Strand specific RNA-sequencing and membrane lipid profiling reveals growth phase-dependent cold stress response mechanisms in Listeria monocytogenes

The human pathogen Listeria monocytogenes continues to pose a challenge in the food industry, where it is known to contaminate ready-to-eat foods and grow during refrigerated storage. Increased knowledge of the cold-stress response of this pathogen will enhance the ability to control it in the food-supply-chain. This study utilized strand-specific RNA sequencing and whole cell fatty acid (FA) profiling to characterize the bacterium's cold stress response. RNA and FAs were extracted from a cold-tolerant strain at five time points between early lag phase and late stationary-phase, both at 4°C and 20°C. Overall, more genes (1.3×) were suppressed than induced at 4°C. Late stationary-phase cells exhibited the greatest number (n = 1,431) and magnitude (>1,000-fold) of differentially expressed genes (>2-fold, p<0.05) in response to cold. A core set of 22 genes was upregulated at all growth phases, including nine genes required for branched-chain fatty acid (BCFA) synthesis, the osmolyte transporter genes opuCBD, and the internalin A and D genes. Genes suppressed at 4°C were largely associated with cobalamin (B12) biosynthesis or the production/export of cell wall components. Antisense transcription accounted for up to 1.6% of total mapped reads with higher levels (2.5×) observed at 4°C than 20°C. The greatest number of upregulated antisense transcripts at 4°C occurred in early lag phase, however, at both temperatures, antisense expression levels were highest in late stationary-phase cells. Cold-induced FA membrane changes included a 15% increase in the proportion of BCFAs and a 15% transient increase in unsaturated FAs between
lag and exponential phase. These increases probably reduced the membrane phase transition temperature until optimal levels of BCFAs could be produced. Collectively, this research provides new information regarding cold-induced membrane composition changes in L. monocytogenes, the growth-phase dependency of its cold-stress regulon, and the active roles of antisense transcripts in regulating its cold stress response.

**General information**

State: Published
Organisations: National Food Institute, Research Group for Analytical and Predictive Microbiology, University of British Columbia
Authors: Hingston, P. (Ekstern), Chen, J. (Ekstern), Allen, K. (Ekstern), Hansen, L. T. (Intern), Wang, S. (Ekstern)
Number of pages: 42
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Main Research Area: Technical/natural sciences

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BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SJR 1.164 SNIP 1.111
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.11 SJR 1.236 SNIP 1.101
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.427 SNIP 1.136 CiteScore 3.32
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.559 SNIP 1.148 CiteScore 3.54
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.772 SNIP 1.153 CiteScore 3.94
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.982 SNIP 1.156 CiteScore 4.15
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 2.425 SNIP 1.233 CiteScore 4.58
ISI indexed (2011): ISI indexed no
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 2.705 SNIP 1.178
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 2.614 SNIP 1.046
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 2.506 SNIP 1.006
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.379 SNIP 0.537
Subchronic, Low-Level Intraperitoneal Injections of Manganese (IV) Oxide and Manganese (II) Chloride Affect Rat Brain Neurochemistry

Manganese (Mn) is neurotoxic and can induce manganism, a Parkinson-like disease categorized as being a serious central nervous system irreversible neurodegenerative disease. An increased risk of developing symptoms of Parkinson disease has been linked to work-related exposure, for example, for workers in agriculture, horticulture, and people living near areas with frequent use of Mn-containing pesticides. In this study, the focus was placed on neurochemical effects of Mn. Rats were dosed intraperitoneally with 0.9% NaCl (control), 1.22 mg Mn (as MnO2)/kg bodyweight (bw)/day, or 2.5 mg Mn (as MnCl2)/kg bw/day for 7 d/wk for 8 or 12 weeks. This dosing regimen adds relevant new knowledge about Mn neurotoxicity as a consequence of low-dose subchronic Mn dosing. Manganese concentrations increased in the striatum, the rest of the brain, and in plasma, and regional brain neurotransmitter concentrations, including noradrenaline, dopamine (DA), 5-hydroxytryptamine, glutamate, taurine, and y-aminobutyric acid, and the activity of acetylcholinesterase changed. Importantly, a target parameter for Parkinson disease and manganism, the striatal DA concentration, was reduced after 12 weeks of dosing with MnCl2. Plasma prolactin concentration was not significantly affected due to a potentially reduced dopaminergic inhibition of the prolactin release from the anterior hypophysis. No effects on the striatal α-synuclein and synaptophysin protein levels were detected.

General information
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Organisations: National Food Institute, Research Group for Nano-Bio Science, DHI Denmark
Authors: Nielsen, B. S. (Ekstern), Larsen, E. H. (Intern), Ladefoged, O. (Intern), Lam, H. R. (Intern)
Pages: 239-251
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
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BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1 SJR 0.382 SNIP 0.463
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Scopus rating (2015): SJR 0.477 SNIP 0.625 CiteScore 1.25
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Scopus rating (2014): SJR 0.442 SNIP 0.547 CiteScore 1.27
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.518 SNIP 0.75 CiteScore 1.46
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.438 SNIP 0.467 CiteScore 1.25
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.415 SNIP 0.494 CiteScore 1.25
ISI indexed (2011): ISI indexed yes
Successful and cost neutral strategies to increase organic food used in public kitchens: results from the Danish Organic Action Plan 2020

Introduction
This conversion project was conducted in 2015-16 as part of the Danish Organic Action Plan 2020. The objective of this study was to measure the effect of an organic cost neutral food conversion on the percentage of organic food used in Danish public kitchens and to gain knowledge of practical strategies being effective in increasing the organic food used in the public kitchens.

Methods
Study design included baseline data collection, training sessions for all kitchens employees, goal setting, strategy development and implementation for each kitchen, and end point data collection.

Setting
174 public kitchens from 10 municipalities participated in an organic conversion project performed by a consultant corporation. Three types of public kitchen were included: childcare (n=52), worksite canteens (N=14) and elderly care (n=108).

Results
Significant increases in organic food percentage from baseline to end point were 29 percentage points (P< 0.001) during a period of 1½-2 years (baseline: 24% to endpoint: 53%).

The organic conversion is completed with no subsidy to operations. All employees were trained in the principles of organic food production. The organic price premium was covered within existing budget by optimizing the budget and menu planning, minimizing food waste, increase production of homemade food, focusing on seasonal food, and optimizing meat and fish consumption.

Conclusions
This study demonstrates a large potential for public kitchens to increase the level of organic food procurement and suggest a broad spectrum of strategies to sustain the organic conversions with no subsidy to operations after conversion to organic food.

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition
Authors: Thorsen, A. V. (Intern), Brorson, B. (Ekstern), Lassen, A. D. (Intern)
Number of pages: 1
Publication date: 2017
Event: Abstract from International Conference on Culinary Arts and Sciences (ICCAS 2017), Copenhagen, Denmark.
Main Research Area: Technical/natural sciences
Organic conversion, Cost neutral, Public procurement, Strategies, Sustainability
Electronic versions:
17_Abstract_ICCAS_2017.pdf
Source: PublicationPreSubmission
Source-ID: 134330542
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2017

Supplementation of docosahexaenoic acid (DHA), vitamin D₃ and uridine in combination with six weeks of cognitive and motor training in prepubescent children: a pilot study

Background
Learning and memory have been shown to be influenced by combination of dietary supplements and exercise in animal models, but there is little available evidence from human subjects. The aim of this pilot study was to investigate...
the effect of combining a motor- and cognitive exercise program with dietary supplementation consisting of 500 mg docosahexaenoic acid (DHA), 10 μg vitamin D3 and 1000 mg uridine (DDU-supplement) in 16 prepubescent children (age 8–11 years). Methods We designed a randomized, placebo-controlled, double-blinded study lasting 6 weeks in which DDU-supplement or placebo was ingested daily. During the intervention period, all children trained approximately 30 min 3 days/week using an internet-based cognitive and motor training program (Miti). Prior to and post the intervention period dietary record, blood sampling, physical exercise tests and motor and cognitive tests were performed. Results Fourteen of the 16 children completed the intervention and ingested the supplement as required. 6 weeks DDU-supplementation resulted in a significant increase in the blood concentration of vitamin D2+3 and DHA (p = 0.023 and p < 0.001, respectively). Power calculation based on one of the cognitive tasks revealed a proper sample size of 26 children. Conclusion All children showed improved performance in the trained motor- and cognitive tasks, but it was not possible to demonstrate any significant effects from the dietary supplementation. However, DDU-supplementation did result in increased blood concentration of DHA and vitamin D2+3. Trial registration Clinical registration ID: NCT02426554 (clinical Trial.gov). January 2015 retrospectively registered.

General information
State: Published
Organisations: Department of Biotechnology and Biomedicine, Systems Metabolic Lipidology, National Food Institute, Research Group for Bioactives – Analysis and Application, University of Copenhagen, Elsass Institute, Københavns Universitet
Authors: Hansen, S. L. (Forskerdatabase), Ritterband-Rosenbaum, A. (Forskerdatabase), Voigt, C. B. (Ekstern), Hellgren, L. (Intern), Sørensen, A. M. (Intern), Jacobsen, C. (Intern), Greve, L. Z. (Ekstern), Jørgensen, K. D. (Ekstern), Bilde, P. E. (Ekstern), Kiens, B. (Ekstern), Nielsen, J. B. (Ekstern)
Number of pages: 12
Pages: 37-49
Publication date: 2017
Main Research Area: Technical/natural sciences

Survey of 800+ datasets from human tissue and body fluid reveals XenomiRs are likely artifacts
miRNAs are small 22 nucleotide RNAs that can post-transcriptionally regulate gene expression. It has been proposed that dietary plant miRNAs can enter the human bloodstream and regulate host transcripts, however these findings have been widely disputed. We here conduct the first comprehensive meta-study in the field, surveying the presence and abundances of cross-species miRNAs (xenomiRs) in 824 sequencing datasets from various human tissues and body fluids. We find that xenomiRs are commonly present in tissues (17%) and body fluids (69%), however the abundances are low, comprising 0.001% of host human miRNA counts. Further, we do not detect a significant enrichment of xenomiRs in sequencing data originating from tissues and body fluids that are exposed to dietary intake (such as liver). Likewise, there is no significant depletion of xenomiRs in tissues and body fluids that are relatively separated from the main bloodstream (such as brain and cerebro-spinal fluids). Interestingly, the majority (81%) of body fluid xenomiRs stem from rodents, which are rare human dietary contributions, but common laboratory animals. Body fluid samples from the same studies tend to group together when clustered by xenomiR compositions, suggesting technical batch effects. Last, we performed carefully designed and controlled animal feeding studies, in which we detected no transfer of plant miRNAs into rat blood, or bovine milk sequences into piglet blood. In summary, our comprehensive computational and experimental results indicate that xenomiRs originate from technical artifacts rather than dietary intake.

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Biotechnology and Biorefining, Stockholm University, Rigshospitalet, Universitat Pompeu Fabra, University of Copenhagen, Copenhagen University Hospital
Authors: Kang, W. (Ekstern), Bang-Berthelsen, C. H. (Intern), Holm, A. (Ekstern), Houben, A. (Ekstern), Muller, A. H. (Ekstern), Thymann, T. (Ekstern), Pociot, F. (Ekstern), Estivill, X. (Ekstern), Riemer Friedländer, M. (Ekstern)
Pages: 433-445
Publication date: 2017
Main Research Area: Technical/natural sciences
Artifacts, Contamination, Meta-study, miRNA, Next generation sequencing
Synchronizing legume residue nutrient release with Kale (Brassica oleracea var. acephala) uptake in a Nitrosol of Kabete, Kenya

Nitrogen (N) and phosphorus (P) are identified as major limiting nutrients for many cropping systems (Kwambiah et al., 2003) and their application from organic and inorganic sources is essential to maximize and sustain crop yield potentials (Hartermink et al., 2000). N is commonly considered a key factor limiting crop growth in organic systems (Möller et al., 2008) and, unlike conventional farming systems, rely on management of soil organic matter to optimize crop production (Watson et al., 2002). Addition of plant residues, quantity wise and timing, has thus become a pivotal strategy in soil fertility improvement for crop production e.g. kales (Brassica oleracea var. acephala) under organic farming systems. Chickpea (Cicer arietinum) and white lupin (Lupinus albus L.) are leguminous crops commonly intercropped with kales (Genga, 2014) and their influence on crop yield and soil nutrient status has been widely studied (Nduku 2014, Genga 2014; Onwonga et al., 2015). There is however a dearth of information with respect to synchronization of nutrient released by legume residues with pattern of nutrient uptake by kales to match their demand. The objective of the current study was therefore to assess decomposition and nutrient release rates of chickpea and lupin residues and kale nutrient uptake patterns for better synchrony of nutrient supply and demand.

Tarmens bakterier og fødevareallergi

Tarmens bakterier og fødevareallergi

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology
Authors: Begh, K. L. (Intern)
Pages: 17-21
Publication date: 2017
Main Research Area: Technical/natural sciences
TEACH FOOD – Developing a teacher's community of practice

The National Food Institute (DTU FOOD) at DTU teaches and educates engineers for the food sector, the public authorities and the research communities. To meet these objectives faculty needs to be at the forefront of food science as well as in teaching and continuously develop the approach to how to teach. Learning environments with suitable student challenges requires devoted and involved faculty members, who continuously develop their competences in teaching. At DTU FOOD the faculty consists of scientist in a broad range of disciplines and cultures. TEACH FOOD was established to promote and enhance the development of community of practice, i.e. a Professional Learning Community (PLC) focusing on optimizing the learning outcome of the students. To achieve this, a 1½ residential seminar for all teachers was arranged. In the first seminar 76% of the teachers and the head of institute participated. Five core activities were identified and a series of half years seminars were started focusing on challenges in every day teaching experiences. The participation of DTU FOOD faculty members in the internal DTU conferences about teaching and learning has increased from 3 to 11 since the start of TEACH FOOD. These activities illustrate the extended willingness to discuss teaching and learning as well as share experiences from teaching at DTU FOOD exemplifying the growing PLC.

General information
State: Published
Organisations: National Food Institute, Research Group for Analytical Food Chemistry, Research Group for Genomic Epidemiology, Office for Study Programmes and Student Affairs, Research Group for Microbial Food Safety
Authors: Duedahl-Olesen, L. (Intern), Vigre, H. (Intern), Andersson, P. H. (Intern), Jensen, L. B. (Intern)
Pages: 48-57
Publication date: 2017

The 20th EURL-AR Proficiency Test - Enterococci, Staphylococci and E. coli 2016

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology
Authors: Bortolaia, V. (Intern), Karlsme Pedersen, S. (Intern), Roer, L. (Intern), Cavaco, L. (Intern), Hendriksen, R. S. (Intern), Aarestrup, F. M. (Intern)
Number of pages: 22
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The 21st EURL-AR Proficiency Test Salmonella, Campylobacter and genotypic characterisation 2016

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology
Authors: Karlsmose Pedersen, S. (Intern), Cavaco, L. (Intern), Hendriksen, R. S. (Intern), Bortolaia, V. (Intern)
Number of pages: 16
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Place of publication: Kgs. Lyngby
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Main Research Area: Technical/natural sciences
Electronic versions:
Rapport_The_21st_EURL_AR_Proficiency_Test_Salmonella_Campylocater_and_genotypic_characterisation_201.pdf
Publication: Commissioned › Report – Annual report year: 2017

The 2nd EURL-AR Proficiency Test on selective isolation of E. coli with presumptive ESBL or AmpC phenotypes from meat or caecal samples - 2016

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology
Authors: Cavaco, L. (Intern), Karlsmose Pedersen, S. (Intern), Hendriksen, R. S. (Intern), Bortolaia, V. (Intern)
Number of pages: 14
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Place of publication: Kgs. Lyngby
Publisher: National Food Institute, Technical University of Denmark
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Original language: English
Main Research Area: Technical/natural sciences
Electronic versions:
360_finalreport_eqas_matrix2016_final.pdf
Source: PublicationPreSubmission
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Publication: Commissioned › Report – Annual report year: 2017

The association between measurements of antimicrobial use and resistance in the faeces microbiota of finisher batches

The objectives were to present three approaches for calculating antimicrobial (AM) use in pigs that take into account the rearing period and rearing site, and to study the association between these measurements and phenotypical resistance and abundance of resistance genes in faeces samples from 10 finisher batches. The AM use was calculated relative to the rearing period of the batches as (i) 'Finisher Unit Exposure' at unit level, (ii) 'Lifetime Exposure' at batch level and (iii) 'Herd Exposure' at herd level. A significant effect on the occurrence of tetracycline resistance measured by cultivation was identified for Lifetime Exposure for the AM class: tetracycline. Furthermore, for Lifetime Exposure for the AM classes: aminoglycoside, lincosamide and tetracycline use as well as Herd Unit Exposure for the AM classes: macrolide, broad-spectrum penicillin, sulfonamide and tetracycline use as well as Herd Unit Exposure for the AM classes: aminoglycoside, lincosamide, macrolide, β-lactam, sulfonamide and tetracycline. No effect was observed for Finisher Unit Exposure. Overall, the study shows that Lifetime Exposure is an efficient measurement of AM use in finisher batches, and has a significant effect on the occurrence of resistance, measured either by cultivation or metagenomics.

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology
Authors: Dalhoff Andersen, V. (Intern), de Knegt, L. (Intern), Munk, P. (Intern), Jensen, M. S. (Intern), Agersø, Y. (Intern), Aarestrup, F. M. (Intern), Vigre, H. (Intern)
As whole genome sequence data of microorganisms are becoming easily accessible and cheap to produce, a transformation of the traditional methods used for typing, phenotyping and phylogenetic analysis of microorganisms is on
the way. Following the anticipation that most clinical microbiological and food safety laboratories will soon have a sequencer in use on a daily basis, there is a growing need for easy-to-use bioinformatics methods that can quickly convert the sequence data into useful information on, e.g., the type of bacteria, whether it is resistant towards any types of antibiotics, and whether it is part of an outbreak. The Center for Genomic Epidemiology, which is located at the Technical University of Denmark, has since its beginning in 2010 developed such bioinformatics methods and made them freely available as web-services. These web-services and their use is the focus of this chapter.

General information
State: Published
Organisations: Department of Systems Biology, Department of Bio and Health Informatics, Center for Biological Sequence Analysis, Genomic Epidemiology, National Food Institute, Research Group for Genomic Epidemiology, Immunoinformatics and Machine Learning, Metagenomics, Statens Seruminstitute, Osaka University
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Chapter: 5
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Life Sciences, Food Microbiology, Food Science, Bioinformatics, Microbial Genetics and Genomics, Applied Microbiology, Whole genome sequencing, Web-services
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Source: Findit
Source-ID: 2372561475
Publication: Research - peer-review → Book chapter – Annual report year: 2017

The disease burden of congenital toxoplasmosis in Denmark, 2014
Congenital toxoplasmosis (CT) causes a substantial disease burden worldwide. The aim of this study was to estimate the disease burden of CT in Denmark, a developed country with free public healthcare and nationwide data available. Using data primarily from two public health surveillance programmes conducted between 1992 and 2007, we estimated the incidence, occurrence of sequelae, mortality and the burden of disease in terms of disability-adjusted life years (DALYs) of CT in Denmark in 2014. We estimated that 14 children were born with CT in 2014, of which six will have developed sequelae by the age of 12. CT resulted in a total disease burden of 123 DALYs (95% uncertainty interval [UI], 100–148), of which 78 (95% UI, 64–94) were due to foetal loss and 2 (95% UI, 1–3) were due to neonatal death; the remaining burden was due to moderate to severe life-long sequelae. A comparison of the estimated incidence of CT with the number of reported CT cases in 2008–2014 indicated that for each reported CT case, at least five other CT cases could be expected to have occurred and gone unreported. Early onset, severity, and life-long duration of sequelae have a major effect on the disease burden of CT. Our data suggest that CT is under-diagnosed or under-reported in Denmark. The estimated disease burden and public health impact in Denmark is lower than in other European countries, highlighting the need for country-specific studies.

General information
State: Published
Organisations: National Food Institute, Research Group for Risk-Benefit, Statens Seruminstitute, University of Copenhagen, Copenhagen University Hospital
Authors: Nissen, I. (Intern), Jokelainen, P. (Ekstern), Stensvold, C. R. (Ekstern), Trevisan, C. (Ekstern), Fuchs, J. (Ekstern), Burgdorf, K. S. (Ekstern), Nielsen, H. V. (Ekstern), Pires, S. M. (Intern)
Number of pages: 12
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: P L o S One
Volume: 12
Issue number: 5
Article number: e0178282
ISSN (Print): 1932-6203
Ratings:
The effectiveness of healthy meals at work on reaction time, mood and dietary intake: a randomised cross-over study in daytime and shift workers at an university hospital

Our dietary habits affect both cognitive performance and mood. The aim of the study was to examine the effect of increased availability of healthy meals and water at work on healthcare staff. The study used an 8-week randomised cross-over design. A total of sixty physicians, nurses and nursing assistants, including sixteen working on shifts, were recruited. The participants received a self-selected keyhole-labelled (Nordic nutrition label) lunch, snack and bottled water during each shift throughout the intervention period. Reaction time (Go/No-Go test), mood-related scores (POMS) and dietary intake were assessed at run-in, and at the end of the intervention and the control periods. The intake of fat (P=0·030) and PUFA (P=0·003) was lower, and the intake of carbohydrate (P=0·008), dietary fibre (P=0·031) and water (P<0·001) was greater in the intervention period than in the control period. The intervention had no effect on reaction time or any of the mood-related scores in the group as a whole. In shift-working participants, the intervention period resulted in
a 31·1 % lower Fatigue-Inertia Score (P=0·003), a 15·3 % higher Vigour-Activity Score (P=0·041) and a 42·7 % lower Total Mood Disturbance Score (P=0·017), whereas the only dietary component that significantly improved was water intake (P=0·034), when compared with the control period. Providing healthy meals, snacks and water during working hours seems to be an effective way of improving employees’ dietary intake. Moreover, increased intake of water may be associated with beneficial effects on fatigue, vigour and total mood in shift-working healthcare staff.

**General information**

*State:* Published  
*Organisations:* National Food Institute, Division of Risk Assessment and Nutrition, Copenhagen University Hospital, University of Copenhagen  
*Authors:* Leedo, E. (Ekstern), Beck, A. M. (Ekstern), Astrup, A. (Ekstern), Lassen, A. D. (Intern)  
*Number of pages:* 9  
*Pages:* 121-129  
*Publication date:* 2017  
*Main Research Area:* Technical/natural sciences

**Publication information**

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*Volume:* 118  
*Issue number:* 2  
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 Web of Science (2018): Indexed yes  
 BFI (2017): BFI-level 1  
 Scopus rating (2017): SNIP 1.555 SJR 1.756  
 Web of Science (2017): Indexed yes  
 BFI (2016): BFI-level 1  
 Scopus rating (2016): CiteScore 3.46 SJR 2.055 SNIP 1.535  
 Web of Science (2016): Indexed yes  
 BFI (2015): BFI-level 1  
 Scopus rating (2015): SJR 1.583 SNIP 1.442 CiteScore 3.52  
 Web of Science (2015): Indexed yes  
 BFI (2014): BFI-level 1  
 Scopus rating (2014): SJR 1.532 SNIP 1.273 CiteScore 3.18  
 Web of Science (2014): Indexed yes  
 BFI (2013): BFI-level 1  
 Scopus rating (2013): SJR 2.746 SNIP 2.479 CiteScore 3.61  
 ISI indexed (2013): ISI indexed yes  
 Web of Science (2013): Indexed yes  
 BFI (2012): BFI-level 1  
 Scopus rating (2012): SJR 2.308 SNIP 2.427 CiteScore 3.12  
 ISI indexed (2012): ISI indexed yes  
 Web of Science (2012): Indexed yes  
 BFI (2011): BFI-level 1  
 Scopus rating (2011): SJR 2.085 SNIP 1.649 CiteScore 3.13  
 ISI indexed (2011): ISI indexed yes  
 Web of Science (2011): Indexed yes  
 BFI (2010): BFI-level 1  
 Scopus rating (2010): SJR 1.236 SNIP 1.253  
 Web of Science (2010): Indexed yes  
 BFI (2009): BFI-level 1  
 Scopus rating (2009): SJR 0.627 SNIP 0.572  
 Web of Science (2009): Indexed yes  
 BFI (2008): BFI-level 2  
 Scopus rating (2008): SJR 0.966 SNIP 1.2  
 Web of Science (2008): Indexed yes
The effect of Akkermansia muciniphilia on house dust mite induced allergic airway inflammation

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, University of Zurich
Authors: Graversen, K. (Intern), Barcik, W. (Ekstern), Fersti, R. (Ekstern), Frei, R. (Ekstern), Bøgh, K. L. (Intern), O'Mahony, L. (Ekstern)
Number of pages: 1
Pages: 56-56
Publication date: 2017

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Title of host publication: Proceedings of the 3rd International ImpARAS Conference
Place of publication: Helsingør, Denmark
Article number: F03
Main Research Area: Technical/natural sciences
Conference: 3rd International ImpARAS Conference, Helsingør, Denmark, 10/10/2017 - 10/10/2017
Electronic versions:
Proceeding book
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

The effects of concentration and heating-cooling rate on rheological properties of Plantago lanceolata seed mucilage
In this study, the effect of concentration (0.5, 1, 1.5 and 2%) and heating-cooling rate (1, 5 and 10 °C min−1) on the rheological properties of Plantago lanceolata seed mucilage (PLSM) solutions were investigated. It was observed that the gum dispersions exhibited viscoelastic properties under the given conditions. Mechanical spectra of PLSM were classified as weak gels based on the frequency sweep, complex viscosity (η*) and tan δ results. All variables had significant impacts on the rheological parameters. Chemical and monosaccharide compositions were also determined to provide more structural information. The results revealed that PLSM had high total sugar content (87.35%), and it is likely an arabinoxylomannan-type polysaccharide.

General information
State: Accepted/In press
The electrospinning of xanthan gum: from solution to nanofiber formation

General information
State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science
Authors: Shekarforoush, E. (Intern), Mendes, A. C. L. (Intern), Chronakis, I. S. (Intern)
Pages: 235-235
Publication date: 2017

The flame retardant DE-71 (a mixture of polybrominated diphenyl ethers) inhibits human differentiated thyroid cell function in vitro
Normal thyroid function is essential for general growth and metabolism, but can be affected by endocrine disrupting chemicals (EDCs). Polybrominated diphenyl ethers (PBDEs) have been used worldwide to reduce flammability in different materials and are suspected to be EDCs. The production of the commercial Penta- and OctaBDE mixtures is banned, but DecaBDEs and existing products may leak PBDEs into the environment. Our aim was to investigate the effect of the PentaBDE mixture DE-71 on human thyroid cells in vitro. Primary human thyroid cells were obtained as paraadenomatous tissue and cultured in monolayers. The influence of DE-71 on cyclic adenosine monophosphate (cAMP) and thyroglobulin (Tg) production was examined in the culture medium by competitive radioimmunoassay and enzyme-linked immunosorbent assay, respectively. Real-time quantitative PCR analysis of thyroid-specific genes was performed on the exposed cell cultures. PBDE concentrations were determined in cellular and supernatant fractions of the cultures. DE-71 inhibited Tg-release from TSH-stimulated thyrocytes. At 50 mg/L DE-71, mean Tg production was reduced by 71.9% (range: 8.5-98.7%), and cAMP by 95.1% (range: 91.5-98.8%) compared to controls). Expression of mRNA encoding Tg, TPO and TSHr were significantly inhibited (p

General information
State: Published
Organisations: National Food Institute, Research Group for Molecular and Reproductive Toxicology, University of Copenhagen, Aarhus University, National Research Center for Working Environment, Rigshospitalet
Number of pages: 18
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: P L o S One
Volume: 12
Issue number: 6
Article number: e0179858
ISSN (Print): 1932-6203
Ratings:
The gastrointestinal tract of farmed mink (Neovison vison) maintains a diverse mucosa-associated microbiota following a 3-day fasting period

Although it is well documented that the gut microbiota plays an important role in health and disease in mammalian species, this area has been poorly studied among carnivorous animals, especially within the mustelidae family. The gastrointestinal tract of carnivores is characterized by its short length and fast transit time, as compared to omnivores and herbivores, which is due to the low level of inherent fermentation. Mink represents an example of this, which have a GI tract only four times the length of the body and a transit time of approximately 4–5 hr. In this study, we used high-throughput 16S rRNA gene sequencing to explore the resident gut microbiota of the mink in terms of intra-and interindividual diversity. We report, for the first time, that the mucosa-associated bacterial community within the colon is diverse and dissimilar from the community found in the feed. We found large interindividual differences in bacterial composition between individual animals being dominated generally by the phylum Firmicutes, but in some cases also
Proteobacteria or Fusobacteria. The bacterial load and community structure within the mucus was not severely impacted by 3 days of fasting, which implies that a resident and stable microbiota is hosted by these animals.

**General information**

**State:** Published  
**Organisations:** National Food Institute, Research Group for Gut Microbiology and Immunology, University of Copenhagen, Danish Fur Breeders Research Centre  
**Authors:** Bahl, M. I. (Intern), Hammer, A. S. (Ekstern), Clausen, T. (Ekstern), Jakobsen, A. (Ekstern), Skov, S. (Ekstern), Andresen, L. (Ekstern)  
**Number of pages:** 8  
**Publication date:** 2017  
**Main Research Area:** Technical/natural sciences

**Publication information**

**Journal:** MicrobiologyOpen  
**Volume:** 6  
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**Article number:** e00434  
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**Ratings:**  
BFI (2018): BFI-level 1  
Web of Science (2018): Indexed yes  
BFI (2017): BFI-level 1  
Scopus rating (2017): SNIP 0.909 SJR 1.158  
Web of Science (2017): Indexed yes  
Scopus rating (2016): CiteScore 2.86 SJR 1.318 SNIP 0.836  
Scopus rating (2015): SJR 1.212 SNIP 0.685 CiteScore 2.32  
Scopus rating (2014): SJR 1.192 SNIP 1.057 CiteScore 2.19  
Scopus rating (2013): SJR 0.726 SNIP 0.404 CiteScore 1.41  
ISI indexed (2013): ISI indexed no  
**Original language:** English  
**Gut, Microbiota, Microflora, Mink, Neovision vision**

**Electronic versions:**

Bahl_et_al_2017_MicrobiologyOpen.pdf  
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10.1002/mbo3.434  
**Source:** FindIt  
**Source-ID:** 2351240109  
**Publication:** Research - peer-review ➔ Journal article – Annual report year: 2017

**The identification and functional annotation of RNA structures conserved in vertebrates**

Structured elements of RNA molecules are essential in, e.g., RNA stabilization, localization and protein interaction, and their conservation across species suggests a common functional role. We computationally screened vertebrate genomes for Conserved RNA Structures (CRSs), leveraging structure-based, rather than sequence-based, alignments. After careful correction for sequence identity and GC content, we predict ~516k human genomic regions containing CRSs. We find that a substantial fraction of human-mouse CRS regions (i) co-localize consistently with binding sites of the same RNA binding proteins (RBPs) or (ii) are transcribed in corresponding tissues. Additionally, a CaptureSeq experiment revealed expression of many of our CRS regions in human fetal brain, including 662 novel ones. For selected human and mouse candidate pairs, qRT-PCR and in vitro RNA structure probing supported both shared expression and shared structure despite low abundance and low sequence identity. About 30k CRS regions are located near coding or long non-coding RNA genes or within enhancers. Structured (CRS overlapping) enhancer RNAs and extended 3’ ends have significantly increased expression levels over their non-structured counterparts. Our findings of transcribed uncharacterized regulatory regions that contain CRSs support their RNA-mediated functionality.

**General information**

**State:** Published  
**Organisations:** National Food Institute, Research Group for Microbial Biotechnology and Biorefining, Department of Biotechnology and Biomedicine, Regulatory Genomics, University of Copenhagen, Københavns Universitet  
**Authors:** Seemann, E. S. (Forskerdatabase), Mirza, A. H. (Forskerdatabase), Hansen, C. (Ekstern), Bang-Berthelsen, C. H. (Intern), Garde, C. (Intern), Christensen-Dalsgaard, M. (Ekstern), Torarinson, E. (Ekstern), Workman, C. (Intern), Pociot, F. (Forskerdatabase), Nielsen, H. (Ekstern), Tommerup, N. (Ekstern), Ruzzo, W. L. (Ekstern), Gorodkin, J. (Ekstern)  
**Number of pages:** 14
The immune response to Prevotella bacteria in chronic inflammatory disease

The microbiota plays a central role in human health and disease by shaping immune development, immune responses and metabolism, and by protecting from invading pathogens. Technical advances that allow comprehensive characterization of microbial communities by genetic sequencing have sparked the hunt for disease-modulating bacteria. Emerging studies in humans have linked the increased abundance of Prevotella species at mucosal sites to localized and systemic disease, including periodontitis, bacterial vaginosis, rheumatoid arthritis, metabolic disorders and low-grade systemic inflammation. Intriguingly, Prevotella abundance is reduced within the lung microbiota of patients with asthma and chronic obstructive pulmonary disease. Increased Prevotella abundance is associated with augmented T helper type 17 (Th17) -mediated mucosal inflammation, which is in line with the marked capacity of Prevotella in driving Th17 immune responses in vitro. Studies indicate that Prevotella predominantly activate Toll-like receptor 2, leading to production of Th17-polarizing cytokines by antigen-presenting cells, including interleukin-23 (IL-23) and IL-1. Furthermore, Prevotella stimulate epithelial cells to produce IL-8, IL-6 and CCL20, which can promote mucosal Th17 immune responses and neutrophil recruitment. Prevotella-mediated mucosal inflammation leads to systemic dissemination of inflammatory mediators, bacteria and bacterial products, which in turn may affect systemic disease outcomes. Studies in mice support a causal role of Prevotella as colonization experiments promote clinical and inflammatory features of human disease. When compared with strict commensal bacteria, Prevotella exhibit increased inflammatory properties, as demonstrated by augmented release of inflammatory mediators from immune cells and various stromal cells. These findings indicate that some Prevotella strains may be clinically important pathobionts that can participate in human disease by promoting chronic inflammation.

General information
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Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology
Authors: Larsen, J. M. (Intern)
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Scopus rating (2015): SJR 2.075 SNIP 0.965 CiteScore 3.83
Web of Science (2015): Indexed yes
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Scopus rating (2014): SJR 2.048 SNIP 1.043 CiteScore 3.61
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ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
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ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.884 SNIP 0.992 CiteScore 3.75
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.121 SNIP 0.912
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Scopus rating (2009): SJR 0.122 SNIP 0.924
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.111 SNIP 0.922
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.122 SNIP 0.965
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 0.122 SNIP 0.893
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 1.673 SNIP 0.921
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 1.44 SNIP 0.798
Scopus rating (2003): SJR 1.345 SNIP 0.836
Scopus rating (2002): SJR 0.121 SNIP 0.787
Scopus rating (2001): SJR 0.121 SNIP 0.755
Scopus rating (2000): SJR 0.162 SNIP 0.836
Scopus rating (1999): SJR 0.107 SNIP 0.823
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The influence of microplastic inclusion in feed on carryover of environmental pollutants from feed to seabass and salmon

General information
State: Published
Authors: Granby, K. (Intern), Rasmussen, R. R. (Intern), Kotterman, M. (Ekstern), Sloth, J. J. (Intern), Cederberg, T. L. (Intern), Marques, A. T. (Ekstern), Koelmans, A. (Ekstern), Larsen, B. K. (Intern)
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Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

The invasome of Salmonella Dublin as revealed by whole genome sequencing
Salmonella enterica serovar Dublin is a zoonotic infection that can be transmitted from cattle to humans through consumption of contaminated milk and milk products. Outbreaks of human infections by S. Dublin have been reported in several countries including high-income countries. A high proportion of S. Dublin cases in humans are associated with
invasive disease and systemic illness. The genetic basis of virulence in S. Dublin is not well characterized. Whole genome sequencing was applied to a set of clinical invasive and non-invasive S. Dublin isolates from different countries in order to characterize the putative genetic determinants involved in the virulence and invasiveness of S. Dublin in humans. We identified several virulence factors that form the bacterial invasome and may contribute to increasing bacterial virulence and pathogenicity including mainly Gifsy-2 prophage, two different type 6 secretion systems (T6SSs) harbored by Salmonella pathogenicity islands; SPI-6 and SPI-19 respectively and virulence genes; ggt and PagN. Although Vi antigen and the virulence plasmid have been reported previously to contribute to the virulence of S. Dublin we did not detect them in all invasive isolates indicating that they are not the main virulence determinants in S. Dublin. Several virulence factors within the genome of S. Dublin might contribute to the ability of S. Dublin to invade humans' blood but there were no genomic markers that differentiate invasive from non-invasive isolates suggesting that host immune response play a crucial role in the clinical outcome of S. Dublin infection.
The role of whole genome sequencing in antimicrobial susceptibility testing of bacteria: report from the EUCAST Subcommittee

Whole genome sequencing (WGS) offers the potential to predict antimicrobial susceptibility from a single assay. The European Committee on Antimicrobial Susceptibility Testing established a subcommittee to review the current development status of WGS for bacterial antimicrobial susceptibility testing (AST). The published evidence for using WGS as a tool to infer antimicrobial susceptibility accurately is currently either poor or non-existent and the evidence/knowledge base requires significant expansion. The primary comparators for assessing genotypic-phenotypic concordance from WGS data should be changed to epidemiological cut-off values in order to improve differentiation of wild-type from non-wild-type isolates (harbouring an acquired resistance). Clinical breakpoints should be a secondary comparator. This assessment will reveal whether genetic predictions could also be used to guide clinical decision making. Internationally agreed principles and quality control (QC) metrics will facilitate early harmonization of analytical approaches and interpretive criteria for WGS-based predictive AST. Only data sets that pass agreed QC metrics should be used in AST predictions. Minimum performance standards should exist and comparative accuracies across different WGS laboratories and processes should be measured. To facilitate comparisons, a single public database of all known resistance loci should be established, regularly updated and strictly curated using minimum standards for the inclusion of resistance loci. For most bacterial species the major limitations to widespread adoption for WGS-based AST in clinical laboratories remain the current high-cost and limited speed of inferring antimicrobial susceptibility from WGS data as well as the dependency on previous culture because analysis directly on specimens remains challenging. For most bacterial species there is currently insufficient evidence to support the use of WGS-inferred AST to guide clinical decision making. WGS-AST should be a funding priority if it is to become a rival to phenotypic AST. This report will be updated as the available evidence increases.
Towards airflow sensors with energy harvesting and wireless transmitting properties

General information
State: Published
Organisations: Center for Bachelor of Engineering Studies, Afdelingen for Informatik, National Food Institute, Novitek Solutions ApS, Aalborg University
Authors: Blaszczyk, T. (Intern), Sørensen, J. (Intern), Larsen, K. (Ekstern), Lynggaard, P. (Ekstern)
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Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 2.73 SNIP 2.22 CiteScore 5.49
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 2.306 SNIP 1.852 CiteScore 4.92
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.868 SNIP 1.483 CiteScore 3.93
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.814 SNIP 1.489 CiteScore 3.63
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.809 SNIP 1.307
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.815 SNIP 1.666
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Scopus rating (2008): SJR 1.664 SNIP 1.269
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.436 SNIP 1.376
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Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 1.099 SNIP 1.15
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 0.826 SNIP 0.974
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 0.722 SNIP 0.942
Scopus rating (2002): SJR 0.484 SNIP 0.457
Scopus rating (2001): SJR 0.411 SNIP 0.347
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 0.392 SNIP 0.665
Scopus rating (1999): SJR 0.486 SNIP 0.562
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Antimicrobial resistance, ECOFF, Epidemiological cut-off values, Next generation sequencing
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Source-ID: 2349239762
Publication: Research - peer-review › Review – Annual report year: 2017
Towards diagnostic metagenomics of Campylobacter in fecal samples

The development of diagnostic metagenomics is driven by the need for universal, culture-independent methods for detection and characterization of pathogens to substitute the time-consuming, organism-specific, and often culture-based laboratory procedures for epidemiological source-tracing. Some of the challenges in diagnostic metagenomics are, that it requires a great next-generation sequencing depth and unautomated data analysis. DNA from human fecal samples spiked with $7.75 \times 10^1 - 7.75 \times 10^7$ colony forming unit (CFU)/ml Campylobacter jejuni and chicken fecal samples spiked with $1 \times 10^2 - 1 \times 10^6$ CFU/g Campylobacter jejuni was sequenced and data analysis was done by the metagenomic tools Kraken and CLARK. More hits were obtained at higher spiking levels, however with no significant linear correlations (human samples $p = 0.12$, chicken samples $p = 0.10$). Therefore, no definite detection limit could be determined, but the lowest spiking levels found positive were $7.75 \times 10^4$ CFU/ml in human feces and $10^3$ CFU/g in chicken feces. Eight human clinical fecal samples with estimated Campylobacter infection loads from $9.2 \times 10^4 - 1.0 \times 10^9$ CFU/ml were analyzed using the same methods. It was possible to detect Campylobacter in all the clinical samples. Sensitivity in diagnostic metagenomics is improving and has reached a clinically relevant level. There are still challenges to overcome before real-time diagnostic metagenomics can replace quantitative polymerase chain reaction (qPCR) or culture-based surveillance and diagnostics, but it is a promising new technology.

General information

State: Published
Organisations: National Food Institute, Research Group for Analytical and Predictive Microbiology, Research Group for Diagnostic Engineering, Statens Serum Institute
Authors: Andersen, S. C. (Intern), Kiil, K. (Ekstern), Harder, C. B. (Ekstern), Josefsen, M. H. (Intern), Persson, S. (Ekstern), Nielsen, E. M. (Ekstern), Hoorfar, J. (Intern)
Number of pages: 8
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BFI (2018): BFI-level 1
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Scopus rating (2017): SNIP 0.953 SJR 1.242
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.82 SJR 1.282 SNIP 0.993
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.42 SNIP 0.994 CiteScore 2.93
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.519 SNIP 1.069 CiteScore 2.95
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.571 SNIP 1.179 CiteScore 3.32
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.507 SNIP 1.146 CiteScore 3.38
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
Toxicity of emerging chemical contaminants evaluated in vivo with classic and alternative approaches using the zebrafish animal model

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Aquaculture, National Food Institute, Research Group for Analytical Food Chemistry
Authors: Rainieri, S. (Ekstern), Conlledo, N. (Ekstern), Larsen, B. K. (Intern), Granby, K. (Intern), Barranco, A. (Ekstern)
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Publication: Research - peer-review » Conference abstract in proceedings – Annual report year: 2017

Toxic metals in European Ulva spp. – evaluation of potential use in food and feed applications

General information
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Organisations: National Food Institute, Research Group for Nano-Bio Science, Technical University of Denmark, Aarhus University
Transmission of extended-spectrum cephalosporin (ESC) resistance through the broiler production system in Denmark

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Food Safety, Research Group for Genomic Epidemiology, Danish Veterinary and Food Administration
Authors: Jensen, L. B. (Intern), Birk, T. (Intern), Hendriksen, R. S. (Intern), Orteved Bjergager, G. (Ekstern), Lundsby, K. (Ekstern), Aabo, S. (Intern)
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ABSTRACT BOOK
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Trefoil factor peptide 3 is positively correlated with the viscoelastic properties of the cervical mucus plug

The viscoelastic properties of the cervical mucus plug are considered essential for the occlusion of the cervical canal and thereby for protection against ascending infections during pregnancy. Factors controlling this property are virtually unknown. This study explores a possible role of trefoil factor peptides 1, 2 and 3 (TFF1-3); peptides believed to influence mucus viscosity.

MATERIALS AND METHODS: The study is based on spontaneously shed cervical mucus plugs from 14 women in active labor. The viscoelastic properties; the elastic modulus (G’) and the viscous modulus (G’’) were determined by an oscillatory rheometer. The concentrations of TFF1-3 were measured by an in-house ELISA. Associations were analyzed by random-effects generalized least squares regression analyses.

RESULTS: Median (range) concentrations of TFF1, (TFF2) and [TFF3] were 3.1 (1.2-8.6), (1.1 (<0.006-3.7)) and [1000 (170-5300)] nmol/g cervical mucus plug. The TFF3 concentration was associated with G’ (regression coefficient 11.7 Pa/ Log nM (95% CI; 3.0 - 20.4, p = 0.009) and G’’ (regression coefficient 3.2 Pa / Log nM (95% CI; 1.5 - 5.0, p < 0.001). Conclusion: We suggest that TFF3 plays a role in the viscoelastic properties of the cervical mucus plug.

General information
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Organisations: National Food Institute, Research Group for Food Production Engineering, Research Group for Nano-Bio Science, Aarhus University Hospital
Authors: Bastholm, S. K. (Ekstern), Samson, M. H. (Ekstern), Becher, N. (Ekstern), Hansen, L. K. (Ekstern), Stubbe, P. R. (Intern), Chronakis, I. S. (Intern), Nexo, E. (Ekstern), Uldbjerg, N. (Ekstern)
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Journal: Acta Obstetricia et Gynecologica Scandinavica
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BFI (2017): BFI-level 1
Use of multiple-locus variable-number of tandem repeats analysis (MLVA) to investigate genetic diversity of Salmonella enterica subspp. enterica serovar Typhimurium isolates from human, food, and veterinary sources

Salmonella enterica subspecies enterica serovar Typhimurium is the most common zoonotic pathogen in Bulgaria. To allow efficient outbreak investigations and surveillance in the food chain, accurate and discriminatory methods for typing are needed. This study evaluated the use of multiple-locus variable-number of tandem repeats analysis (MLVA) and compared results with antimicrobial resistance (AMR) determinations for 100 S. Typhimurium strains isolated in Bulgaria during 2008-2012 (50 veterinary/food and 50 human isolates). Results showed that isolates were divided into 80 and 34 groups using MLVA and AMR, respectively. Simpson's index of diversity was determined to 0.994 ± 0.003 and 0.945 ± 0.012. The most frequently encountered MLVA profiles were 3-11-9-NA-211 (n = 5); 3-12-9-NA-211 (n = 3); 3-12-11-21-311 (n = 3); 3-17-10-NA-311 (n = 3); 2-20-9-7-212 (n = 3); and 2-23-NA-NA-111 (n = 3). No clustering of isolates related to susceptibility/resistance to antimicrobials, source of isolation, or year of isolation was observed. Some MLVA types were found in both human and veterinary/food isolates, indicating a possible route of transmission. A majority (83%)...
of the isolates were found to be resistant against at least one antimicrobial and 44% against ≥4 antimicrobials. Further studies are needed to verify MLVA usefulness over a longer period of time and with more isolates, including outbreak strains.

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Organisations: National Veterinary Institute, Bacteriology & Parasitology, Research Group for Analytical and Predictive Microbiology, Research Group for Genomic Epidemiology, National Food Institute, National Diagnostic and Research Veterinary Medical Institute, National Center of Infectious and Parasitic Diseases Bulgaria, Bulgarian Academy of Sciences
Authors: Mateva, G. (Ekstern), Pedersen, K. (Intern), Sørensen, G. (Intern), Asseva, G. (Ekstern), Daskalov, H. (Ekstern), Petrov, P. (Ekstern), Kantardjiev, T. (Ekstern), Alexandar, I. (Ekstern), Löfström, C. (Intern)
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Main Research Area: Technical/natural sciences
Value utilization of discarded fish livers for production of omega-3 rich oil

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Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application
Authors: Sørensen, A. M. (Intern), Nielsen, N. S. (Intern), Jacobsen, C. (Intern)
Number of pages: 1
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ABSTRACT BOOK
SustainAbstracts2017c.compressed_70.pdf

Variation in growth, yield and protein concentration in Saccharina latissima (Laminariales, Phaeophyceae) cultivated with different wave and current exposures in the Faroe Islands

Ropes seeded directly with Saccharina latissima were deployed at different exposures (sheltered, current exposed and wave exposed) in a Faroese sound and characteristics of growth and quality of the biomass and surroundings were evaluated during the growth season from March to August 2015. Saccharina latissima individuals cultivated at the current exposed location were heavier compared to the individuals cultivated at the other locations; however, the total biomass yield was significantly lower at the current exposed location. The protein and nutritional value of the biomass varied with season but showed no correlation with exposure. The highest protein levels and EAA (essential amino acid) score were measured in the spring (April and May) samples. The amino acid composition was dominated by glutamate followed by aspartic acid; however, this was replaced by methionine in the July samples. Total Kjeldahl nitrogen was significantly higher in May and August compared to July, and the nitrate concentration in the biomass was significantly lower in May and August compared to July. Nitrate was most available in the seawater at the time of deployment (3rd of March) and decreased during spring and summer. Saccharina latissima was cultivated successfully at the sheltered, current exposed and wave exposed locations using a direct seeding method. However, our results indicate that the lower biomass yield at the current exposed cultivation location compared to the sheltered and wave exposed are due to the direct seeding method, and possible limitations using this method need further testing and optimization.

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Volume: 29
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Web of Science (2017): Indexed yes
Variation in some quality attributes of Atlantic salmon fillets from aquaculture related to geographic origin and water temperature

It is well known that factors like fat content and texture affect the yield when making products from Atlantic salmon (Salmo salar L.). The relation between these factors and other quality attributes like water holding capacity and protein content, however, has received limited attention. To enable an efficient use of the information gathered in the different links of the value chain, a deeper knowledge of the correlations between the various quality attributes and factors like the geographical origin of the salmon, the company and the water temperature of the fish farm, is needed. In the present study a multivariate approach was taken to investigate the variation in some quality parameters (fat, protein, texture, water holding capacity, weight) amongst salmon samples (n = 136) from Norwegian aquaculture in order to establish which parameters were accounting for most of the variation seen in relation to the geographical origin and thereby of the sea temperature at harvest. The protein content of farmed Atlantic salmon sampled at different times of year varied substantially and was significantly correlated to the sea temperature. Fat and water content were also negatively correlated yet the correlation coefficient was numerical lower than what is usually seen in fatty fish, which could be a consequence of the varying protein content. A variation in both texture and water holding capacity was observed between the rearing companies. The present study adds to the existing knowledge regarding texture differences and contributes with new knowledge about the proximate composition of Atlantic salmon from aquaculture. Moreover we show that analysing different parameters holistically may reveal a new dimension in the information regarding differences between companies and regions in relation to the final quality of the filleted salmon.
Statement of relevance

This study confirms the differences in texture observed by the industry and adds to the existing knowledge regarding the proximate composition of Atlantic salmon from aquaculture. Moreover, it shows that analysing different quality parameters holistically may uncover a new dimension in the information regarding differences between companies and regions of Norway in relation to the final quality of the salmon.

General information
State: Published
Organisations: National Food Institute, Research Group for Food Production Engineering
Authors: Johansson, G. Ø. (Intern), Frosch, S. (Intern), Jørgensen, B. M. (Intern)
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Scopus rating (2017): SNIP 1.58 SJR 1.152
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 2.75 SJR 1.122 SNIP 1.51
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.107 SNIP 1.256 CiteScore 2.12
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.01 SNIP 1.33 CiteScore 2.16
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.151 SNIP 1.293 CiteScore 2.18
ISI indexed (2013): ISI indexed yes
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Scopus rating (2012): SJR 1.222 SNIP 1.485 CiteScore 2.32
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.281 SNIP 1.536 CiteScore 2.39
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.161 SNIP 1.39
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.949 SNIP 1.27
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 0.917 SNIP 1.165
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.033 SNIP 1.315
Variations in biofilm formation, desiccation resistance and Benzalkonium chloride susceptibility among Listeria monocytogenes strains isolated in Canada

Listeria monocytogenes is a pathogenic foodborne microorganism noted for its ability to survive in the environment and food processing facilities. Survival may be related to the phenotype of individual strains including the ability to form biofilms and resist desiccation and/or sanitizer exposure. The objectives of this research were to compare 14 L. monocytogenes strains isolated from blood (3), food (6) and water (5) with respect to their benzalkonium chloride (BAC) sensitivity, desiccation resistance, and ability to form biofilm. Correlations were tested between those responses, and the presence of the SSI-1 (Stress Survival Islet) and LGI1/CC8 (Listeria Genomic Island 1 in a clonal complex 8 background) genetic markers. Genetic sequences from four strains representing different phenotypes were also probed for predicted amino acid differences in biofilm, desiccation, and membrane related genes. The water isolates were among the most desiccation susceptible strains, while strains exhibiting desiccation resistance harboured SSI-1 or both the SSI-1 and LGI1/CC8 markers. BAC resistance was greatest in planktonic LGI1/CC8 cells (relative to non-LGI1/CC8 cells), and higher BAC concentrations were also needed to inhibit the formation of biofilm by LGI1/CC8 strains during incubation for 48 h and 6 days compared to other strains. Formation of biofilm on stainless steel was not significantly (p > 0.05) different among the strains. Analysis of genetic sequence data from desiccation and BAC sensitive (CP4 5-1, CP5 2-3, both from water), intermediate (Lm568, food) and desiccation and BAC resistant (08 5578, blood, human outbreak) strains led to the finding of amino acid differences in predicted functional protein domains in several biofilm, desiccation and peptidoglycan related genes (e.g., lmo0263, lmo0433, lmo0434, lmo0771, lmo0973, lmo1080, lmo1224, lmo1370, lmo1744, and lmo2558). Notably, the LGI1/CC8 strain 08-5578 had a frameshift mutation in lmo1370, a gene previously associated with desiccation resistance. In conclusion, the more desiccation and BAC resistant LGI1/CC8 isolates may pose a challenge for sanitation efforts.

General information
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Organisations: National Food Institute, Research Group for Analytical and Predictive Microbiology, Dalhousie University, Agriculture and Agri-Food Canada
Authors: Piercey, M. J. (Ekstern), C. Ells, T. (Ekstern), Macintosh, A. J. (Ekstern), Hansen, L. T. (Intern)
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Scopus rating (2015): SJR 1.614 SNIP 1.683 CiteScore 4.02
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Web of Science (2014): Indexed yes
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Scopus rating (2013): SJR 1.612 SNIP 1.841 CiteScore 3.8
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Scopus rating (2008): SJR 1.442 SNIP 1.509
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.349 SNIP 1.692
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Scopus rating (2005): SJR 1.511 SNIP 1.834
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 1.502 SNIP 1.638
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 1.233 SNIP 1.612
Web of Science (2003): Indexed yes
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Scopus rating (2001): SJR 1.031 SNIP 1.506
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Viral indicators for fecal contamination - a one-year viral metagenomic study of treatment efficiency in Danish waste water treatment plants

Viral pathogens in irrigation water are a major threat to public health due to their possibility to cause disease in humans. When using reclaimed water for irrigation it is therefore important to make sure that the water is free from pathogens which can contaminate the crops. In this study we are therefore using metagenomics sequencing with the aim to map the viriome in different water sources. In addition we investigate the possibility to use Human Adenovirus (HAdV) or JC Polyomavirus (JCPyV) as indicator for human fecal contamination. Water has been sampled monthly throughout the treatment process from two urban waste water treatment plants in Copenhagen. All samples are investigated for their viral content and the presence of pathogens by metagenomic sequencing and analyzed specifically for HAdV, JCPyV, norovirus Gi and GII (NoV Gi and GII) using quantitative (q)PCR. Preliminary qPCR results showed that the average concentration for HAdV within a sample is higher than the average concentration of NoV Gi and GII. HAdV could therefore be a good indicator for human fecal contamination in water. The initial analysis of the metagenomic data identifies viruses in all water sources. However, the number of identified pathogenic viral species decreases with treatment of the waste water. Further bioinformatic analyses will investigate the seasonal variations of viral composition within a sample as well as the effect of the treatment system. Updated qPCR and metagenomics data will be presented.

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Organisations: National Food Institute, Research Group for Microbial Food Safety, Research Group for Genomic Epidemiology, Technical University of Denmark, Technical University of Munich
Authors: Hellmér, M. (Intern), Stranddorf, K. (Ekstern), Seidel, M. (Ekstern), Aarestrup, F. M. (Intern), Schultz, A. C. (Intern)
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ABSTRACT BOOK
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Vitamin D Status and Muscle Function Among Adolescent and Young Swimmers
Impaired muscle function has been coupled to vitamin D insufficiency in young women and in elderly men and women. Those living at Northern latitudes are at risk of vitamin D insufficiency due to low sun exposure which may be more pronounced among elite swimmers because of their indoor training schedules. We aimed to examine vitamin D status among young elite swimmers and evaluate the association between vitamin D status and muscle strength. Twenty-nine swimmers, 12 female and 17 male (16-24 years) residing at latitude 55-56°N were studied in March and April. Blood samples were analysed for serum 25-hydroxyvitamin D (s-25(OH)D) and hand-grip strength was measured as marker of muscle strength. Subjects’ vitamin D and calcium intake were assessed by food frequency questionnaire and sun exposure and training status by questionnaires. Mean (±SD) s-25(OH)D was 52.6 ± 18.3nmol/L among all swimmers. In 45% of the swimmers s-25(OH)D was below 50 nmol/L. Female swimmers had higher s-25(OH)D concentration than male swimmers (61.7 ± 17.5 nmol/L vs. 46.2 ± 16.5 nmol/L, p= 0.026). Among male swimmers, those with sufficient vitamin D status had higher hand grip strength than those with insufficient vitamin D status (50.6 ± 6.4 kg vs. 41.1 ± 7.8 kg, p = 0.02). Among Danish elite swimmers 45% had an insufficient vitamin D status during the spring; the prevalence being higher among male swimmers. Muscle strength was significantly higher in male swimmers with sufficient vitamin D status.

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Authors: Geiker, N. R. W. (Ekstern), Larsen, R. (Ekstern), Hansen, M. (Ekstern), Jørgensen, N. R. (Ekstern), Jakobsen, J. (Intern), Hansen, B. S. (Ekstern), Kristensen, L. M. (Ekstern), Bügel, S. (Ekstern)
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Vitamin D stored in fat tissue during a 5-year intervention affects serum 25-hydroxyvitamin D levels the following year

Vitamin D and 25-hydroxyvitamin D (25(OH)D) are stored in adipose tissue, but the clinical relevance is uncertain. To evaluate changes in serum 25(OH)D and adipose tissue vitamin D levels, after stopping vitamin D supplementation. A prospective, double-blind cohort follow-up study. Clinical Research Unit at The University Hospital of North Norway. 76 subjects were included after participation in a 3-5 year prevention of type 2 diabetes study, and were administered 20,000 IU of vitamin D or placebo / week. During the 12-month follow-up period, blood samples were drawn at the beginning and after one, three, six, nine, and 12 months. Fat biopsies were taken at the start and end. Changes in 25(OH)D level in serum, and 25(OH)D and vitamin D levels in adipose tissue. 41 out of 42 subjects who had been given vitamin D, and 33 out of 34 subjects who were given the placebo completed the study. At the inclusion mean serum 25(OH)D levels were 122 and 71 nmol/L in vitamin D and placebo groups, respectively. Serum 25(OH)D remained significantly higher in the vitamin D group compared to the placebo group throughout, and was 84.5 and 73.1 nmol/L, respectively after 12 months. In the vitamin D group, adipose tissue vitamin D levels decreased by 52% over 12 months. 25(OH)D and vitamin D stored in adipose tissue after 3-5 years with vitamin D supplementation may have a clinically relevant effect on serum 25(OH)D levels the following year.
Wastewater treatment and public health in Nunavut: a microbial risk assessment framework for the Canadian Arctic

Wastewater management in Canadian Arctic communities is influenced by several geographical factors including climate, remoteness, population size, and local food-harvesting practices. Most communities use trucked collection services and basic treatment systems, which are capable of only low-level pathogen removal. These systems are typically reliant solely on natural environmental processes for treatment and make use of existing lagoons, wetlands, and bays. They are operated in a manner such that partially treated wastewater still containing potentially hazardous microorganisms is released into the terrestrial and aquatic environment at random times. Northern communities rely heavily on their local surroundings as a source of food, drinking water, and recreation, thus creating the possibility of human exposure to wastewater effluent. Human exposure to microbial hazards present in municipal wastewater can lead to acute gastrointestinal illness or more severe disease. Although estimating the actual disease burdens associated with wastewater exposures in Arctic communities is challenging, waterborne- and sanitation-related illness is believed to be comparatively higher than in other parts of Canada. This review offers a conceptual framework and evaluation of current knowledge to enable the first microbial risk assessment of exposure scenarios associated with food-harvesting and recreational activities in Arctic communities, where simplified wastewater systems are being operated.

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Web of Science (2008): Indexed yes
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Web of Science (2005): Indexed yes
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Scopus rating (2001): SJR 0.565 SNIP 0.614
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Whole-genome sequence of the first sequence type 27 Brucella ceti strain isolated from European waters

Brucella spp. that cause marine brucellosis are becoming more important, as the disease appears to be more widespread than originally thought. Here, we report a whole and annotated genome sequence of Brucella ceti CRO350, a sequence type 27 strain isolated from a bottlenose dolphin carcass found in the Croatian part of the northern Adriatic Sea.

General information
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Organisations: National Food Institute, Research Group for Genomic Epidemiology, Croatian Veterinary Institute, University of Ljubljana, University of Zagreb
Authors: Duvnjak, S. (Ekstern), Spicic, S. (Ekstern), Kusar, D. (Ekstern), Papic, B. (Ekstern), Reil, I. (Ekstern), Zdelar-Tuk, M. (Ekstern), Pavlinec, Z. (Ekstern), Duris, M. (Ekstern), Gomercic, T. (Ekstern), Hendriksen, R. S. (Intern), Cvetnic, Z. (Ekstern)
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Whole-genome sequencing of veterinary pathogens
Bacterial infections in production animals constitute a considerable burden across the globe and result in impaired animal welfare and production economy. Additionally, veterinary pathogens with zoonotic potential may cause severe infections in humans. Traditional molecular techniques based on gel-electrophoresis and single-locus sequencing has been widely used to characterize such types of veterinary pathogens. However, DNA sequencing techniques have become fast and cost effective in recent years and whole-genome sequencing data provide a much higher discriminative power and reproducibility than any of the traditional molecular techniques. In this PhD project three important veterinary pathogens (Clostridium perfringens, Escherichia coli and Staphylococcus aureus) were investigated using whole-genome sequencing. This was done in five different scientific papers which all have been published. Paper I and II In 2014, an increased mortality rate caused by Escherichia coli infections was observed among chickens (Gallus gallus domesticus) from farms in Denmark and other Nordic countries. Therefore, the genetic diversity and relatedness of 114 E. coli isolates primarily associated with increased mortality in Nordic countries, was investigated using whole-genome sequencing. In paper I, the genome assemblies of two avian pathogenic E. coli isolates were annotated and the draft genomes deposited in a publicly available database. In paper II, a group of 47 closely related sequence type (ST)117 O78:H4 isolates from both broiler chickens and parent birds collected across the Nordic countries, was observed. Since most Nordic poultry farmers import birds that are all part of the same breeding pyramid these results indicate that the ST117 O78:H4 isolates were transmitted vertically through this breeding pyramid. Therefore, it was concluded that vertically transmitted ST117 O78:H4 isolates were the main reason for the increased mortality rates observed in the Nordic broiler industry. Paper III Necrotic enteritis (NE) in chickens is primarily caused by pathogenic Clostridium perfringens strains. Studies have shown that three pathogenicity loci (NELoc-1, 2 and 3) and two virulence genes (netB and cnaA) are often carried by C. perfringens isolates collected from chickens with NE. In general, the virulence gene content have not been widely investigated in isolates from turkeys (Maleagris gallopavo) with NE. However, netB has not been found in high prevalence among isolates from diseased turkeys and prior to this study, no publications using whole-genome sequencing...
on NE isolates from turkeys, have been published. Here, 30 C. perfringens isolates from both healthy and NE infected chickens and turkeys were analyzed using whole-genome sequencing. The results showed that NEloc-1 and -3 and the two virulence genes netB and cnaA were significantly more associated with NE isolates from chickens compared to NE isolates from turkeys. Only NEloc-2 was associated with NE isolates from both turkeys and chickens. A putative collagen adhesion gene was discovered among all isolates from diseased turkeys and has been designated cnaD. Potentially, CnaD could be of importance in regard to the NE pathogenesis in turkeys. In general, these results suggest that the NE pathogenesis in chickens is different from that of turkeys. Paper IV and V Staphylococcus aureus is a pathogen that commonly causes mastitis in dairy cows (Bos taurus). Many different subtypes, virulence genes and pathogenicity islands have been associated with isolates from bulk tank milk (BTM) and dairy cows with clinical mastitis (CM). Prior to these studies, no Danish S. aureus isolates associated with bovine mastitis have been analyzed using whole-genome sequencing. In paper V, 157 S. aureus isolates from BTM and dairy cows with CM were whole-genome sequenced and further investigated. In general, the results showed that BTM and CM isolates were of identical genetic background. This indicates that dairy cows can be natural carriers of S. aureus subtypes that in certain cases lead to CM. A group of isolates that mostly belonged to ST151 carried three pathogenicity islands that were primarily found in this group. The prevalence of resistance genes was generally low but the first ST398 methicillin resistant S. aureus isolate from a Danish dairy cow with CM was observed. In paper IV, the assemblies from this isolate (strain Sa52) were annotated and the draft genome uploaded to a publicly available database.
Whole grain-rich diet reduces body weight and systemic low-grade inflammation without inducing major changes of the gut microbiome: a randomised cross-over trial

Objective To investigate whether a whole grain diet alters the gut microbiome and insulin sensitivity, as well as biomarkers of metabolic health and gut functionality. Design 60 Danish adults at risk of developing metabolic syndrome were included in a randomised cross-over trial with two 8-week dietary intervention periods comprising whole grain diet and refined grain diet, separated by a washout period of ≥6 weeks. The response to the interventions on the gut microbiome composition and insulin sensitivity as well on measures of glucose and lipid metabolism, gut functionality, inflammatory markers, anthropometry and urine metabolomics were assessed. Results 50 participants completed both periods with a whole grain intake of 179±50 g/day and 13±10 g/day in the whole grain and refined grain period, respectively. Compliance was confirmed by a difference in plasma alkylresorcinols (p<0.0001). Compared with refined grain, whole grain did not significantly alter glucose homeostasis and did not induce major changes in the faecal microbiome. Also, breath hydrogen levels, plasma short-chain fatty acids, intestinal integrity and intestinal transit time were not affected. The whole grain diet did, however, compared with the refined grain diet, decrease body weight (p<0.0001), serum inflammatory markers, interleukin (IL)-6 (p=0.009) and C-reactive protein (p=0.003). The reduction in body weight was consistent with a reduction in energy intake, and IL-6 reduction was associated with the amount of whole grain consumed, in particular with intake of rye. Conclusion Compared with refined grain diet, whole grain diet did not alter insulin sensitivity and gut microbiome but reduced body weight and systemic low-grade inflammation.

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Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, Department of Bio and Health Informatics, Metagenomics, Disease Intelligence and Molecular Evolution, Department of Biotechnology and Biomedicine, Disease Systems Immunology, Department of Chemical and Biochemical Engineering, Organic Chemistry, Center for BioProcess Engineering, DTU Multi Assay Core, Research Group for Analytical Food Chemistry, Copenhagen Center for Health Technology, University of Copenhagen, Chalmers University of Technology, Chalmers University of Technology, Bispebjerg University Hospital, Herlev and Gentofte Hospital, University of Auckland
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Scopus rating (2016): CiteScore 9.29 SJR 7.074 SNIP 3.946
Micro-organism for the production of stereo-specific s, s-2,3-butanediol

The invention relates to a genetically modified lactic acid bacterium capable of producing (S,S)-2,3-butanediol stereo specifically from glucose under aerobic conditions. Additionally the invention relates to a method for producing (S,S)-2,3-butanediol and L-acetoin using the genetically modified lactic acid bacterium, under aerobic conditions in the presence of a source of iron-containing porphyrin or a source of metal ions (Fe3+/Fe2+). The lactic acid bacterium is genetically modified to express heterologous genes encoding enzymes catalysing the stereo-specific synthesis of (S,S)-2,3-butanediol; and additionally a number of genes are deleted in order to maximise the production of (S,S)-2,3-butanediol as compared to other products of oxidative fermentation.

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Organisations: Systems Biotechnology, National Food Institute, Research Group for Microbial Biotechnology and Biorefining
Authors: Solem, C. (Intern), Jensen, P. R. (Intern), Chen, J. (Intern), Liu, J. (Intern)
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Rapid method for detection of salmonella in meat

The present invention relates to a rapid method for the detection of Salmonella in meat as well as to a kit for performing said method. The method provides a time-to-result of less than 8 hours.

A 3D co-culture microtissue model of the human placenta for nanotoxicity assessment

There is increasing evidence that certain nanoparticles (NPs) can overcome the placental barrier, raising concerns on potential adverse effects on the growing fetus. But even in the absence of placental transfer, NPs may pose a risk to proper fetal development if they interfere with the viability and functionality of the placental tissue. The effects of NPs on the human placenta are not well studied or understood, and predictive in vitro placenta models to achieve mechanistic insights on NP-placenta interactions are essentially lacking. Using the scaffold-free hanging drop technology, we developed a well-organized and highly reproducible 3D co-culture microtissue (MT) model consisting of a core of placental fibroblasts surrounded by a trophoblast cell layer, which resembles the structure of the in vivo placental tissue. We could show that secretion levels of human chorionic gonadotropin (hCG) were significantly higher in 3D than in 2D cell cultures, which indicates an enhanced differentiation of trophoblasts grown on 3D MTs. NP toxicity assessment revealed that cadmium telluride (CdTe) and copper oxide (CuO) NPs but not titanium dioxide (TiO2) NPs decreased MT viability and reduced the release of hCG. NP acute toxicity was significantly reduced in 3D co-culture MTs compared to 2D monocultures. Taken together, 3D placental MTs provide a new and promising model for the fast generation of tissue-relevant acute NP toxicity data, which are indispensable for the safe development of NPs for industrial, commercial and medical applications.
A Bacterial Analysis Platform: An Integrated System for Analysing Bacterial Whole Genome Sequencing Data for Clinical Diagnostics and Surveillance

Recent advances in whole genome sequencing have made the technology available for routine use in microbiological laboratories. However, a major obstacle for using this technology is the availability of simple and automatic bioinformatics tools. Based on previously published and already available web-based tools we developed a single pipeline for batch uploading of whole genome sequencing data from multiple bacterial isolates. The pipeline will automatically identify the bacterial species and, if applicable, assemble the genome, identify the multilocus sequence type, plasmids, virulence genes and antimicrobial resistance genes. A short printable report for each sample will be provided and an Excel spreadsheet containing all the metadata and a summary of the results for all submitted samples can be downloaded. The pipeline was benchmarked using datasets previously used to test the individual services. The reported results enable a rapid overview of the major results, and comparing that to the previously found results showed that the platform is reliable and able to correctly predict the species and find most of the expected genes automatically. In conclusion, a combined bioinformatics platform was developed and made publicly available, providing easy-to-use automated analysis of bacterial whole genome sequencing data. The platform may be of immediate relevance as a guide for investigators using whole genome sequencing for clinical diagnostics and surveillance. The platform is freely available at: https://cge.cbs.dtu.dk/services/CGEpipeline-1.1 and it is the intention that it will continue to be expanded with new features as these become available.
Accuracy of a method based on atomic absorption spectrometry to determine inorganic arsenic in food: Outcome of the collaborative trial IMEP-41

A collaborative trial was conducted to determine the performance characteristics of an analytical method for the quantification of inorganic arsenic (iAs) in food. The method is based on (i) solubilisation of the protein matrix with concentrated hydrochloric acid to denature proteins and allow the release of all arsenic species into solution, and (ii) subsequent extraction of the inorganic arsenic present in the acid medium using chloroform followed by back-extraction to acidic medium. The final detection and quantification is done by flow injection hydride generation atomic absorption spectrometry (FI-HG-AAS). The seven test items used in this exercise were reference materials covering a broad range of matrices: mussels, cabbage, seaweed (hijiki), fish protein, rice, wheat, mushrooms, with concentrations ranging from 0.074 to 7.55 mg kg\(^{-1}\). The relative standard deviation for repeatability (RSDr) ranged from 4.1 to 10.3\%, while the relative standard deviation for reproducibility (RSDR) ranged from 6.1 to 22.8\%.

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BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.762 SNIP 2.342 CiteScore 3.98
Harnessing the biosynthetic machinery of living cells is a common approach used for producing a broad range of useful chemicals. Here, we divert inherent metabolic routes in L. lactis to produce (3R)-acetoin and the derived 2,3 butanediol isomers. Efficient production of (3R)-acetoin was accomplished using a strain where the competing lactate, acetate and ethanol forming pathways had been blocked. By introducing different alcohol dehydrogenases into this strain, either EcBdh from Enterobacter cloacae or SadB from Achromobacter xylosooxidans, it was possible to achieve high-yield production of m-BDO or R-BDO respectively. To achieve biosustainable production of these chemicals from dairy waste, we transformed the above strains with the lactose plasmid pLP712. This enabled efficient production of (3R)-acetoin, m-BDO and R-BDO from processed whey waste, with titers of 27, 51, and 32.1 g/L respectively. The corresponding yields obtained were 0.42, 0.47 and 0.40 g/g lactose, which is 82%, 89%, and 76% of maximum theoretical yield respectively. These results clearly demonstrate that L. lactis is an excellent choice as a cell factory for transforming lactose containing dairy waste into value added chemicals.
Acrylamide reduction in fried potato slices and strips by using asparaginase in combination with conventional blanching

In this research, acrylamide reduction in potato chips was investigated in relation to blanching and asparaginase immersion treatments before final frying. Potato slices (Verdi variety, diameter: 40 mm, thickness: 2.0 mm) were fried at 170 °C for 5 min (final moisture content of ∼2.0 g/100 g). Prior to frying, potato slices were treated in one of the following ways: (i) Rinsing in distilled water (control I); (ii) Rinsing in distilled water plus blanching in hot water at 85 °C for 3.5 min; (iii) Rinsing in distilled water plus immersion in an asparaginase solution (10000 ASNU/L) at 50 °C for 20 min; (iv) Rinsing in distilled water plus blanching in hot water at 85 °C for 3.5 min plus immersion in an asparaginase solution (10000 ASNU/L) at 50 °C for 20 min; (v) Rinsing in distilled water plus blanching in hot water at 85 °C for 3.5 min plus immersion in distilled water at 50 °C for 20 min (control II). Blanching in hot water (ii) was almost as effective as asparaginase potato immersion (iii) in order to diminish acrylamide formation in potato chips (acrylamide reduction was ∼17% of the initial acrylamide concentration). When potato slices were blanched before asparaginase immersion, the acrylamide content of the resultant potato chips was reduced considerably by almost 90%. We have demonstrated that blanching of potato slices plus asparaginase treatment is an effective combination for acrylamide mitigation during frying. It seems to be that blanching provokes changes in the microstructure of potato tissue leading to an easier and more effective diffusion of asparaginase.

On the other hand, par-fried potatoes of Bintje variety were prepared by cutting strips (0.8×0.8×5cm) which were blanched at 75°C for 10min. Unblanched strips were used as the control. Control or blanched strips were then dried at 85°C for 10 min and immediately partially fried at 175°C for 1min. Finally, frozen par-fried potatoes were fried at 175°C for 3min to obtain French fries. Pre-drying of raw or blanched potato strips did not generate acrylamide formation as expected. Partial frying of pre-dried control potato strips generated 370μg/kg of acrylamide and the final frying determined French fries with 2075μg/kg of acrylamide. When control potato strips were treated with a 10000 ASNU/l asparaginase solution at 40°C for 20min, the acrylamide formation in French fries was reduced by 30%. When blanched potato strips were treated in the same way, the produced French fries have 60% less acrylamide content than blanched strips without the enzyme treatment. Soaking of blanched potato strips (75°C, 10min) in an 10000 ASNU/l asparaginase solution at 40°C for 20min is an effective way to reduce acrylamide formation after frying by reducing the amount of one of its important precursors such as asparagine.
aflatoxin contamination in the Central and Western parts and a decrease of 44.6% in the Eastern and Southern parts is expected but with several possible scenarios. This makes the impact of climate change on aflatoxin contamination in Kenya complex. To protect the public and environment from the negative impact, a regulatory framework that allows for an integrated management of aflatoxins in a changing climate was proposed. The management practices in the framework are divided into agronomic, post-harvest and institutional levels. Given the multiple points of application, coordination amongst stakeholders along the chain is fundamental. We therefore proposed a complimentary framework that allows the food safety issues to be addressed in an integrated manner while allowing for transparent synergies and trade-offs (in implementing the measures). A policy-oriented foresight should be carried out to provide policy based evidence for the applicability of the proposed adaptation and mitigation measures.

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology
Authors: Wambui, J. M. (Ekstern), Karuri, E. G. (Ekstern), Ojiambo, J. A. (Ekstern), Njage, P. M. K. (Intern)
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Main Research Area: Technical/natural sciences

Publication information
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Scopus rating (2017): SNIP 0.657 SJR 0.453
Web of Science (2017): Indexed yes
Scopus rating (2016): CiteScore 2.17 SJR 0.559 SNIP 0.898
Web of Science (2016): Indexed yes
Scopus rating (2015): SJR 0.626 SNIP 0.88 CiteScore 1.81
Scopus rating (2014): SJR 0.663 SNIP 0.735 CiteScore 2.1
Web of Science (2014): Indexed yes
Scopus rating (2013): SJR 0.723 SNIP 0.875 CiteScore 2.2
ISI indexed (2013): ISI indexed yes
Scopus rating (2012): SJR 0.774 SNIP 1.1 CiteScore 2.1
ISI indexed (2012): ISI indexed yes
Scopus rating (2011): SJR 0.526 SNIP 0.777 CiteScore 1.42
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A decision support system for the control of Campylobacter in chickens at farm level using data from Denmark
The control of Campylobacter in poultry is considered a public health priority and some intervention strategies have been implemented in Denmark. Nonetheless, Campylobacter infection in poultry can still be considerable particularly during the summer when the most promising Campylobacter control strategy seems to be the use of fly screens. The use of cost-effective vaccines against Campylobacter is also desirable. In order to control Campylobacter, poultry producers need to make crucial decisions under conditions of uncertainty. With the aim of assisting poultry producers in decision making regarding Campylobacter control strategies, the objective of the present study was to produce a decision support system that integrated knowledge and used a Bayesian approach to handle uncertainty. This decision support system integrated epidemiological data, microbiological considerations, financial information and potential control strategies (the use of fly screens and hypothetical vaccines). In conclusion, results from model and sensitivity analyses indicated that the financial variables (cost–benefit functions) and the effectiveness of the different control strategies drove the results.

General information
State: Published
A detailed view of *Listeria monocytogenes*’ adaptation and survival under cold temperature stress

The human pathogen *Listeria monocytogenes* (*Lm*) continues to be a challenge for the food industry where it is known to contaminate ready-to-eat foods and grow during refrigerated storage. In order to gain increased control of *Lm* in the food-supply-chain, an improved understanding of low temperature stress adaptation methods is needed. In this study, RNA-seq (strand specific Illumina libraries; 22-39 million 2x100bp reads) and cell membrane fatty acid profiling were used to analyze adaptation mechanisms used by a fast growing, serotype 1/2a, *Lm* food plant isolate at 4°C. Brain heart infusion (BHI) broth pre-tempered to 20 or 4°C, was inoculated with 10⁷ CFU/ml of stationary phase (SP) cells grownat 20°C in BHI, and incubated at 20 and 4°C. RNA and lipids were extracted at T1– early lag phase (LP), T2 – end of LP, T3 – mid-exponential, T4 – transition to SP, and T5 – late SP (T5+4 h or 2 days for 20 and 4°C respectively). The number of coding transcripts upregulated (>2 log₂, p<0.05) at 4°C relative to 20°C was 142, 96, 91, 45, and 388 from T1-T5 respectively, while the number of down regulated genes at T1-T5was 91, 38, 56, 125, and 256 respectively. Notably, the greatest differential gene expression occurred in *Lm* cells during late SP at 4°C, the most relevant physiological state to *Lm*’s survival in chilled food products. Common among all time points was the upregulation of nine genes required for branched-chain fatty acid (BCFA) synthesis, which was supported by an increase in membrane BCFA from 77% at T1-4°C to 93%at T5-4°C. Putative cold stress regulatory mechanisms could be observed through negatively correlated expression levels of sense and antisense RNA. This research highlights *Lm*’s response to cold stress and provides deeper insight into how refrigerated storage conditions influence microbial gene expression and physiology.

**General information**

State: Published
Organisations: National Food Institute, Research Group for Analytical and Predictive Microbiology, University of British Columbia
Authors: Hingston, P. (Ekstern), Hansen, L. T. (Intern), Wang, S. (Ekstern), Allen, K. (Ekstern), Chen , J. (Ekstern)
Number of pages: 1
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Main Research Area: Technical/natural sciences
Cold stress, Food Safety, *Listeria monocytogenes*, RNA sequencing, Time course
Electronic versions:

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A full-layer bladder wall patch by mincing both porcine bladder mucosa and detrusor in a natural-synthetic scaffold

**General information**

State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science, Karolinska Institutet, Uppsala University
Authors: Ajalloueian, F. (Intern), Chamorro, C. I. (Ekstern), Chronakis, I. S. (Intern), Hilborn, J. (Ekstern), Fossum, M. (Ekstern)
Pages: 84-84
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BFI (2018): BFI-level 1
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BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.299 SJR 1.345
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.52 SJR 1.403 SNIP 1.283
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.795 SNIP 1.666 CiteScore 1.91
BFI (2014): BFI-level 1
Alcohol-related breast cancer in postmenopausal women - effect of CYP19A1, PPARG and PPARGC1A polymorphisms on female sex-hormone levels and interaction with alcohol consumption and NSAID usage in a nested case-control study and a randomised controlled trial

Alcohol consumption is associated with increased risk of breast cancer (BC), and the underlying mechanism is thought to be sex-hormone driven. In vitro and observational studies suggest a mechanism involving peroxisome proliferator-activated receptor gamma (PPARγ) in a complex with peroxisome proliferator-activated receptor gamma coactivator 1-α (PGC-1α) and interaction with aromatase (encoded by CYP19A1). Use of non-steroidal anti-inflammatory drugs (NSAID) may also affect circulating sex-hormone levels by modifying PPARγ activity. In the present study we assessed whether genetic variation in CYP19A1 is associated with risk of BC in a case-control study group nested within the Danish "Diet, Cancer and Health" cohort (ncases = 687 and ncontrols = 687) and searched for gene-gene interaction between CYP19A1 and PPARGC1A, and CYP19A1 and PPARG, and gene-alcohol and gene-NSAID interactions. Association between the CYP19A1 polymorphisms and hormone levels was also examined among 339 non-HRT users. Incidence rate ratios were calculated based on Cox' proportional hazards model. Furthermore, we performed a pilot randomised controlled trial to determine the effect of the PPARγ Pro(12)Ala polymorphism and the PPARγ stimulator ibuprofen on sex-hormone levels following alcohol intake in postmenopausal women (n=25) using linear regression. Genetic variations in CYP19A1 were associated with hormone levels (estrone: P rs11070844 = 0.009, estrone sulphate: P rs11070844 = 0.01, P rs749292 = 0.004, P rs1062033 = 0.007 and P rs10519297 = 0.03, and sex hormone-binding globulin (SHBG): P rs3751591 = 0.03) and interacted with alcohol intake in relation to hormone levels (estrone sulphate: P interaction/rs2008691 = 0.02 and P interaction/rs1062033 = 0.03, and SHBG: P interaction/rs11070844 = 0.03). CYP19A1/rs3751591 was both associated with SHBG levels (P = 0.03) and with risk of BC (Incidence Rate Ratio = 2.12; 95 % Confidence Interval: 1.02-4.43) such that homozygous variant allele carriers had increased levels of serum SHBG and were at increased risk of BC. Acute intake of alcohol decreased blood estrone (P =

**General information**

**State:** Published

**Organisations:** National Food Institute, Research Group for Risk-Benefit, Danish Cancer Society, Statens Serum Institut, University of Copenhagen, Rigshospitalet, National Research Center for Working Environment
A Livestock-Associated, Multidrug-Resistant, Methicillin-Resistant Staphylococcus aureus Clonal Complex 97 Lineage Spreading in Dairy Cattle and Pigs in Italy

Pandemic methicillin-resistant Staphylococcus aureus (MRSA) clonal complex 97 (CC97) lineages originated from livestock-to-human host jumps. In recent years, CC97 has become one of the major MRSA lineages detected in Italian farmed animals. The aim of this study was to characterize and analyze differences in MRSA and methicillin-susceptible S. aureus (MSSA) mainly of swine and bovine origins. Forty-seven CC97 isolates, 35 MRSA isolates, and 6 MSSA isolates from different Italian pig and cattle holdings; 5 pig MRSA isolates from Germany; and 1 human MSSA isolate from Spain were characterized by macrorestriction pulsed-field gel electrophoresis (PFGE) analysis, multilocus sequence typing (MLST), spa typing, staphylococcal cassette chromosome mec (SCCmec) typing, and antimicrobial resistance pattern analysis. Virulence and resistance genes were investigated by PCR and microarray analysis. Most of the isolates were of SCCmec type V (SCCmec V), except for two German MRSA isolates (SCCmec III). Five main clusters were identified by PFGE, with the German isolates (clusters I and II) showing 60.5% similarity with the Italian isolates, most of which (68.1%) grouped into cluster V. All CC97 isolates were Panton-Valentine leukocidin (PVL) negative, and a few (n = 7) tested positive for sak or scn. All MRSA isolates were multidrug resistant (MDR), and the main features were erm(B)- or erm(C)-mediated (n = 18) macrolide-lincosamide-streptogramin B resistance, vga(A)-mediated (n = 37) pleuromutilin resistance, fluoroquinolone resistance (n = 33), tet(K) in 32/37 tet(M)-positive isolates, and blaZ in almost all MRSA isolates. Few host-associated differences were detected among CC97 MRSA isolates: their extensive MDR nature in both pigs and dairy cattle may be a consequence of a spillback from pigs of a MRSA lineage that originated in cattle as MSSA and needs further investigation. Measures should be implemented at the farm level to prevent spillover to humans in intensive farming areas.
Analysis of farm specific risk factors for Campylobacter colonization of broilers in six European countries

This study presents on-farm risk factors for the colonization of broiler flocks with Campylobacter based on comparable data from six European countries: Denmark, the Netherlands, Norway, Poland, Spain, and the UK. The study includes explanatory variables from a large questionnaire concerning production, farm management procedures and farm conditions, climate data on mean temperature, sunshine hours, and precipitation, as well as data on Campylobacter status of broiler flocks. All together the study comprises data from more than 6000 flocks. The data were analysed using a generalized linear model. Due to a large number of parameters, some collinearity and relatively many missing values, the model was analysed by a method using all available cases at each step in the modelling process. The modelling process includes backwards elimination and forward selection. Several approaches were furthermore explored by applying different strategies for categorizing explanatory variables and for selecting and eliminating variables in the model.

Despite national differences in broiler production, common risk factors for Campylobacter colonization of broiler flocks were identified across all six countries. These were generally related to inadequate biosecurity. Identified risk factors were:
broiler houses older than 15 years, absence of anterooms and barriers in each house, shared tools between houses, long
downtime, and drinker systems with bells or cups. Also, the risk of broiler flocks becoming colonized with Campylobacter
was clearly affected by country. In descending order, broiler flocks were more likely to be colonized in Poland, the UK,
Spain, the Netherlands, Denmark and Norway due to country specific factors that could not be explained by the identified
risk factors or any other variables from the questionnaire. The seasonality observed for prevalence values was described
by the monthly mean temperature reported in the study, i.e. the higher the temperature, the higher the prevalence of
positive flocks.

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, National Food Institute, Division of Risk
Assessment and Nutrition, University of Liverpool, Universitat Autonoma de Barcelona, National Veterinary Research
Institute, Norwegian Veterinary Institute, Utrecht University
Authors: Sommer, H. M. (Intern), Borck Høg, B. (Intern), Larsen, L. S. (Intern), Sørensen, A. I. V. (Intern), Williams, N.
(Ekstern), Merga, J. Y. .. (Ekstern), Cerdá-Cuéllar, M. (Ekstern), Urdaneta, S. (Ekstern), Doiz, R. (Ekstern), Wieczorek, K.
(Ekstern), Osek, J. (Ekstern), David, B. (Ekstern), Hofshagen, M. (Ekstern), Jonsson, M. (Ekstern), Wagenaar, J. A.
(Ekstern), Bolder, N. (Ekstern), Rosenquist, H. (Intern)
Pages: 16-26
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
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Volume: 2-3
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Campylobacter, Risk factors, Multinational, Broilers, Generalized linear model, Climate
DOIs: 10.1016/j.mran.2016.06.002
Source: Findit
Source-ID: 2305490929
Publication: Research - peer-review › Journal article – Annual report year: 2016

Analysis of vitamin K-1 in fruits and vegetables using accelerated solvent extraction and liquid chromatography tandem
mass spectrometry with atmospheric pressure chemical ionization
The objective of this study was to develop a rapid, sensitive, and specific analytical method to study vitamin K-1 in fruits
and vegetables. Accelerated solvent extraction and solid phase extraction was used for sample preparation. Quantification
was done by liquid chromatography tandem mass spectrometry with atmospheric pressure chemical ionization in selected
reaction monitoring mode with deuterium-labeled vitamin K1 as an internal standard. The precision was estimated as the
pooled estimate of three replicates performed on three different days for spinach, peas, apples, banana, and beetroot. The
repeatability was 5.2% and the internal reproducibility was 6.2%. Recovery was in the range 90-120%. No significant
difference was observed between the results obtained by the present method and by a method using the same principle
as the CEN-standard i.e. liquid-liquid extraction and post-column zinc reduction with fluorescence detection. Limit of
quantification was estimated to 0.05 mu g/100 g fresh weight. (C) 2015 Elsevier Ltd. All rights reserved.

General information
State: Published
Organisations: National Food Institute, Division of Food Chemistry, Research Group for Bioactives – Analysis and
Application
Authors: Jäpelt, R. B. (Intern), Jakobsen, J. (Intern)
Number of pages: 7
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Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Food Chemistry
Volume: 192
ISSN (Print): 0308-8146
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BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 2.109 SJR 1.793
An Approach to Cluster EU Member States into Groups According to Pathways of Salmonella in the Farm-to-Consumption Chain for Pork Products

The aim of the project as the cluster analysis was to in part to develop a generic structured quantitative microbiological risk assessment (QMRA) model of human salmonellosis due to pork consumption in EU member states (MSs), and the objective of the cluster analysis was to group the EU MSs according to the relative contribution of different pathways of Salmonella in the farm-to-consumption chain of pork products. In the development of the model, by selecting a case study MS from each cluster the model was developed to represent different aspects of pig production, pork production, and consumption of pork products across EU states. The objective of the cluster analysis was to aggregate MSs into groups of countries with similar importance of different pathways of Salmonella in the farm-to-consumption chain using available, and where possible, universal register data related to the pork production and consumption in each country. Based on MS-specific information about distribution of (i) small and large farms, (ii) small and large slaughterhouses, (iii) amount of pork meat consumed, and (iv) amount of sausages consumed we used nonhierarchical and hierarchical cluster analysis to group the MSs. The cluster solutions were validated internally using statistic measures and externally by comparing the clustered MSs with an estimated human incidence of salmonellosis due to pork products in the MSs. Finally, each cluster was characterized qualitatively using the centroids of the clusters.

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology
Authors: Vigre, H. (Intern), Coutinho Calado Domingues, A. R. (Intern), Pedersen, U. B. (Intern), Hald, T. (Intern)
Number of pages: 11
Pages: 450-460
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Risk Analysis
Volume: 36
Issue number: 3
ISSN (Print): 0272-4332
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BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.381 SJR 1.01
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.21 SJR 1.12 SNIP 1.485
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.334 SNIP 1.495 CiteScore 2.51
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.331 SNIP 1.588 CiteScore 2.2
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.067 SNIP 1.595 CiteScore 2.1
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.76 SNIP 1.593 CiteScore 2.12
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.735 SNIP 1.693 CiteScore 2.15
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.739 SNIP 1.51
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
A new methodology for modelling of health risk from urban flooding exemplified by cholera: Case Dhaka, Bangladesh

The phenomenon of urban flooding due to rainfall exceeding the design capacity of drainage systems is a global problem and can have significant economic and social consequences. This is even more extreme in developing countries, where poor sanitation still causes a high infectious disease burden and mortality, especially during floods. At present, there are no software tools capable of combining hydrodynamic modelling and health risk analyses, and the links between urban flooding and the health risk for the population due to direct contact with the flood water are poorly understood. The present paper outlines a novel methodology for linking dynamic urban flood modelling with quantitative microbial risk assessment (QMRA). This provides a unique possibility for understanding the interaction between urban flooding and health risk caused by direct human contact with the flood water and hence gives an option for reducing the burden of disease in the population by use of intelligent urban flood risk management. The model linking urban flooding and health risk is applied to Dhaka City in Bangladesh, where waterborne diseases including cholera are endemic. The application to Dhaka City is supported by measurements of pathogens in the urban drainage system. The outcome of the application indicates that direct contact with polluted flood water is a plausible route of primary transmission of cholera and demonstrates the applicability and the potential for linking urban flood models with QMRA in order to identify interventions to reduce the burden of disease on the population in Dhaka City.

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition, University of Exeter, Institute for Water Modelling, DHI Denmark
Authors: Mark, O. (Ekstern), Jørgensen, C. (Ekstern), Hammond, M. (Ekstern), Khan, D. (Ekstern), Tjener, R. (Ekstern), Erichsen, A. (Ekstern), Helwigh, B. (Intern)
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Main Research Area: Technical/natural sciences

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Journal: Journal of Flood Risk Management
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Web of Science (2017): Indexed Yes
Scopus rating (2016): CiteScore 1.52 SJR 0.701 SNIP 1.63
Web of Science (2016): Indexed yes
Scopus rating (2015): SJR 0.58 SNIP 1.007 CiteScore 1
Scopus rating (2014): SJR 0.61 SNIP 0.776 CiteScore 0.96
An investigation on the application of ohmic heating of cold water shrimp and brine mixtures

Cooking is an important unit-operation in the production of cooked and peeled shrimps. The present study explores the feasibility of using ohmic heating for cooking of shrimps. The focus is on investigating the effects of different process parameters on heating time and quality of ohmic cooked shrimps (Pandalus Borelias). The shrimps were heated to a core temperature of 72 °C in a brine solution using a small batch ohmic heater. Three experiments were performed: 1) a comparative analyses of the temperature development between different sizes of shrimps and thickness (head and tail region of the shrimp) over varying salt concentrations (10 kg m\(^{-3}\) to 20 kg m\(^{-3}\)) and electric field strengths (1150 V m\(^{-1}\) to 1725 V m\(^{-1}\)) with the heating time as the response; 2) a 2-level factorial experiment for screening the impact of processing conditions using electric field strengths of 1250 V m\(^{-1}\) and 1580 V m\(^{-1}\) and salt concentrations of 13.75 kg m\(^{-3}\) and 25.75 kg m\(^{-3}\) and 3) evaluating the effect of pretreatment (maturation) of the shrimps before ohmic processing. The maturation experiment was performed with the following maturation pre-treatments: normal tap water, a 21.25 kg m\(^{-3}\) brine solution and without maturation. The measured responses for experiments 2 and 3 were: the heating time until the set temperature of the shrimps was reached, weight loss, press juice and texture profile. It was possible to fit main effects model relating process settings and the heating time, weight loss and press juice measurements. Furthermore, the results showed that over the tested process workspace no significant changes were seen in the texture measurements of the shrimps and that the shrimp achieved a comparable quality compared to the conventional heating processes reported in the literature. The findings show a promising utilization of ohmic heating as a unit operation for the shrimp.

General information
State: Published
Organisations: National Food Institute, Research Group for Food Production Engineering, Department of Systems Biology, Technical University of Denmark
Authors: Pedersen, S. J. (Intern), Feyissa, A. H. (Intern), Brekner Kavli, S. T. (Ekstern), Frosch, S. (Intern)
Number of pages: 8
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Scopus rating (2017): SJR 1.279 SNIP 1.671
Web of Science (2017): Indexed yes
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Scopus rating (2016): CiteScore 3.71 SJR 1.476 SNIP 1.837
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.475 SNIP 1.858 CiteScore 3.58
Web of Science (2015): Indexed yes
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BFI (2013): BFI-level 1
Annual report on zoonoses in Denmark 2015

General information
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Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Statens Serum Institut
Authors: Helwigh, B. (ed.) (Intern), Christensen, J. (ed.) (Intern), Müller, L. (ed.) (Ekstern)
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ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.36 SNIP 1.978 CiteScore 2.84
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.334 SNIP 1.911 CiteScore 2.84
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.447 SNIP 1.795
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.423 SNIP 1.614
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 1.296 SNIP 1.517
Scopus rating (2007): SJR 1.058 SNIP 1.95
Web of Science (2007): Indexed yes
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Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 0.802 SNIP 1.425
Scopus rating (2004): SJR 0.875 SNIP 1.452
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 0.877 SNIP 1.613
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A novel cell factory for efficient production of ethanol from dairy waste

Sustainable and economically feasible ways to produce ethanol or other liquid fuels are becoming increasingly relevant due to the limited supply of fossil fuels and the environmental consequences associated with their consumption. Microbial production of fuel compounds has gained a lot of attention and focus has mostly been on developing bio-processes involving non-food plant biomass feedstocks. The high cost of the enzymes needed to degrade such feedstocks into its constituent sugars as well as problems due to various inhibitors generated in pretreatment are two challenges that have to be addressed if cost-effective processes are to be established. Various industries, especially within the food sector, often have waste streams rich in carbohydrates and/or other nutrients, and these could serve as alternative feedstocks for such bio-processes. The dairy industry is a good example, where large amounts of cheese whey or various processed forms thereof are generated. Because of their nutrient-rich nature, these substrates are particularly well suited as feedstocks for microbial production. We have generated a Lactococcus lactis strain which produces ethanol as its sole fermentation product from the lactose contained in residual whey permeate (RWP), by introducing lactose catabolism into a L. lactis strain CS4435 (MG1363 Δ(3) ldh, Δpta, ΔadhE, pCS4268), where the carbon flow has been directed toward ethanol instead of lactate. To achieve growth and ethanol production on RWP, we added corn steep liquor hydrolysate (CSLH) as the nitrogen source. The outcome was efficient ethanol production with a titer of 41 g/L and a yield of 70 % of the theoretical maximum using a fed-batch strategy. The combination of a low-cost medium from industrial waste streams and an efficient cell factory should make the developed process industrially interesting. A process for the production of ethanol using L. lactis and a cheap renewable feedstock was developed. The results demonstrate that it is possible to achieve sustainable bioconversion of waste products from the dairy industry (RWP) and corn milling industry (CSLH) to ethanol and the process developed shows great potential for commercial realization.
A novel gold nanoparticle-DNA aptamer-based plasmonic chip for rapid and sensitive detection of bacterial pathogens

Gold nanoparticles (AuNPs)-based biosensors are emerging technologies for rapid detection of pathogens. However, it is very challenging to develop chip-based AuNP-biosensors for whole cells. This paper describes a novel AuNPs-DNA aptamer-based plasmonic assay which allows DNA aptamers to be detached from AuNPs when interacting with bacteria. The new strategy greatly increases the sensitivity and specificity of chip-based whole-cell biosensing.

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Authors: Sun, Y. (Intern), Phuoc Long, T. (Intern), Wolff, A. (Intern), Bang, D. D. (Intern)
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A novel lab-on-chip platform with integrated solid phase PCR and Supercritical Angle Fluorescence (SAF) microlens array for highly sensitive and multiplexed pathogen detection

Solid-phase PCR (SP-PCR) has become increasingly popular for molecular diagnosis and there have been a few attempts to incorporate SP-PCR into lab-on-a-chip (LOC) devices. However, their applicability for on-line diagnosis is hindered by the lack of sensitive and portable on-chip optical detection technology. In this paper, we addressed this challenge by combining the SP-PCR with super critical angle fluorescence (SAF) microlens array embedded in a microchip. We fabricated miniaturized SAF microlens array as part of a microfluidic chamber in thermoplastic material and performed multiplexed SP-PCR directly on top of the SAF microlens array. Attribute to the high fluorescence collection efficiency of the SAF microlens array, the SP-PCR assay on the LOC platform demonstrated a high sensitivity of 1.6 copies/µL, comparable to off-chip detection using conventional laser scanner. The combination of SP-PCR and SAF microlens array allows for on-chip highly sensitive and multiplexed pathogen detection with low-cost and compact optical components. The LOC platform would be widely used as a high-throughput biosensor to analyze food, clinical and environmental samples.
Antibiotic Resistance in Escherichia coli from Pigs in Organic and Conventional Farming in Four European Countries

Organic pig production differs in many ways from conventional production of pigs, e.g., in antibiotic use, herd structure, feeding regimes, access to outdoor areas and space allowance per pig. This study investigated if these differences result in a lower occurrence of antibiotic resistance in organic slaughter pigs in Denmark, France, Italy and Sweden. Samples were taken from the colon content and/or faeces and minimum inhibitory concentrations (MIC) of ten antibiotics were determined in isolates of Escherichia coli. In addition, the proportion of tetracycline (TET) resistant E. coli in colon content and/or faeces from individual pigs was determined. In all four countries the percentage resistance to ampicillin, streptomycin, sulphonamides or trimethoprim was significantly lower in E. coli from organic pigs. In France and Italy, the percentage of isolates resistant to chloramphenicol, ciprofloxacin, nalidixic acid or gentamicin was also significantly lower in the E. coli from organic pigs. Resistance to cefotaxime, was not found in any country. The percentage of E. coli isolates resistant to TET as well as the proportion of TET-resistant E. coli was significantly lower in organic than in conventional pigs, except in Sweden where TET-resistance was equally low in both production types. There were also differences between countries within production type in the percentage resistance to individual antibiotics as well as the proportion of TET-resistant E. coli with lower median proportions in Sweden and Denmark compared to France and Italy. The study shows that in each of the four countries resistance in intestinal E. coli was less common in organic than in conventional pigs, but that there were also large differences in resistance between countries within each production type, indicating that both country- and production-specific factors influence the occurrence of resistance.
Antioxidant activity of cod (Gadus morhua) protein hydrolysates: Fractionation and characterisation of peptide fractions

This study aimed to characterise peptide fractions (>5 kDa, 3–5 kDa and <3 kDa) with antioxidative activity obtained from a cod protein hydrolysate. The free amino acids in all fractions were dominated by Ala, Gly, Glu and Ser. The total amino acid composition had high proportions of Lys, Ala and Glu. The 3–5 kDa and <3 kDa fractions were further fractionated by size exclusion chromatography. All sub-fractions showed high Fe²⁺ chelating activity. The DPPH radical-scavenging activity of the 3–5 kDa fraction was exerted mainly by one sub-fraction dominated by peptides with masses below 600 Da. The DPPH radical-scavenging activity of the <3 kDa fraction was exerted by sub-fractions with low molecular weight. The highest reducing power was found in a sub-fraction containing peptides rich in Arg, Tyr and Phe. Both free amino acids and low molecular weight peptides thus seemed to contribute to the antioxidative activity of the peptide fractions, and Tyr seemed to play a major role in the antioxidant activity.

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BFI (2015): BFI-level 2  
Scopus rating (2015): SJR 1.582 SNIP 1.946 CiteScore 4.31  
Web of Science (2015): Indexed yes  
BFI (2014): BFI-level 2  
Scopus rating (2014): SJR 1.557 SNIP 2.01 CiteScore 3.92  
Web of Science (2014): Indexed yes  
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Scopus rating (2011): SJR 1.911 SNIP 2.383 CiteScore 4.17  
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Web of Science (2011): Indexed yes  
BFI (2010): BFI-level 2  
Scopus rating (2010): SJR 1.981 SNIP 2.253  
Web of Science (2010): Indexed yes  
BFI (2009): BFI-level 2  
Scopus rating (2009): SJR 1.789 SNIP 2.023  
Web of Science (2009): Indexed yes  
BFI (2008): BFI-level 2  
Scopus rating (2008): SJR 1.47 SNIP 1.706  
Web of Science (2008): Indexed yes  
Scopus rating (2007): SJR 1.475 SNIP 2.087  
Web of Science (2007): Indexed yes  
Web of Science (2006): Indexed yes  
Scopus rating (2005): SJR 1.028 SNIP 1.526  
Web of Science (2005): Indexed yes  
Scopus rating (2004): SJR 1.077 SNIP 1.438  
Scopus rating (2003): SJR 0.876 SNIP 1.248  
Web of Science (2003): Indexed yes  
Scopus rating (2002): SJR 0.966 SNIP 1.235  
Web of Science (2002): Indexed yes  
Scopus rating (2001): SJR 0.785 SNIP 0.975  
Web of Science (2001): Indexed yes  
Scopus rating (2000): SJR 0.588 SNIP 0.961  
Web of Science (2000): Indexed yes
Antioxidant Activity of Protein Hydrolysates Obtained from Common Carp (Cyprinus carpio) Discarded Roe

Lipid oxidation represents a severe challenge in food engineering because it deteriorates quality of foods, especially those containing high contents of polyunsaturated fatty acids (PUFAs). One way to overcome this barrier is application of synthetic antioxidants such as butylated hydroxyanisole (BHA), butylated hydroxytoluene (BHT), propyl gallate (PG), and tertiary butylhydroquinone (TBHQ) in PUFAs-rich foods. However, recently there have been concerns over health-related risks posed by these synthetic agents. Therefore, obtaining safe antioxidants from natural sources, especially those which are discarded with no use, with potency to retard lipid oxidation has gained sizable attention. Therefore, the present study aimed at obtaining “green” antioxidants from discarded common carp roe via the so-called hydrolysis process by using alcalase and determining their antioxidant activity both in vitro and in food model systems. Four common carp roe protein hydrolysates (CRPH) obtained at different reaction times (i.e. 30, 60, 90, and 120 min) were assayed. In vitro antioxidant activity of the hydrolysates was measured through three different assays (i.e. DPPH radical scavenging, metal ion chelating, and reducing power). Furthermore, the oxidative stability of 5% fish oil-in-water emulsions containing or not the hydrolysates was investigated by monitoring their content of hydroperoxides and volatiles markers. The hydrolysates exhibited high DPPH radical scavenging activity and reducing power when compared to positive controls, i.e. BHT and ascorbic acid, respectively. However, Fe2+ chelating capacity of the hydrolysates was relatively lower than that of Ethylenediaminetetraacetic acid (EDTA), applied as positive control. The antioxidant activity of hydrolysates changed with DH and increased in a dose dependent manner. Unlike CRPH-fortified emulsions, the emulsions without CRPH exhibited significantly increased peroxide value (PV) during the storage period (p<0.05), reaching from 4.7±0.1 at day 0 to 79.2±11.3 at day 7. Moreover, all CRPH-containing emulsions showed negligible amounts of most secondary oxidation products (e.g. 1-penten-3-one and (E,E)-2,4-heptadienal) when compared to the emulsion control at day 7. These results indicate that common carp roe protein hydrolysates exert antioxidant activity both in vitro and in fish oil-in-water emulsions, and can thus be considered as alternative antioxidants to the synthetic ones.
However, the extent of protection offered by these extracts against protein oxidation was not clear and further studies are needed to understand the nature of the interaction between proteins and these extracts.

**General information**

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*Organisations*: National Food Institute, Research Group for Bioactives – Analysis and Application, University of Guilan  
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- Web of Science (2017): Indexed yes  
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- Web of Science (2016): Indexed yes  
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- Scopus rating (2015): SJR 1.329 SNIP 1.375 CiteScore 2.74  
- BFI (2014): BFI-level 1  
- Scopus rating (2014): SJR 1.426 SNIP 1.769 CiteScore 3.24  
- Web of Science (2014): Indexed yes  
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- ISI indexed (2013): ISI indexed yes  
- Web of Science (2013): Indexed yes  
- Scopus rating (2012): SJR 1.361 SNIP 2.346 CiteScore 3.42  
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- Scopus rating (2011): SJR 1.14 SNIP 2.027 CiteScore 2.87  
- ISI indexed (2011): ISI indexed yes  
- Web of Science (2011): Indexed yes  
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**Food Science, Process Chemistry and Technology, Safety, Risk, Reliability and Quality, Industrial and Manufacturing Engineering, Antioxidant, Fucus serratus, Minced fish, Polysiphonia fucoides, Total phenolic content, Agents, Amino acids, Antioxidants, Carbonyl compounds, Ethanol, Food storage, Oxidation, Proteins, Seaweed, Anti-oxidant activities, Antioxidative effects, Minced fishes, Natural antioxidants, Synthetic antioxidants, Extraction**

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**Antioxidative low molecular weight compounds in marinated herring (Clupea harengus) salt brine**

This study aimed at unravelling the antioxidative capacity of low molecular weight compounds (LMWC) (peptides, amino acids and phenolic acids) present in salt brines from the marinated herring production. Brines were fractionated into <10 kDa fractions using dialysis and further into 94 fractions using size exclusion chromatography. All samples were analysed for protein, total phenolic content (TPC) and antioxidant activities. Protein-enriched samples were pooled (P1, P2 and P3)
and analysed for phenolic acids, total amino acids and peptide/protein sequence using advanced mass spectrometry. All salt brines contain LMWC holding ABTS-radical scavenging activity, reducing power and iron chelating activity. Generally, a strong correlation between TPC and ABTS-radical scavenging was found. In contrast, reducing power and iron chelating activity seemed to be caused by peptides. Protein/peptide sequencing revealed 1 kDa peptides with the presence of HDF motif which could be responsible for some of the antioxidant capacity observed in marinated herring salt brine.

**General information**

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Organisations: National Food Institute, Research Group for Food Production Engineering, Research Group for Bioactives – Analysis and Application, Technical University of Denmark, University of Southern Denmark, Chalmers University of Technology
Authors: Gringer, N. (Intern), Safafar, H. (Intern), du Mesnildot, A. (Ekstern), Nielsen, H. H. (Ekstern), Rogowska-Wrzesinska, A. (Ekstern), Undeland, I. (Ekstern), Baron, C. P. (Intern)
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- BFI (2016): BFI-level 2
- Scopus rating (2016): CiteScore 4.85 SJR 1.731 SNIP 2.095
- Web of Science (2016): Indexed yes
- BFI (2015): BFI-level 2
- Scopus rating (2015): SJR 1.582 SNIP 1.946 CiteScore 4.31
- Web of Science (2015): Indexed yes
- BFI (2014): BFI-level 2
- Scopus rating (2014): SJR 1.557 SNIP 2.01 CiteScore 3.92
- Web of Science (2014): Indexed yes
- BFI (2013): BFI-level 2
- Scopus rating (2013): SJR 1.554 SNIP 2.056 CiteScore 3.87
- ISI indexed (2013): ISI indexed yes
- Web of Science (2013): Indexed yes
- BFI (2012): BFI-level 2
- Scopus rating (2012): SJR 1.762 SNIP 2.342 CiteScore 3.98
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- Web of Science (2012): Indexed yes
- BFI (2011): BFI-level 2
- Scopus rating (2011): SJR 1.911 SNIP 2.383 CiteScore 4.17
- ISI indexed (2011): ISI indexed yes
- Web of Science (2011): Indexed yes
- BFI (2010): BFI-level 2
- Scopus rating (2010): SJR 1.981 SNIP 2.253
- Web of Science (2010): Indexed yes
- BFI (2009): BFI-level 2
- Scopus rating (2009): SJR 1.789 SNIP 2.023
- Web of Science (2009): Indexed yes
- BFI (2008): BFI-level 2
- Scopus rating (2008): SJR 1.47 SNIP 1.706
- Web of Science (2008): Indexed yes
Application of Molecular Typing Results in Source Attribution Models: The Case of Multiple Locus Variable Number Tandem Repeat Analysis (MLVA) of Salmonella Isolates Obtained from Integrated Surveillance in Denmark

Salmonella is an important cause of bacterial foodborne infections in Denmark. To identify the main animal-food sources of human salmonellosis, risk managers have relied on a routine application of a microbial subtyping-based source attribution model since 1995. In 2013, multiple locus variable number tandem repeat analysis (MLVA) substituted phage typing as the subtyping method for surveillance of S. Enteritidis and S. Typhimurium isolated from animals, food, and humans in Denmark. The purpose of this study was to develop a modeling approach applying a combination of serovars, MLVA types, and antibiotic resistance profiles for the Salmonella source attribution, and assess the utility of the results for the food safety decisionmakers. Full and simplified MLVA schemes from surveillance data were tested, and model fit and consistency of results were assessed using statistical measures. We conclude that loci schemes STTR5/STTR10/STTR3 for S. Typhimurium and SE9/SE5/SE2/SE1/SE3 for S. Enteritidis can be used in microbial subtyping-based source attribution models. Based on the results, we discuss that an adjustment of the discriminatory level of the subtyping method applied often will be required to fit the purpose of the study and the available data. The issues discussed are also considered highly relevant when applying, e.g., extended multi-locus sequence typing or next-generation sequencing techniques.

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Authors: de Knegt, L. (Intern), Pires, S. M. (Intern), Löfström, C. (Intern), Sørensen, G. (Intern), Pedersen, K. (Intern), Torpdahl, M. (Ekstern), Nielsen, E. M. (Ekstern), Hald, T. (Intern)
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Application of TRiMiCri for the evaluation of risk-based microbiological criteria for Campylobacter on broiler meat

A potential solution for the reduction of consumer exposure to Campylobacter is establishing a microbiological criterion (MC) for Campylobacter on broiler meat. In the present study, the freely available software tool TRiMiCri was applied to evaluate risk-based microbiological criteria by two approaches: the traditional one that implies a microbiological limit (ML-MC) and the second one which is based on the relative risk estimate (RRL-MC). A baseline risk was estimated based on the Belgian baseline data, whereas the data for the evaluated batches were Campylobacter counts from 28 Campylobacter positive batches sampled in six Belgian slaughterhouses. Results showed that approximately 60% of Campylobacter positive batches did not comply with ML criteria based on the $n = 5$, $m = 1000$ and $c = 0$ for ML-MC and...
equivalently for RRL criteria when RRcrit = 1. As expected, the less stringent MCs decreased the percentages of non-compliance (NC) but they are less effective, as reflected in increased minimum relative residual risks (MRRRs). When the Belgian baseline is used, more batches are found to be compliant than when the Danish baseline provided by TRiMiCri is used. Based on this, the application of microbiological criteria for Campylobacter in the EU is discussed. TRiMiCri provides user friendly software to evaluate the available data and can help risk managers in establishing risk based microbiological criteria for Campylobacter in broiler meat.

**General information**

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Authors: Seliwiorstow, T. (Ekstern), Uyttendaele, M. (Ekstern), De Zutter, L. (Ekstern), Nauta, M. (Intern)
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Application of WGS data for O-specific antigen analysis and *in silico* serotyping of *Pseudomonas aeruginosa* isolates

Accurate typing methods are required for efficient infection control. The emergence of whole genome sequencing (WGS) technologies has enabled the development of genomics-based methods applicable for routine typing and surveillance of bacterial pathogens. In this study, we developed the *Pseudomonas aeruginosa* serotyper (PAs) program, which enabled *in silico* serotyping of *P. aeruginosa* isolates using WGS data. PAs has been made publically available as a web-service, and aptly facilitate high-throughput serotyping analysis. The program overcomes critical issues such as the loss of in vitro typeability often associated with *P. aeruginosa* isolates from chronic infections, and quickly determines the serogroup of an isolate based on the sequence of the O-specific antigen (OSA) gene cluster. Here, PAs analysis of 1649 genomes resulted in successful serogroup assignments in 99.27% of the cases. This frequency is rarely achievable by conventional serotyping methods. The limited number of non-typeable isolates found using PAs was the result of either complete absence of OSA genes in the genomes or the artifact of genomic misassembly. With PAs, *P. aeruginosa* serotype data can be obtained from WGS information alone. PAs is a highly efficient alternative to conventional serotyping methods in relation to outbreak surveillance of serotype O12 and other high-risk clones, while maintaining backward compatibility to historical serotype data.

**General information**

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Organisations: Department of Systems Biology, National Food Institute, Infection Microbiology, Center for Biological Sequence Analysis, University of Guelph
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Web of Science (2016): Indexed yes
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BFI (2011): BFI-level 1
Scopus rating (2011): SJR 2.346 SNIP 1.699 CiteScore 4.27
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Scopus rating (2010): SJR 2.343 SNIP 1.731
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Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 1.699 SNIP 1.701
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 1.854 SNIP 1.853
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 1.976 SNIP 1.724
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 2.066 SNIP 1.804
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Apramycin treatment affects selection and spread of a multidrug-resistant Escherichia coli strain able to colonize the human gut in the intestinal microbiota of pigs

The effect of apramycin treatment on transfer and selection of an Escherichia coli strain (E. coli 912) in the intestine of pigs was analyzed through an in vivo experiment. The strain was sequenced and assigned to the sequence type ST101 and serotype O11. It carried resistance genes to apramycin/gentamicin, sulphonamide, tetracycline, hygromycin B, β-lactams and streptomycin [aac(3)-IV, sul2, tet(X), aph(4), bla TEM-1 and strA/B], with all but tet(X) located on the same conjugative plasmid. Nineteen pigs were randomly allocated into two inoculation groups, one treated with apramycin (pen 2) and one non-treated (pen 3), along with a non-inoculated control group (pen 1). Two pigs of pen 2 and 3 were inoculated intragastrically with a rifampicin resistant variant of the strain. Apramycin treatment in pen 2 was initiated immediately after inoculation. Strain colonization was assessed in the feces from all pigs. E. coli 912 was shown to spread to non-inoculated pigs in both groups. The selective effect did not persist beyond 3 days post-treatment, and the strain was not detected from this time point in pen 2. We demonstrated that E. coli 912 was able to spread between pigs in the same pen irrespective of treatment, and apramycin treatment resulted in significantly higher counts compared to the non-treated group. This represents the first demonstration of how antimicrobial treatment affects spread of resistant bacteria in pig production. The use of apramycin may lead to enhanced spread of gentamicin-resistant E. coli. Since gentamicin is a first-choice drug for human bacteremia, this is of concern.
A proposed framework for the systematic review and integrated assessment (SYRINA) of endocrine disrupting chemicals

Background: The issue of endocrine disrupting chemicals (EDCs) is receiving wide attention from both the scientific and regulatory communities. Recent analyses of the EDC literature have been criticized for failing to use transparent and objective approaches to draw conclusions about the strength of evidence linking EDC exposures to adverse health or environmental outcomes. Systematic review methodologies are ideal for addressing this issue as they provide transparent and consistent approaches to study selection and evaluation. Objective methods are needed for integrating the multiple streams of evidence (epidemiology, wildlife, laboratory animal, in vitro, and in silico data) that are relevant in assessing EDCs.

Methods: We have developed a framework for the systematic review and integrated assessment (SYRINA) of EDC studies. The framework was designed for use with the International Program on Chemical Safety (IPCS) and World Health Organization (WHO) definition of an EDC, which requires appraisal of evidence regarding 1) association between exposure and an adverse effect, 2) association between exposure and endocrine disrupting activity, and 3) a plausible link between the adverse effect and the endocrine disrupting activity. Results: Building from existing methodologies for evaluating and synthesizing evidence, the SYRINA framework includes seven steps: 1) Formulate the problem; 2) Develop the review protocol; 3) Identify relevant evidence; 4) Evaluate evidence from individual studies; 5) Summarize and evaluate each stream of evidence; 6) Integrate evidence across all streams; 7) Draw conclusions, make recommendations, and evaluate uncertainties. The proposed method is tailored to the IPCS/WHO definition of an EDC but offers flexibility for use in the context of other definitions of EDCs. Conclusions: When using the SYRINA framework, the overall objective is to provide the evidence base needed to support decision making, including any action to avoid/minimise potential adverse effects of exposures. This framework allows for the evaluation and synthesis of evidence from multiple evidence streams. Finally, a decision regarding regulatory action is not only dependent on the strength of evidence, but also the consequences of action/inaction, e.g. limited or weak evidence may be sufficient to justify action if consequences are serious or irreversible.
A QMRA Model for Salmonella in Pork Products During Preparation and Consumption

As part of a quantitative microbiological risk assessment (QMRA) food chain model, this article describes a model for the consumer phase for Salmonella-contaminated pork products. Three pork products were chosen as a proxy for the entire pork product spectrum: pork cuts, minced meat patties, and fermented sausages. For pork cuts cross-contamination is considered the most important process and therefore it is modeled in detail. For minced meat, both cross-contamination and undercooking are the relevant processes. For those commodities bacterial growth during transport and storage is also modeled. Fermented sausages are eaten raw and the production may be defective. Variability between consumers’ behavior and the impact of variability between production processes at the farm and abattoir are taken into account. Results indicate that Salmonella levels on products may increase significantly during transport and storage. Heating is very efficient at lowering concentrations, yet cross-contamination plays an important role in products that remain contaminated. For fermented sausage it is found that drying is important for Salmonella reduction. Sensitivity analysis revealed that cross-contamination factors "knife cleaning" and "preparation of a salad" are important parameters for pork cuts. For minced meat cleaning of the board, salad consumption, refrigerator temperature, and storage time were significant.
A Quantitative Microbiological Risk Assessment for Salmonella in Pigs for the European Union

A farm-to-consumption quantitative microbiological risk assessment (QMRA) for Salmonella in pigs in the European Union has been developed for the European Food Safety Authority. The primary aim of the QMRA was to assess the impact of hypothetical reductions of slaughter-pig prevalence and the impact of control measures on the risk of human Salmonella infection. A key consideration during the QMRA development was the characterization of variability between E.U. Member States (MSs), and therefore a generic MS model was developed that accounts for differences in pig production, slaughterhouse practices, and consumption patterns. To demonstrate the parameterization of the model, four case study MSs were selected that illustrate the variability in production of pork meat and products across MSs. For the case study MSs the average probability of illness was estimated to be between 1 in 100,000 and 1 in 10 million servings given consumption of one of the three product types considered (pork cuts, minced meat, and fermented ready-to-eat sausages). Further analyses of the farm-to-consumption QMRA suggest that the vast majority of human risk derives from infected pigs with a high concentration of Salmonella in their feces (≥10⁴ CFU/g). Therefore, it is concluded that interventions should be focused on either decreasing the level of Salmonella in the feces of infected pigs, the introduction of a control step at the abattoir to reduce the transfer of feces to the exterior of the pig, or a control step to reduce the level of Salmonella on the carcass post-evisceration.

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Aquatic Ecotoxicity Testing of Nanoparticles—The Quest To Disclose Nanoparticle Effects

The number of products on the market containing engineered nanoparticles (ENPs) has increased significantly, and concerns have been raised regarding their ecotoxicological effects. Environmental safety assessments as well as relevant and reliable ecotoxicological data are required for the safe and sustainable use of ENPs. Although the number of publications on the ecotoxicological effects and uptake of ENPs is rapidly expanding, the applicability of the reported data
for hazard assessment is questionable. A major knowledge gap is whether nanoparticle effects occur when test organisms are exposed to ENPs in aquatic test systems. Filling this gap is not straightforward, because of the broad range of ENPs and the different behavior of ENPs compared to “ordinary” (dissolved) chemicals in the ecotoxicity test systems. The risk of generating false negatives, and false positives, in the currently used tests is high, and in most cases difficult to assess. This Review outlines some of the pitfalls in the aquatic toxicity testing of ENPs which may lead to misinterpretation of test results. Response types are also proposed to reveal potential nanoparticle effects in the aquatic test organisms.

**General information**

State: Published
Organisations: Department of Environmental Engineering, Environmental Chemistry, National Food Institute
Authors: Skjolding, L. M. (Intern), Sørensen, S. N. (Intern), Hartmann, N. B. (Intern), Hjorth, R. (Intern), Hansen, S. F. (Intern), Baun, A. (Intern)
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Web of Science (2010): Indexed yes
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Scopus rating (2009): SJR 5.571 SNIP 2.246
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BFI (2008): BFI-level 2
Scopus rating (2008): SJR 5.589 SNIP 2.153
Web of Science (2008): Indexed yes
A risk-based approach for evaluation of hygiene performance at pig slaughter

In Denmark, the pig slaughterhouses have a daily input of pigs infected and/or contaminated with Salmonella, and the slaughter hygiene has major influence on the level of Salmonella contamination on the meat leaving the slaughterhouse. However, the relationship between the effect of improved hygiene performance and the consequential reduction of human health risk has not been estimated so far. In this study, swab samples from 2702 pig carcasses were collected, originally for other purposes, from five large Danish slaughterhouses in a period from 2005 to 2007, covering all seasons of the year. The samples were analysed quantitatively for E. coli and semi-quantitatively for Salmonella. A positive association between the number of E. coli on carcasses and the prevalence of Salmonella positive carcasses was shown. For carcasses positive for Salmonella, a positive association was also shown between the number of E. coli and the number of Salmonella on the carcass. As no biological association has been reported between faecal shedding of E. coli and presence of Salmonella, the relationship was considered to be associated with the level of faecal contamination. The positive association between E. coli and Salmonella was used as basis for developing a quantitative risk assessment model for Salmonella, using the level E. coli as model input. The model output associated the hygiene performance with a relative risk estimate of human salmonellosis. The overall objective was to develop a decision support tool that can be used to support risk-based hygiene interventions in pig slaughterhouses.

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Organisations: National Food Institute, Research Group for Microbial Food Safety, Research Group for Risk-Benefit, Research Group for Genomic Epidemiology
Authors: Bollerslev, A. M. (Intern), Nauta, M. (Intern), Hald, T. (Intern), Hansen, T. B. (Intern), Aabo, S. (Intern)
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Scopus rating (2017): SJR 1.502 SNIP 1.69
A role for flies (Diptera) in the transmission of Campylobacter to broilers?

Campylobacter is the leading cause of bacterial diarrhoeal disease worldwide, with raw and undercooked poultry meat and products the primary source of infection. Colonization of broiler chicken flocks with Campylobacter has proved difficult to prevent, even with high levels of biosecurity. Dipteran flies are proven carriers of Campylobacter and their ingress into broiler houses may contribute to its transmission to broiler chickens. However, this has not been investigated in the UK.
Campylobacter was cultured from 2195 flies collected from four UK broiler farms. Of flies cultured individually, 0.22% [2/902, 95% confidence interval (CI) 0–0.53] were positive by culture for Campylobacter spp. Additionally, 1293 flies were grouped by family and cultured in 127 batches: 4/127 (3.15%, 95% CI 0.11–6.19) from three broiler farms were positive for Campylobacter. Multilocus sequence typing of isolates demonstrated that the flies were carrying broiler-associated sequence types, responsible for human enteric illness. Malaise traps were used to survey the dipteran species diversity on study farms and also revealed up to 612 flies present around broiler-house ventilation inlets over a 2-h period. Therefore, despite the low prevalence of Campylobacter cultured from flies, the risk of transmission by this route may be high, particularly during summer when fly populations are greatest.

General information
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Organisations: National Food Institute, University of Liverpool, University of Newcastle
Authors: Royden, A. (Ekstern), Wedley, A. (Ekstern), Merga, J. Y. (Ekstern), Rushton, S. (Ekstern), Hald, B. (Intern), Humphrey, T. (Ekstern), Williams, N. J. (Ekstern)
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BFI (2015): BFI-level 1
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Web of Science (2008): Indexed yes
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Web of Science (2006): Indexed yes
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Arsenic compounds in foodstuffs – the importance of speciation analysis for food safety assessment

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A sampling and metagenomic sequencing-based methodology for monitoring antimicrobial resistance in swine herds

Objectives
Reliable methods for monitoring antimicrobial resistance (AMR) in livestock and other reservoirs are essential to understand the trends, transmission and importance of agricultural resistance. Quantification of AMR is mostly done using
culture-based techniques, but metagenomic read mapping shows promise for quantitative resistance monitoring.

Methods
We evaluated the ability of: (i) MIC determination for Escherichia coli; (ii) cfu counting of E. coli; (iii) cfu counting of aerobic bacteria; and (iv) metagenomic shotgun sequencing to predict expected tetracycline resistance based on known antimicrobial consumption in 10 Danish integrated slaughter pig herds. In addition, we evaluated whether fresh or manure floor samples constitute suitable proxies for intestinal sampling, using cfu counting, qPCR and metagenomic shotgun sequencing.

Results
Metagenomic read-mapping outperformed cultivation-based techniques in terms of predicting expected tetracycline resistance based on antimicrobial consumption. Our metagenomic approach had sufficient resolution to detect antimicrobial-induced changes to individual resistance gene abundances. Pen floor manure samples were found to represent rectal samples well when analysed using metagenomics, as they contain the same DNA with the exception of a few contaminating taxa that proliferate in the extraintestinal environment.

Conclusions
We present a workflow, from sampling to interpretation, showing how resistance monitoring can be carried out in swine herds using a metagenomic approach. We propose metagenomic sequencing should be part of routine livestock resistance monitoring programmes and potentially of integrated One Health monitoring in all reservoirs.

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Scopus rating (2015): SJR 2.259 SNIP 1.516 CiteScore 4.06
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BFI (2014): BFI-level 1
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ISI indexed (2013): ISI indexed yes
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BFI (2011): BFI-level 1
Scopus rating (2011): SJR 2.341 SNIP 1.769 CiteScore 4.24
Assessing the Effectiveness of On-Farm and Abattoir Interventions in Reducing Pig Meat–Borne Salmonellosis within E.U. Member States

As part of the evidence base for the development of national control plans for Salmonella spp. in pigs for E.U. Member States, a quantitative microbiological risk assessment was funded to support the scientific opinion required by the EC from the European Food Safety Authority. The main aim of the risk assessment was to assess the effectiveness of interventions implemented on-farm and at the abattoir in reducing human cases of pig meat–borne salmonellosis, and how the effects of these interventions may vary across E.U. Member States. Two case study Member States have been chosen to assess the effect of the interventions investigated. Reducing both breeding herd and slaughter pig prevalence were effective in achieving reductions in the number of expected human illnesses in both case study Member States. However, there is scarce evidence to suggest which specific on-farm interventions could achieve consistent reductions in either breeding herd or slaughter pig prevalence. Hypothetical reductions in feed contamination rates were important in reducing slaughter pig prevalence for the case study Member State where prevalence of infection was already low, but not for the high-prevalence case study. The most significant reductions were achieved by a 1- or 2-log decrease of Salmonella contamination of the carcass post-evisceration; a 1-log decrease in average contamination produced a 90% reduction in human illness. The intervention analyses suggest that abattoir intervention may be the most effective way to reduce human exposure to Salmonella spp. However, a combined farm/abattoir approach would likely have cumulative benefits. On-farm intervention is probably most effective at the breeding-herd level for high-prevalence Member States; once infection in the breeding herd has been reduced to a low enough level, then feed and biosecurity measures would become increasingly more effective.

General information

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Assessment of healthy diets and physical activity: A study of differences between health professionals and lay people

General information
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Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Department of Applied Mathematics and Computer Science
Authors: Sørensen, M. R. (Intern), Tetens, I. (Intern), Matthiessen, J. (Intern), Andersen, E. W. (Intern)
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Assessment of healthy diets and physical activity: A study of differences between health professionals and lay people

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Authors: Sørensen, M. R. (Intern), Tetens, I. (Intern), Matthiessen, J. (Intern), Andersen, E. W. (Intern)
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Association between exposure to airborne noroviruses and gastroenteritis among wastewater workers

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Organisations: National Food Institute, National Veterinary Institute, Section for Bacteriology, Pathology and Parasitology, Research Group for Microbial Food Safety, Statens Serum Institut, University Hospital Herlev, National Research Center for Working Environment
Authors: Uhrbrand, K. (Intern), Fonager, J. (Ekstern), Madsen, A. M. (Ekstern), Kølsen Fischer, T. (Ekstern), Pedersen, K. (Intern), Nielsen, L. (Ekstern), Schultz, A. C. (Intern)
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Association of Panton Valentine Leukocidin (PVL) genes with methicillin resistant Staphylococcus aureus (MRSA) in Western Nepal: a matter of concern for community infections (a hospital based prospective study)

Methicillin resistant Staphylococcus aureus (MRSA) is a major human pathogen associated with nosocomial and community infections. Panton Valentine leukocidin (PVL) is considered one of the important virulence factors of S. aureus responsible for destruction of white blood cells, necrosis and apoptosis and as a marker of community acquired MRSA. This study was aimed to determine the prevalence of PVL genes among MRSA isolates and to check the reliability of PVL as marker of community acquired MRSA isolates from Western Nepal. A total of 400 strains of S. aureus were collected from clinical specimens and various units (Operation Theater, Intensive Care Units) of the hospital and 139 of these had
been confirmed as MRSA by previous study. Multiplex PCR was used to detect mecA and PVL genes. Clinical data as well as antimicrobial susceptibility data was analyzed and compared among PVL positive and negative MRSA isolates. Out of 139 MRSA isolates, 79 (56.8 %) were PVL positive. The majority of the community acquired MRSA (90.4 %) were PVL positive (Positive predictive value: 94.9 % and negative predictive value: 86.6 %), while PVL was detected only in 4 (7.1 %) hospital associated MRSA strains. None of the MRSA isolates from hospital environment was found positive for the PVL genes. The majority of the PVL positive strains (75.5 %) were isolated from pus samples. Antibiotic resistance among PVL negative MRSA isolates was found higher as compared to PVL positive MRSA. Our study showed high prevalence of PVL among community acquired MRSA isolates. Absence of PVL among MRSA isolates from hospital environment indicates its poor association with hospital acquired MRSA and therefore, PVL may be used a marker for community acquired MRSA. This is first study from Nepal, to test PVL among MRSA isolates from hospital environment.
Associations between common intestinal parasites and bacteria in humans as revealed by qPCR

Several studies have shown associations between groups of intestinal bacterial or specific ratios between bacterial groups and various disease traits. Meanwhile, little is known about interactions and associations between eukaryotic and prokaryotic microorganisms in the human gut. In this work, we set out to investigate potential associations between common single-celled parasites such as Blastocystis spp. and Dientamoeba fragilis and intestinal bacteria. Stool DNA from patients with intestinal symptoms were selected based on being Blastocystis spp.-positive (B+)/negative (B-) and D. fragilis-positive (D+)/negative (D-), and split into four groups of 21 samples (B+ D+, B+ D-, B- D+, and B- D-). Quantitative PCR targeting the six bacterial taxa Bacteroides, Prevotella, the butyrate-producing clostridial clusters IV and XIVa, the mucin-degrading Akkermansia muciniphila, and the indigenous group of Bifidobacterium was subsequently performed, and the relative abundance of these bacteria across the four groups was compared. The relative abundance of Bacteroides in B- D- samples was significantly higher compared with B+ D- and B+ D+ samples (P...
Associations between school meal-induced dietary changes and metabolic syndrome markers in 8–11-year-old Danish children

Purpose: We recently showed that provision of Nordic school meals rich in fish, vegetables and potatoes and with reduced intakes of fat improved blood pressure, insulin resistance assessed by the homeostatic model (HOMA-IR), and plasma triacylglycerol despite increasing waist circumference in Danish 8–11-year-olds. This study explored whether intake or biomarkers of key dietary components in the schools meals were associated with these metabolic syndrome (MetS) markers during the 6-month intervention. Methods: Data from 7-day dietary records and measurements of whole-blood docosahexaenoic acid (DHA, 22:6n-3), blood pressure, fasting blood MetS markers, waist circumference and android/total fat mass assessed by dual-energy X-ray absorptiometry collected at baseline, 3 and 6 months from 523 children were analyzed in linear mixed-effects models adjusted for puberty, growth and fasting. Results: After adjustment for multiple testing, whole-blood DHA was negatively associated with HOMA-IR (P < 0.001) and triacylglycerol (P < 0.0001). Potato intake was positively associated with waist circumference (P < 0.01), but not with android/total fat mass (P = 0.94). Intakes of whole-grain as well as dietary fiber, protein and fat were not associated with any of the MetS markers. Conclusions: DHA in whole-blood, an indicator of DHA and fish intake, seemed to be the main diet-related predictor of the beneficial effects of the school meals on MetS markers. Increased potato intake was associated with increased waist circumference, but this may not only be due to an increase in abdominal fat, as no association was seen with fat distribution.

General information

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Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Research Group for Risk-Benefit, University of Copenhagen, Swedish University of Agricultural Sciences, University of Waterloo
Authors: Damsgaard, C. T. (Ekstern), Ritz, C. (Ekstern), Dalskov, S. M. (Ekstern), Landberg, R. (Ekstern), Stark, K. D. (Ekstern), Biltoft-Jensen, A. P. (Intern), Tetens, I. (Intern), Astrup, A. (Ekstern), Michaelsen, K. F. (Ekstern), Lauritzen, L. (Ekstern)
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Publication information
Behavior and chronic toxicity of two differently stabilized silver nanoparticles to Daphnia magna

While differences in silver nanoparticle (AgNP) colloidal stability, surface potential, or acute aquatic toxicity for differently stabilized AgNP have often been reported, these have rarely been studied in long-term ecotoxicity tests. In the current study, we investigated the chronic toxicity of AgNP to Daphnia magna over a 21-day period with two different stabilizers (citrate and detergent), representative for charge and sterical stabilizers, respectively. This was coupled with a series of short-term experiments, such as mass balance and uptake/depuration testing, to investigate the behavior of both types of AgNP during a typical media exchange period in the D. magna test for chronic toxicity. As expected, the sterically stabilized AgNP were more stable in the test medium, also in the presence of food; however, a higher uptake of silver after 24 h exposure of the charge stabilized AgNP was found compared to the detergent-stabilized AgNP (0.046 ± 0.006 μg Ag μg DW−1 and 0.023 ± 0.005 μg Ag μg DW−1, respectively). In accordance with this, the higher reproductive effects and mortality were found for the charge-stabilized than for the sterically-stabilized silver nanoparticles in 21-d tests for chronic toxicity. LOEC was 19.2 μg Ag L−1 for both endpoints for citrate-coated AgNP and >27.5 μg Ag L−1 (highest tested concentration for detergent-stabilized AgNP). This indicates a link between uptake and toxicity. The inclusion of additional short-term experiments on uptake and depuration is recommended when longer-term chronic experiments with nanoparticles are conducted.

General information
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Organisations: Department of Environmental Engineering, Environmental Chemistry, National Food Institute, University of Bremen
Authors: Sakka, Y. (Ekstern), Skjolding, L. M. (Intern), Mackevica, A. (Intern), Filser, J. (Ekstern), Baun, A. (Intern)
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BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 4.38 SJR 1.627 SNIP 1.382
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.624 SNIP 1.179 CiteScore 3.79
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.594 SNIP 1.324 CiteScore 3.75
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.891 SNIP 1.485 CiteScore 4.06
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.89 SNIP 1.489 CiteScore 3.83
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.019 SNIP 1.402 CiteScore 3.99
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Behavior of silver nanoparticles in food simulants for migration tests

General information
State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science
Authors: Jokar, M. (Intern), Löschner, K. (Intern)
Pages: 39-39
Publication date: 2016
Conference: 2nd international conference on food & beverage packaging, Rome, Italy, 13/06/2016 - 13/06/2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Food Processing & Technology
Volume: 7
Issue number: Suppl. 7
ISSN (Print): 2157-7110
Ratings:
ISI indexed (2013): ISI indexed no
Original language: English
Electronic versions:
Behavior_of_silver_nanoparticles_in_food_simulants_for_migration_tests.pdf
Source: PublicationPreSubmission
Source-ID: 127844723
Publication: Research - peer-review » Conference abstract in journal – Annual report year: 2016

Benchmarking of methods for identification of antimicrobial resistance genes in bacterial whole genome data
Next generation sequencing (NGS) may be an alternative to phenotypic susceptibility testing for surveillance and clinical diagnosis. However, current bioinformatics methods may be associated with false positives and negatives. In this study, a novel mapping method was developed and benchmarked to two different methods in current use for identification of antibiotic resistance genes in bacterial WGS data. A novel method, KmerResistance, which examines the co-occurrence
of k-mers between the WGS data and a database of resistance genes, was developed. The performance of this method was compared with two previously described methods; ResFinder and SRST2, which use an assembly/BLAST method and BWA, respectively, using two datasets with a total of 339 isolates, covering five species, originating from the Oxford University Hospitals NHS Trust and Danish pig farms. The predicted resistance was compared with the observed phenotypes for all isolates. To challenge further the sensitivity of the in silico methods, the datasets were also down-sampled to 1% of the reads and reanalysed. The best results were obtained by identification of resistance genes by mapping directly against the raw reads. This indicates that information might be lost during assembly. KmerResistance performed significantly better than the other methods, when data were contaminated or only contained few sequence reads. Read mapping is superior to assembly-based methods and the new KmerResistance seemingly outperforms currently available methods particularly when including datasets with few reads.

**General information**
State: Published
Organisations: Department of Bio and Health Informatics, National Food Institute, Genomic Epidemiology, Research Group for Genomic Epidemiology, Department of Systems Biology, Center for Biological Sequence Analysis
Authors: Clausen, P. T. L. C. (Intern), Zankari, E. (Intern), Aarestrup, F. M. (Intern), Lund, O. (Intern)
Number of pages: 5
Pages: 2484-2488
Publication date: 2016
Main Research Area: Technical/natural sciences

**Publication information**
Journal: Journal of Antimicrobial Chemotherapy
Volume: 71
Issue number: 9
ISSN (Print): 0305-7453
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SJR 2.419 SNIP 1.568
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 4.21 SJR 2.283 SNIP 1.521
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 2.259 SNIP 1.516 CiteScore 4.06
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 2.298 SNIP 1.765 CiteScore 4.61
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 2.479 SNIP 1.824 CiteScore 4.7
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 2.283 SNIP 1.718 CiteScore 4.35
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 2.341 SNIP 1.769 CiteScore 4.24
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 2.161 SNIP 1.643
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.902 SNIP 1.615
Benchtop Whole-Genome Sequencing for Identification of Nosocomial Outbreaks in Tanzania

General information
State: Published
Organisations: Department of Systems Biology, Center for Biological Sequence Analysis, National Food Institute, Research Group for Genomic Epidemiology, Kilimanjaro Christian Medical Centre, University of Copenhagen
Authors: Sonda, T. (Ekstern), Kumburu, H. (Ekstern), Zwetselaar, M. V. (Ekstern), Ahrenfeldt, J. (Intern), Alifrangis, M. (Ekstern), Lund, O. (Intern), Kibiki, G. (Ekstern), Aarestrup, F. M. (Intern)
Number of pages: 2
Pages: 622-623
Publication date: 2016
Main Research Area: Technical/natural sciences

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Journal: Infection Control & Hospital Epidemiology
Volume: 37
Issue number: 5
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Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.358 SJR 1.97
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): SJR 1.948 SNIP 1.462 CiteScore 2.54
Web of Science (2016): Indexed yes
Bioactive compounds in commercial nitrite-cured cooked pork products

General information
State: Published
Organisations: National Food Institute, Research Group for Food Production Engineering, Research Group for Analytical Food Chemistry
Authors: Pedersen, S. T. (Intern), Duedahl-Olesen, L. (Intern), Jessen, F. (Intern)
Number of pages: 1
Publication date: 2016
Event: Poster session presented at First Food Chemistry Conference - Shaping the Future of Food Quality, Health and Safety, Amsterdam, Netherlands.
Main Research Area: Technical/natural sciences
Electronic versions:
Poster_Sabrine_ver3.pdf
Source: PublicationPreSubmission
Source-ID: 127424685
Publication: Research - peer-review › Poster – Annual report year: 2016

Bioactive compounds in industrial red seaweed used in carrageenan production
The main seaweed species used in industrial scale for carrageenan production are Kappaphycus alvarezii, Eucheuma denticulatum, Chondrus crispus, Gigartina sp. and also Furcellaria lumbricalis as a source of furcellaran (Danish Agar) is also classified together with carrageenan. The chemical compositions of these five industrial red seaweeds were evaluated. Protein, lipid and total phenolic content, total amino acid and composition, fatty acid profile, tocopherol content and pigment composition were analyzed. The results demonstrate that there is potential possibility to develop a method to extracts most of the bioactive compounds, before the main process for carrageenan extraction, leading to a future multiproduct extraction (biorefinery) approach, instead of the traditional single-extraction procedure.
Biofilm as a production platform for heterologous production of rhamnolipids by the non-pathogenic strain *Pseudomonas putida* KT2440

**Background**

Although a transition toward sustainable production of chemicals is needed, the physiochemical properties of certain biochemicals such as biosurfactants make them challenging to produce in conventional bioreactor systems. Alternative production platforms such as surface-attached biofilm populations could potentially overcome these challenges. Rhamnolipids are a group of biosurfactants highly relevant for industrial applications. However, they are mainly produced by the opportunistic pathogen *Pseudomonas aeruginosa* using hydrophobic substrates such as plant oils. As the biosynthesis is tightly regulated in *P. aeruginosa* a heterologous production of rhamnolipids in a safe organism can relieve the production from many of these limitations and alternative substrates could be used.

**Results**

In the present study, heterologous production of biosurfactants was investigated using rhamnolipids as the model compound in biofilm encased *Pseudomonas putida* KT2440. The rhlAB operon from *P. aeruginosa* was introduced into *P. putida* to produce mono-rhamnolipids. A synthetic promoter library was used in order to bypass the normal regulation of rhamnolipid synthesis and to provide varying expression levels of the rhlAB operon resulting in different levels of rhamnolipid production. Biosynthesis of rhamnolipids in *P. putida* decreased bacterial growth rate but stimulated biofilm formation by enhancing cell motility. Continuous rhamnolipid production in a biofilm was achieved using flow cell technology. Quantitative and structural investigations of the produced rhamnolipids were made by ultra performance liquid chromatography combined with high resolution mass spectrometry (HRMS) and tandem HRMS. The predominant rhamnolipid congener produced by the heterologous *P. putida* biofilm was mono-rhamnolipid with two C\textsubscript{10} fatty acids.

**Conclusion**

This study shows a successful application of synthetic promoter library in *P. putida* KT2440 and a heterologous biosynthesis of rhamnolipids in biofilm encased cells without hampering biofilm capabilities. These findings expands the possibilities of cultivation setups and paves the way for employing biofilm flow systems as production platforms for biochemicals, which as a consequence of physiochemical properties are troublesome to produce in conventional fermenter setups, or for production of compounds which are inhibitory or toxic to the production organisms.
This chapter on biofilm risks deals with biofilm formation of pathogenic microbes, sampling and detection methods, biofilm removal, and prevention of biofilm formation. Several common pathogens produce sticky and/or slimy structures in which the cells are embedded, that is, biofilms, on various surfaces in food processing. Biofilms of common foodborne pathogens are reviewed. The issue of persistent and nonpersistent microbial contamination in food processing is also discussed. It has been shown that biofilms can be difficult to remove and can thus cause severe disinfection and cleaning problems in food factories. In the prevention of biofilm formation microbial control in process lines should both limit the number of microbes on surfaces and reduce microbial activity in the process. Thus the hygienic design of process equipment and process lines is important in improving the process hygiene of both contact and noncontact surfaces.
Biological variation of the raw material and processing conditions affect the yield and quality of fast-marinated herring

General information
State: Published
Organisations: National Food Institute, Research Group for Food Production Engineering
Authors:Ekgreen, M. H. (Intern), Jørgensen, B. M. (Intern), Martinez Lopez, B. (Intern), Frosch, S. (Intern), Jessen, F. (Intern)
Number of pages: 1
Publication date: 2016
Event: Poster session presented at 46th conference of the West European Fish Technologists' Association (46th WEFTA), Split, Croatia.
Main Research Area: Technical/natural sciences
Electronic versions:
WEFTA_poster_Maria.pdf
Source: PublicationPreSubmission
Source-ID: 127376305
Publication: Research - peer-review › Poster – Annual report year: 2016

Bioremediation capacity, nutritional value and biorefining of macroalga Saccharina latissima

Macroalgae have the ability to assimilate and convert waste nutrients (N and P) into valuable biomass. In this context, they have been extensively studied for their bioremediation potential for integrated multi-trophic aquaculture (IMTA). With a global aquaculture production of 23.8 million tonnes in 2012, macroalgae are a valuable source of vitamins, minerals, lipids, protein, and dietary fibres. Macroalgae have been used as food since ancient times in Asian countries, while in Europe they have lately been introduced as healthy food. Moreover, recently macroalgae have been receiving increasing attention as sustainable feedstock for biorefinery. Nevertheless, macroalgae resources are still very little explored in western countries. The aim of this study was fulfilled by the investigation of the bioremediation potential of the macroalga Saccharina latissima cultivated at a reference site (control) and at an IMTA site during 12 months (May 2013-May 2014), and assessing the effect of cultivation site and harvest time. Moreover, a comprehensive chemical and nutritional characterization of the produced biomass was made, and its potential as food and/or feed discussed. Finally S. latissima biomass was tested as feedstock for fermentation-based succinic acid production in a biorefinery approach. Maximum biomass yield over one growing season was achieved in August (1.08-1.51 kg fresh weight (FW) m-1 of cultivation line) and September (0.92-1.49 kg FW m-1). Biomass yield directly correlated with the nutrient removal which similarly peaked in August (5.02-7.02 g N m-1 and 0.86-1.23 g P m-1) and September (4.73-7.24 g N m-1 and 0.83-0.96 g P m-1). Moreover, both biomass yield and nutrient removal were higher in the IMTA site compared to the reference site in August (p<0.05). Additionally, macroalgal cultivation over two growing seasons enhanced the biomass yield and thus value, but not the bioremediation capacity. Harvest time had a significant impact in overall chemical composition, while cultivation site did not generally result in marked differences. The growth of epiphytic organisms from July to November makes the biomass unsuitable for human consumption, thus biomass meant to be used as food should be harvested in May. Protein content increased significantly from 1.3% dry matter (DM) in May to 10.8% DM in November. Similarly, the maximum essential amino acid (EAA) score was found in November (68.9%). Thus, results suggest an apparent mismatch between harvest time for human consumption (May) and the highest nutritional value of the protein in the biomass (November). The growth of epiphytes did not change the amino acid content or EAA score. However, the protein content and composition did not comply with the requirements for standard protein ingredients for fish feed (i.e. fishmeal, soymeal). The lipid concentration varied from 0.62%-0.88% DM in July to 3.33%-3.35% DM in November (p<0.05). Polyunsaturated fatty acids (PUFA’s) made up more than half of the fatty acids with a maximum in July (52.3%-54.0% fatty acid methyl esters). This including the most appreciated health beneficial PUFA’s, eicosapentenoic (EPA; 20:5n-3) and docosahexaenoic

Biological variation of the raw material and processing conditions affect the yield and quality of fast-marinated herring

General information
State: Published
Organisations: National Food Institute, VTT - Technical Research Centre of Finland
Authors: Wirtanen, G. L. (Intern), Salo, S. (Ekstern)
Pages: 55-79
Publication date: 2016

Host publication information
Title of host publication: Handbook of hygiene control in the food industry
Place of publication: Cambridge
Publisher: Woodhead Publishing
Edition: 2
Chapter: 5
Main Research Area: Technical/natural sciences
Biofilm formation, Pathogen, Listeria, Salmonella, Hygienic design, Biofilm removal
DOIs:
10.1016/B978-0-08-100155-4.00005-4
Publication: Research - peer-review › Book chapter – Annual report year: 2016
acid (DHA; 22:6n-3), but also arachidonic (ARA) and stearidonic acid (SDA). Season of harvest is important for the choice of lipid quantity and quality, but the macroalga provides better sources of EPA, DHA and long-chain (LC)-PUFA’s in general compared to traditional vegetables. Regarding safety regulations, however, the main conclusions on the mineral analyses showed that high concentrations of iodine (up to 5,001 mg kg⁻¹ DM) in the biomass may be of concern for human consumption, while the concentrations of total arsenic (up to 63.3 mg kg⁻¹ DM) may restrict utilization as ingredient for feed. Seasonal variations in the content of carbohydrates, and fermentable sugars, had a significant impact on the succinic acid yield and titer. A maximum succinic acid yield of 91.9% (g g⁻¹ of total sugars) corresponding to 70.5% of the theoretical maximum yield was achieved; while succinic acid titer amounted up to 36.8 g L⁻¹ with maximum productivity of 3.9 g L⁻¹ h⁻¹. The high content of total phenolic compounds in the macroalga (July-August: 5-1% DM), and high concentration of inorganic nutrients in the solid residue recovered after enzymatic hydrolysis, makes co-production of antioxidants (i.e. phenols) and fertilizer very attractive. This was demonstrated to have the potential to increase the cost-effectiveness of the biorefinery facility. This study gives comprehensive information of the bioremediation potential of S. latissima cultivated commercially in the inner Danish waters. Year-round data show that harvest time can be effectively used to optimize the bioremediation capacity, and the biomass yield and application/value. The macroalga can be a source of valuable proteins, specific amino acids and food; however, high concentrations of iodine and total arsenic may be of concern regarding food and feed safety regulations, respectively. On the other hand, S. latissima is a promising feedstock for fermentation-based succinic acid production with co-production of phenols, and fertilizers.

General information
State: Published
Organisations: Department of Environmental Engineering, Residual Resource Engineering, National Food Institute, Research Group for Bioactives – Analysis and Application
Authors: Silva Marinho, G. (Intern), Angelidaki, I. (Intern), Holdt, S. L. (Intern)
Number of pages: 51
Publication date: 2016

Publication information
Place of publication: Kgs. Lyngby
Publisher: Technical University of Denmark, DTU Environment
Original language: English
Main Research Area: Technical/natural sciences
Electronic versions:
WWW-Version. Embargo ended: 05/02/2016
Publication: Research › Ph.D. thesis – Annual report year: 2016

Burden of disease and costs of exposure to endocrine disrupting chemicals in the European Union: an updated analysis
A previous report documented that endocrine disrupting chemicals contribute substantially to certain forms of disease and disability. In the present analysis, our main objective was to update a range of health and economic costs that can be reasonably attributed to endocrine disrupting chemical exposures in the European Union, leveraging new burden and disease cost estimates of female reproductive conditions from accompanying report. Expert panels evaluated the epidemiologic evidence, using adapted criteria from the WHO Grading of Recommendations Assessment, Development and Evaluation Working Group, and evaluated laboratory and animal evidence of endocrine disruption using definitions recently promulgated by the Danish Environmental Protection Agency. The Delphi method was used to make decisions on the strength of the data. Expert panels consensus was achieved for probable (>20%) endocrine disrupting chemical causation for IQ loss and associated intellectual disability; autism; attention deficit hyperactivity disorder; endometriosis; fibroids; childhood obesity; adult obesity; adult diabetes; cryptorchidism; male infertility, and mortality associated with reduced testosterone. Accounting for probability of causation, and using the midpoint of each range for probability of causation, Monte Carlo simulations produced a median annual cost of €163 billion (1.28% of EU Gross Domestic Product) across 1000 simulations. We conclude that endocrine disrupting chemical exposures in the EU are likely to contribute substantially to disease and dysfunction across the life course with costs in the hundreds of billions of Euros per year. These estimates represent only those endocrine disrupting chemicals with the highest probability of causation; a broader analysis would have produced greater estimates of burden of disease and costs.

General information
State: Published
Organisations: National Food Institute, Research Group for Reproductive Toxicology
Authors: Trasande, L. (Ekstern), Zoeller, R. T. (Ekstern), Hass, U. (Intern), Kortenkamp, A. (Ekstern), Grandjean, P. (Ekstern), Myers, J. P. (Ekstern), DiGangi, J. (Ekstern), Hunt, P. M. (Ekstern), Rudel, R. (Ekstern), Sathyaranayana, S. (Ekstern), Bellanger, M. (Ekstern), Hauser, R. (Ekstern), Legler, J. (Ekstern), Skakkebaek, N. E. (Ekstern), Heindel, J. J. (Ekstern)
Number of pages: 8
Pages: 565-572
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Burden of disease of dietary exposure to acrylamide in Denmark

Acrylamide (AA) is a process-contaminant that potentially increases the risk of developing cancer in humans. AA is formed during heat treatment of starchy foods and detected in a wide range of commonly consumed products. Increased focus on risk ranking and prioritization of major causes of disease makes it relevant to estimate the impact that exposure to chemical contaminants and other hazards in food have on health. In this study, we estimated the burden of disease (BoD)
caused by dietary exposure to AA, using disability adjusted life years (DALY) as health metric. We applied an exposure-based approach and proposed a model of three components: an exposure, health-outcome, and DALY-module. We estimated BoD using two approaches for estimating cancer risk based on toxicological data and two approaches for estimating DALY. In Denmark, 1.8 healthy life years per 100,000 inhabitants are lost each year due to exposure to AA through foods, as estimated by the most conservative approach. This result should be used to inform risk management decisions and for comparison with BoD of other food-borne hazards for prioritizing policies. However, our study shows that careful evaluation of methodological choices and assumptions used in BoD studies is necessary before use in policy making.

General information
State: Published
Organisations: National Food Institute, Research Group for Risk-Benefit, Research Group for Food Production Engineering
Authors: Jakobsen, L. S. (Intern), Granby, K. (Intern), Knudsen, V. K. (Intern), Nauta, M. (Intern), Pires, S. M. (Intern), Poulsen, M. (Intern)
Number of pages: 9
Pages: 151-159
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Food and Chemical Toxicology
Volume: 90
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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SJR 1.144 SNIP 1.427
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.96 SJR 1.351 SNIP 1.58
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.202 SNIP 1.415 CiteScore 3.44
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.038 SNIP 1.369 CiteScore 3.12
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.02 SNIP 1.506 CiteScore 3.26
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.126 SNIP 1.748 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.124 SNIP 1.58 CiteScore 3.36
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.93 SNIP 1.221
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.833 SNIP 1.056
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 0.771 SNIP 1.163
Campylobacter jejuni and Campylobacter coli in wild birds on Danish livestock farms

Background: Reducing the occurrence of campylobacteriosis is a food safety issue of high priority, as in recent years it has been the most commonly reported zoonosis in the EU. Livestock farms are of particular interest, since cattle, swine and poultry are common reservoirs of Campylobacter spp. The farm environment provides attractive foraging and breeding habitats for some bird species reported to carry thermophilic Campylobacter spp. We investigated the Campylobacter spp. carriage rates in 52 wild bird species present on 12 Danish farms, sampled during a winter and a summer season, in order to study the factors influencing the prevalence in wild birds according to their ecological guild. In total, 1607 individual wild bird cloacal swab samples and 386 livestock manure samples were cultured for Campylobacter spp. according to the Nordic Committee on Food Analysis method NMKL 119.

Results: The highest Campylobacter spp. prevalence was seen in 110 out of 178 thrushes (61.8 %), of which the majority were Common Blackbird (Turdus merula), and in 131 out of 616 sparrows (21.3 %), a guild made up of House Sparrow (Passer domesticus) and Eurasian Tree Sparrow (Passer montanus). In general, birds feeding on a diet of animal or mixed animal and vegetable origin, foraging on the ground and vegetation in close proximity to livestock stables were more likely to carry Campylobacter spp. in both summer (P <0.001) and winter (P <0.001) than birds foraging further away or in the air. Age, fat score, gender, and migration range were not found to be associated with Campylobacter spp. carriage. A correlation was found between the prevalence (%) of C. jejuni in wild birds and the proportions (%) of C. jejuni in both manure on cattle farms (R-2 = 0.92) and poultry farms (R-2 = 0.54), and between the prevalence (%) of C. coli in wild birds and the proportions (%) of C. coli in manure on pig farms (R-2 = 0.62).

Conclusions: The ecological guild of wild birds influences the prevalence of Campylobacter spp. through the behavioural patterns of the birds. More specifically, wild birds eating food of animal or mixed animal and vegetable origin and foraging on the ground close to livestock were more likely to carry Campylobacter spp. than those foraging further away or hunting in the air. These findings suggest that wild birds may play a role in sustaining the epidemiology of Campylobacter spp. on farms.

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Food Safety and Quality, University of Southern Denmark, Statens Serum Institut, University of Copenhagen, Danish Veterinary Laboratory, Novo Nordisk A/S, Dianova Ltd.
Authors: Hald, B. (Intern), Skov, M. N. (Ekstern), Nielsen, E. M. (Ekstern), Rahbek, C. (Ekstern), Madsen, J. J. (Ekstern), Waino, M. (Ekstern), Chriél, M. (Intern), Nordentoft, S. (Ekstern), Baggesen, D. L. (Intern), Madsen, M. (Ekstern)
Number of pages: 10
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Acta Veterinaria Scandinavica (Online)
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BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.077 SJR 0.655
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.01 SJR 0.641 SNIP 0.826
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.644 SNIP 1.641 CiteScore 0.98
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.753 SNIP 1.21 CiteScore 1.54
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.539 SNIP 1.11 CiteScore 1.41
ISI indexed (2013): ISI indexed no
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.591 SNIP 0.789 CiteScore 1.26
ISI indexed (2012): ISI indexed no
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.664 SNIP 0.997 CiteScore 1.42
ISI indexed (2011): ISI indexed no
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.551 SNIP 1.005
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.409 SNIP 0.716
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.338 SNIP 0.588
Scopus rating (2007): SJR 0.207 SNIP 1.86
Scopus rating (2006): SJR 0.184 SNIP 0.963
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 0.131 SNIP 0.191
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 0.114 SNIP 0
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 0.214 SNIP 0
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 0.486 SNIP 0.454
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 0.318 SNIP 0.757
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 0.015 SNIP 0.912
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 0.107 SNIP 0.903

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Campylobacter spp. epidemiology, C. jejuni, C. coli, Wild birds, Livestock farms, Ecological guild, Cattle, Pig, Poultry
Campylobacter jejuni in Musca domestica: An examination of survival and transmission potential in light of the innate immune responses of the house flies

The house fly, Musca domestica, has been implicated as a vector of Campylobacter spp., a major cause of human disease. Little is known whether house flies serve as biological amplifying hosts or mechanical vectors for Campylobacter jejuni. We investigated the period after C. jejuni had been ingested by house flies in which viable C. jejuni colonies could be isolated from whole bodies, the vomitus and the excreta of adult M. domestica and evaluated the activation of innate immune responses of house flies to ingested C. jejuni over time. C. jejuni could be cultured from infected houseflies soon after ingestion but no countable C. jejuni colonies were observed > 24 hours post-ingestion. We detected viable C. jejuni in house fly vomitus and excreta up to 4 hours after ingestion, but no viable bacteria were detected ≥ 8 hours. Suppression subtractive hybridization identified pathogen-induced gene expression in the intestinal tracts of adult house flies 4–24 hours after ingesting C. jejuni. We measured the expression of immune regulatory (thor, JNK, and spheroide) and effector (cecropin, diptericin, attacin, defensin and lysozyme) genes in C. jejuni-infected and -uninfected house flies using quantitative real time PCR. Some house fly factor, or combination of factors, eliminates C. jejuni within 24 hours post-ingestion. Because C. jejuni is not amplified within the body of the housefly, this insect likely serves as a mechanical vector rather than as a true biological, amplifying vector for C. jejuni, and adds to our understanding of insect-pathogen interactions.

General information
State: Published
Organisations: National Food Institute, Simon Fraser University
Authors: Gill, C. (Ekstern), Bahrndorff, S. (Intern), Lowenberger, C. (Ekstern)
Number of pages: 27
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Insect Science
ISSN (Print): 1536-2442
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.538 SJR 0.424
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 0.53 SJR 0.359 SNIP 0.508
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.388 SNIP 0.539 CiteScore 0.65
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.516 SNIP 0.867 CiteScore 0.83
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.506 SNIP 0.797 CiteScore 0.83
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.475 SNIP 0.668 CiteScore 0.72
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.512 SNIP 0.773 CiteScore 0.91
ISI indexed (2011): ISI indexed yes
Campylobacter spp. and Escherichia coli contamination of broiler carcasses across the slaughter line in Danish slaughterhouses

This study presents levels of Campylobacter spp. and Escherichia coli on broiler carcasses across the slaughter line in three fully automated Danish slaughterhouses with the aim to investigate differences in slaughter hygiene between the lines, correlation between concentrations of E. coli and Campylobacter, and finally, the relationship between Campylobacter counts in caeca and on chilled meat. In total, 15 commercial, indoor flocks were examined and from each flock 24 caecal samples and 24 carcass samples were collected from each of the control points after plucking (AP), after evisceration (AE) and after chilling (AC). Results showed distinct differences between slaughterhouses. For slaughterhouse I the contamination level was high AP and decreased AE while for slaughterhouse II the contamination level was low AP and increased AE. For slaughterhouse III the contamination level varied insignificantly across the processes. Results also showed differences in contamination levels of E. coli and Campylobacter between slaughterhouses. Mean counts of the two organisms increased or decreased concurrently from after plucking to after evisceration within slaughterhouses; however, after chilling counts of E. coli were reduced to a larger extent than counts of Campylobacter. This suggests that for processing of Campylobacter-positive broilers E. coli may be used as an indicator of faecal contamination during the processing steps up to the point of chilling but not as an indicator of Campylobacter contamination of chilled broiler meat. A correlation was found, though, between the mean number of Campylobacter in caeca and the mean number of Campylobacter on broiler meat after chilling which means that the level in the gut at slaughter significantly impacts the level on the chilled meat. In conclusion, our data confirm that less faecal contamination throughout processing, and/or less Campylobacter in the gut at the point of slaughter will lead to less Campylobacter contamination on the meat and thereby improve food safety. Exchange of information between slaughterhouses on best hygiene practices and compliance with these is an option to reduce numbers of Campylobacter in broiler meat.

**General information**

**State:** Published  
**Organisations:** National Food Institute, Division of Risk Assessment and Nutrition, Research Group for Risk-Benefit, Danish Veterinary and Food Administration  
**Authors:** Boysen, L. (Intern), Nauta, M. (Intern), Rosenquist, H. (Ekstern)  
**Number of pages:** 5  
**Pages:** 63-67  
**Publication date:** 2016  
**Main Research Area:** Technical/natural sciences

**Publication information**

**Journal:** Microbial Risk Analysis  
**Volume:** 2-3  
**ISSN (Print):** 2352-3522  
**Original language:** English  
Caeca, Chicken, Hygiene, Indicator, Correlation, Campylobacter spp., E. coli
Can microbes compete with cows for sustainable protein production - A feasibility study on high quality protein
An increasing population and their increased demand for high-protein diets will require dramatic changes in the food industry, as limited resources and environmental issues will make animal derived foods and proteins, gradually more unsustainable to produce. To explore alternatives to animal derived proteins, an economic model was built around the genome-scale metabolic network of E. coli to study the feasibility of recombinant protein production as a food source. Using a novel model, we predicted which microbial production strategies are optimal for economic return, by capturing the tradeoff between the market prices of substrates, product output and the efficiency of microbial production. A case study with the food protein, Bovine Alpha Lactalbumin was made to evaluate the upstream economic feasibilities. Simulations with different substrate profiles at maximum productivity were used to explore the feasibility of recombinant Bovine Alpha Lactalbumin production coupled with market prices of utilized materials. We found that recombinant protein production could be a feasible food source and an alternative to traditional sources.
Cardiovascular risk factors in rural Kenyans are associated with differential age gradients, but not modified by sex or ethnicity

The relationship between metabolic disease and the non-modifiable risk factors sex, age and ethnicity in Africans is not well-established. This study aimed to describe sex, age and ethnicity differences in blood pressure (BP) and lipid status in rural Kenyans. A cross-sectional study was undertaken among rural Kenyans. BP and pulse rate (PR) were measured while sitting and fasting blood samples were taken for analysis of standard lipid profile. Standard anthropometric measurements were collected. Physical activity energy expenditure was obtained objectively and lifestyle data were obtained using questionnaires. In total, 1139 individuals (61.0% women) participated aged 17-68 years. Age was positively associated with BP and plasma cholesterol levels. Sitting PR was negatively associated with age in women only (sex-interaction p

General information
State: Published
Organisations: National Food Institute, Research Group for Risk-Benefit, University of Copenhagen, Kenya Medical Research Institute, Kenyatta University, University of Cambridge, Holbaek Hospital, Steno Diabetes Centre
Number of pages: 8
Pages: 42-49
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Annals of Human Biology
Volume: 43
Issue number: 1
ISSN (Print): 0301-4460
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.667 SJR 0.623
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): SJR 0.744 SNIP 0.717 CiteScore 1.31
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.738 SNIP 0.847 CiteScore 1.43
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.639 SNIP 0.871 CiteScore 1.4
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.567 SNIP 0.745 CiteScore 1.34
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.771 SNIP 0.976 CiteScore 1.83
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.726 SNIP 1.219 CiteScore 1.72
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.634 SNIP 0.774
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.399 SNIP 0.815
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.505 SNIP 0.803
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.529 SNIP 0.981
Scopus rating (2006): SJR 0.388 SNIP 0.819
Scopus rating (2005): SJR 0.383 SNIP 0.767
Scopus rating (2004): SJR 0.564 SNIP 0.81
Scopus rating (2003): SJR 0.47 SNIP 0.949
Scopus rating (2002): SJR 0.484 SNIP 0.725
Scopus rating (2001): SJR 0.565 SNIP 1.056
Scopus rating (2000): SJR 0.533 SNIP 0.864
Scopus rating (1999): SJR 0.556 SNIP 1.043
Original language: English
Dyslipidaemia, hypertension, sub-Saharan Africa
DOIs:
10.3109/03014460.2015.1013987
Source: Findit
Source-ID: 2266153578
Publication: Research - peer-review › Journal article – Annual report year: 2016

Category approach for selected brominated flame retardants: Preliminary structural grouping of brominated flame retardants

General information
State: Published
Organisations: National Food Institute, Research Group for Molecular and Reproductive Toxicology, Division of Risk Assessment and Nutrition
Authors: Wedebye, E. B. (Intern), Nikolov, N. G. (Intern), Nielsen, E. E. (Intern), Boberg, J. (Intern), Petersen, M. A. (Intern), Reffstrup, T. K. (Intern), Dybdahl, M. (Intern)
Number of pages: 102
Publication date: 2016

Publication information
Place of publication: Copenhagen K
Publisher: Environmental Protection Agency
Original language: English
Series: Miljoprojekter
Volume: 2016
Number: 1872
ISSN: 0105-3094
Main Research Area: Technical/natural sciences
Electronic versions:
Source: PublicationPre Submission
Source-ID: 134360073
Publication: Commissioned › Report – Annual report year: 2017

CERAPP: Collaborative estrogen receptor activity prediction project
Background: Humans are exposed to thousands of man-made chemicals in the environment. Some chemicals mimic natural endocrine hormones and, thus, have the potential to be endocrine disruptors. Most of these chemicals have never been tested for their ability to interact with the estrogen receptor (ER). Risk assessors need tools to prioritize chemicals for evaluation in costly in vivo tests, for instance, within the U.S. EPA Endocrine Disruptor Screening Program. Objectives: We describe a large-scale modeling project called CERAPP (Collaborative Estrogen Receptor Activity Prediction Project) and demonstrate the efficacy of using predictive computational models trained on high-throughput screening data to evaluate thousands of chemicals for ER-related activity and prioritize them for further testing. Methods: CERAPP combined multiple models developed in collaboration with 17 groups in the United States and Europe to predict ER activity of a common set of 32,464 chemical structures. Quantitative structure-activity relationship models and docking approaches were employed,
mostly using a common training set of 1,677 chemical structures provided by the U.S. EPA, to build a total of 40
categorical and 8 continuous models for binding, agonist, and antagonist ER activity. All predictions were evaluated on a
set of 7,522 chemicals curated from the literature. To overcome the limitations of single models, a consensus was built by
weighting models on scores based on their evaluated accuracies. Results: Individual model scores ranged from 0.69 to
0.85, showing high prediction reliabilities. Out of the 32,464 chemicals, the consensus model predicted 4,001 chemicals
(12.3%) as high priority actives and 6,742 potential actives (20.8%) to be considered for further testing. Conclusion: This
project demonstrated the possibility to screen large libraries of chemicals using a consensus of different in silico
approaches. This concept will be applied in future projects related to other end points.

General information
State: Published
Organisations: National Food Institute, Research Group for Molecular Toxicology
Authors: Mansouri, K. (Ekstern), Abdelaziz, A. (Ekstern), Rybacka, A. (Ekstern), Roncaglioni, A. (Ekstern), Tropsha, A.
(Ekstern), Varnek, A. (Ekstern), Zakharov, A. (Ekstern), Worth, A. (Ekstern), Richard, A. M. (Ekstern), Grulke, C. M.
(Ekstern), TrisciuZZi, D. (Ekstern), Fourches, D. (Ekstern), Horvath, D. (Ekstern), Benfenati, E. (Ekstern), Muratov, E.
(Ekstern), Wedeybe, E. B. (Intern), Grisoni, F. (Ekstern), Mangiatordi, G. F. (Ekstern), Incisivo, G. M. (Ekstern), Hong, H.
(Ekstern), Ng, H. W. (Ekstern), Tetko, I. V. (Ekstern), Balabin, I. (Ekstern), Kancherla, J. (Ekstern), Shen, J. (Ekstern),
Burton, J. (Ekstern), Nicklaus, M. (Ekstern), Cassotti, M. (Ekstern), Nikolov, N. G. (Intern), Nicolotti, O. (Ekstern),
Andersson, P. L. (Ekstern), Zang, Q. (Ekstern), Politi, R. (Ekstern), Beger, R. D. (Ekstern), Todeschini, R. (Ekstern),
Huang, R. (Ekstern), Farag, S. (Ekstern), Abildgaard Rosenberg, S. (Intern), Slavov, S. (Ekstern), Hu, X. (Ekstern),
Judson, R. S. (Ekstern)
Number of pages: 11
Pages: 1023-1033
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Environmental Health Perspectives
Volume: 124
Issue number: 7
ISSN (Print): 0091-6765
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 2.351 SJR 3.41
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 5.62 SJR 3.131 SNIP 2.394
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 3.573 SNIP 2.391 CiteScore 5.58
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 3.265 SNIP 2.316 CiteScore 5.13
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 3.081 SNIP 2.328 CiteScore 4.92
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.969 SNIP 2.311 CiteScore 4.77
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 3.163 SNIP 2.307 CiteScore 4.56
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.772 SNIP 2.191
Challenges in developing dispersion procedures for nanoparticles in large scale scientific projects

General information
State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science
Authors: Löschner, K. (Intern)
Pages: 70-71
Publication date: 2016

Host publication information
Title of host publication: PARTEC 2016 - Book of abstracts
Place of publication: Nünberg, Germany
Publisher: VDI Verlag GmbH
ISBN (Electronic): 978-3-18-092283-6

Series: V D I - Berichte
ISSN: 0083-5560
Main Research Area: Technical/natural sciences
Conference: PARTEC 2016, Nuremberg, Germany, 19/04/2016 - 19/04/2016
Source: PublicationPreSubmission
Source-ID: 127112802
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2016

Characterization of lactic acid bacteria in spontaneously fermented camel milk and selection of strains for fermentation of camel milk

General information
State: Published
Characterization of the Human Risk of Salmonellosis Related to Consumption of Pork Products in Different E.U. Countries Based on a QMRA

In response to the European Food Safety Authority's wish to assess the reduction of human cases of salmonellosis by implementing control measures at different points in the farm-to-consumption chain for pork products, a quantitative microbiological risk assessment (QMRA) was developed. The model simulated the occurrence of Salmonella from the farm to consumption of pork cuts, minced meat, and fermented ready-to-eat sausage, respectively, and a dose-response model was used to estimate the probability of illness at consumption. The QMRA has a generic structure with a defined set of variables, whose values are changed according to the E.U. member state (MS) of interest. In this article we demonstrate the use of the QMRA in four MSs, representing different types of countries. The predicted probability of illness from the QMRA was between 1 in 100,000 and 1 in 10 million per serving across all three product types. Fermented ready-to-eat sausage imposed the highest probability of illness per serving in all countries, whereas the risks per serving of minced meat and pork chops were similar within each MS. For each of the products, the risk varied by a factor of 100 between the four MSs. The influence of lack of information for different variables was assessed by rerunning the model with alternative, more extreme, values. Out of the large number of uncertain variables, only a few of them have a strong influence on the probability of illness, in particular those describing the preparation at home and consumption.
Scopus rating (2014): SJR 1.331 SNIP 1.588 CiteScore 2.2
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.067 SNIP 1.595 CiteScore 2.1
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.76 SNIP 1.593 CiteScore 2.12
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.735 SNIP 1.693 CiteScore 2.15
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.739 SNIP 1.51
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.639 SNIP 1.401
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.671 SNIP 1.429
Scopus rating (2007): SJR 0.914 SNIP 1.469
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 0.826 SNIP 1.441
Scopus rating (2005): SJR 0.736 SNIP 1.489
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 0.762 SNIP 1.359
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 0.65 SNIP 1.318
Scopus rating (2002): SJR 0.59 SNIP 1.245
Scopus rating (2001): SJR 0.759 SNIP 1.732
Scopus rating (2000): SJR 0.763 SNIP 1.468
Scopus rating (1999): SJR 0.799 SNIP 1.506
Original language: English
QMRA, risk characterization, Salmonella in pork, uncertainty analysis
DOIs:
10.1111/risa.12499
Source: FindIt
Source-ID: 277361644
Publication: Research - peer-review › Journal article – Annual report year: 2016

Chemical Contaminants: Food monitoring 2012-2013

General information
State: Published
Organisations: National Food Institute, Research Group for Analytical Food Chemistry, Division of Risk Assessment and Nutrition
Research Group for Nano-Bio Science, Research Group for Food Production Engineering
Authors: Petersen, A. (Intern), Fromberg, A. (Intern), Andersen, J. H. (Intern), Sloth, J. J. (Intern), Granby, K. (Intern), Duedahl-Olesen, L. (Intern), Rasmussen, P. H. (Intern), Cederberg, T. L. (Intern)
Number of pages: 73
Publication date: 2016

Publication information
Place of publication: Søborg
Publisher: National Food Institute, Technical University of Denmark
Original language: English
Main Research Area: Technical/natural sciences
Electronic versions:
Chemicals in Paper and Board Food Contact Material: Towards More Knowledge, Analytical and Prioritization Analysis

General information
State: Published
Organisations: National Food Institute, Research Group for Analytical Food Chemistry, Research Group for Genomic Epidemiology
Authors: Pieke, E. N. (Intern), Granby, K. (Intern), Boriani, E. (Intern)
Number of pages: 1
Publication date: 2016
Event: Poster session presented at 6th international symposium on food packaging, Barcelona, Spain.
Main Research Area: Technical/natural sciences

Chitosan/Phospholipids Hybrid Nanofibers and Hydrogels for Life Sciences Applications

General information
State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science
Authors: Mendes, A. C. L. (Intern), Shekarforoush, E. (Intern), Sevilla Moreno, J. A. (Intern), Chronakis, I. S. (Intern)
Number of pages: 1
Publication date: 2016
Main Research Area: Technical/natural sciences
Links:
http://www.sustain.dtu.dk/

Bibliographical note
Sustain Abstract H-8
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2016
Co-assembly of chitosan and phospholipids into hybrid hydrogels
Novel hybrid hydrogels were formed by adding chitosan (Ch) to phospholipids (P) self-assembled particles in lactic acid. The effect of the phospholipid concentration on the hydrogel properties was investigated and was observed to affect the rate of hydrogel formation and viscoelastic properties. A lower concentration of phospholipids (0.5% wt/v) in the mixture, facilitates faster network formation as observed by Dynamic Light Scattering, with lower elastic modulus than the hydrogels formed with higher phospholipid content. The nano-porous structure of Ch/P hydrogels, with a diameter of 260±20 nm, as observed by cryo-scanning electron microscopy, facilitated the penetration of water and swelling. Cell studies revealed suitable biocompatibility of the Ch/P hydrogels that can be used within life sciences applications.
Colonic transit time is related to bacterial metabolism and mucosal turnover in the gut
Little is known about how colonic transit time relates to human colonic metabolism and its importance for host health, although a firm stool consistency, a proxy for a long colonic transit time, has recently been positively associated with gut microbial richness. Here, we show that colonic transit time in humans, assessed using radio-opaque markers, is associated with overall gut microbial composition, diversity and metabolism. We find that a long colonic transit time associates with high microbial richness and is accompanied by a shift in colonic metabolism from carbohydrate fermentation to protein catabolism as reflected by higher urinary levels of potentially deleterious protein-derived metabolites. Additionally, shorter colonic transit time correlates with metabolites possibly reflecting increased renewal of the colonic mucosa. Together, this suggests that a high gut microbial richness does not per se imply a healthy gut microbial ecosystem and points at colonic transit time as a highly important factor to consider in microbiome and metabolomics studies.

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, Department of Systems Biology, Center for Biological Sequence Analysis, Functional Human Variation, Department of Bio and Health Informatics, Research Group for Analytical Food Chemistry, Division of Food Microbiology, DTU Multi Assay Core, Metagenomics,
Colonic transit time is related to bacterial metabolism and mucosal turnover in the human gut

Little is known about how colonic transit time relates to human colonic metabolism, and its importance for host health, although stool consistency, a proxy for colonic transit time, has recently been negatively associated with gut microbial richness. To address the relationships between colonic transit time and the gut microbial composition and metabolism, we assessed the colonic transit time of 98 subjects using radiopaque markers, and profiled their gut microbiota by 16S rRNA gene sequencing and their urine metabolome by ultra performance liquid chromatography mass spectrometry. Based on correlation analyses, we show that colonic transit time is associated with overall gut microbial composition, diversity and metabolism. A relatively prolonged colonic transit time associates with high microbial species richness and a shift in colonic metabolism from carbohydrate fermentation to protein catabolism as reflected by higher urinary levels of potentially deleterious protein-derived metabolites. Additionally, shorter colonic transit time correlates with metabolites likely reflecting increased renewal of the colonic mucosa. Together, this suggests that a high gut microbial richness does not per se imply a healthy gut microbial ecosystem and points at colonic transit time as a highly important factor to consider in microbiome and metabolomics studies.
Colonic transit time relates to bacterial metabolism and mucosal turnover in the human gut

Little is known about how colonic transit time relates to human colonic metabolism, and its importance for host health, although stool consistency, a proxy for colonic transit time, has recently been negatively associated with gut microbial richness. To address the relationships between colonic transit time and the gut microbial composition and metabolism, we assessed the colonic transit time of 98 subjects using radiopaque markers, and profiled their gut microbiota by 16S rRNA gene sequencing and their urine metabolome by ultra performance liquid chromatography mass spectrometry. Based on correlation analyses, we show that colonic transit time is associated with overall gut microbiota composition, diversity and metabolism. A relatively prolonged colonic transit time associates with high microbial species richness and a shift in colonic metabolism from carbohydrate fermentation to protein catabolism as reflected by microbial metabolites in urine. This results in a number of potentially deleterious protein-derived metabolites. Additionally, longer colonic transit time correlates with metabolites likely reflecting reduced renewal of the colonic mucosa. Together, this suggests that a high gut microbial richness does not per se imply a healthy gut microbiota, and contributes to the understanding of the pathophysiology of diseases where increased transit time is a risk factor. Finally, our findings highlight the colonic transit time as an important physiological variable, which should be considered in gut microbiota and metabolomics studies.

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, Department of Systems Biology, Center for Biological Sequence Analysis, Functional Human Variation, Research Group for Analytical Food Chemistry, DTU Multi Assay Core, Copenhagen Center for Health Technology, Bispebjerg University Hospital, University of Copenhagen, Technical University of Denmark
Number of pages: 1
Publication date: 2016
Event: Abstract from 10th Joint Symposium INRA-Rowett 2016: Gut Microbiology, Clermont-Ferrand, France.
Main Research Area: Technical/natural sciences
Electronic versions:
2_Henrik_Munch_Roager_01.pdf
Source: Publication PreSubmission
Source-ID: 124303789
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2016

Combining metabolic engineering and biocompatible chemistry for efficient production of food ingredients

Biocompatible chemistry, that is non-enzymatic chemical reactions compatible with living organisms, is gaining increasing attention because of its potential within biotechnology for expanding the repertoire of biological transformations carried out by enzymes. Here we demonstrate how biocompatible chemistry can be used for synthesizing valuable food ingredients as well as for linking metabolic pathways to achieve redox balance and rescued growth. By comprehensive rerouting of metabolism, activation of respiration, and finally metal ion catalysis, we successfully managed to convert the homolactic bacterium Lactococcus lactis into a homo-diacetyl producer with high titer (95 mM or 8.2 g/L) and high yield (87% of the theoretical maximum). Subsequently, the pathway was extended to (S,S)-2,3-butanediol (S-BDO) through efficiently linking two metabolic pathways via chemical catalysis. This resulted in efficient homo-S-BDO production with a titer of 74 mM (6.7 g/L) S-BDO and a yield of 82%. The diacetyl and S-BDO production rates and yields obtained are the highest ever reported, demonstrating the promising combination of metabolic engineering and biocompatible chemistry as well as the great potential of L. lactis as a new production platform.

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Biotechnology and Biorefining, Systems Biotechnology
Authors: Liu, J. (Intern), Solem, C. (Intern), Jensen, P. R. (Intern)
Number of pages: 1
Publication date: 2016
Main Research Area: Technical/natural sciences
Links:
http://www.sustain.dtu.dk/
Bibliographical note
Sustain Abstract B-1
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2016
Combining metabolic engineering and biocompatible chemistry for high-yield production of homo-diacetyl and homo-(S,S)-2,3-butanediol

Biocompatible chemistry is gaining increasing attention because of its potential within biotechnology for expanding the repertoire of biological transformations carried out by enzymes. Here we demonstrate how biocompatible chemistry can be used for synthesizing valuable compounds as well as for linking metabolic pathways to achieve redox balance and rescued growth. By comprehensive rerouting of metabolism, activation of respiration, and finally metal ion catalysis, we successfully managed to convert the homolactic bacterium Lactococcus lactis into a homo-diacetyl producer with high titer (95mM or 8.2g/L) and high yield (87% of the theoretical maximum). Subsequently, the pathway was extended to (S,S)-2,3-butanediol (S-BDO) through efficiently linking two metabolic pathways via chemical catalysis. This resulted in efficient homo-S-BDO production with a titer of 74mM (6.7g/L) S-BDO and a yield of 82%. The diacetyl and S-BDO production rates and yields obtained are the highest ever reported, demonstrating the promising combination of metabolic engineering and biocompatible chemistry as well as the great potential of L. lactis as a new production platform.

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Biotechnology and Biorefining, University of Copenhagen, Korea Advanced Institute of Science & Technology
Authors: Liu, J. (Intern), Chan, S. H. J. (Intern), Brock-Nannestad, T. (Ekstern), Chen, J. (Intern), Lee, S. Y. (Ekstern), Solem, C. (Intern), Jensen, P. R. (Intern)
Pages: 57-67
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Metabolic Engineering
Volume: 36
ISSN (Print): 1096-7176
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SJR 3.337 SNIP 1.787
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 8.33 SJR 3.626 SNIP 1.865
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 3.6 SNIP 1.809 CiteScore 8.2
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 3.395 SNIP 2.009 CiteScore 7.23
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 4.036 SNIP 2.164 CiteScore 8.43
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.989 SNIP 1.847 CiteScore 6.72
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 3.049 SNIP 2.038 CiteScore 6.75
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 2.375 SNIP 1.786
Web of Science (2010): Indexed yes
Comments on Li et al. Effects of In Utero Exposure to Dicyclohexyl Phthalate on Rat Fetal Leydig Cells. Int. J. Environ. Res. Public Health 2016, 13, 246

Profiling the expression levels of genes or proteins in tissues comprising two or more cell types is commonplace in biological sciences. Such analyses present particular challenges, however, for example a potential shift in cellular composition, or ‘cellularity’, between specimens. That is, does an observed change in expression level represent what occurs within individual cells, or does it represent a shift in the ratio of different cell types within the tissue? This commentary attempts to highlight the importance of considering cellularity when interpreting quantitative expression data, using the mammalian testis and a recent study on the effects of phthalate exposure on testis function as an example.

General information
State: Published
Organisations: National Food Institute, Research Group for Molecular Toxicology
Authors: Svingen, T. (Intern)
Number of pages: 3
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: International Journal of Environmental Research and Public Health
Volume: 13
Issue number: 6
Article number: 532
ISSN (Print): 1661-7827
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.998 SJR 0.735
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.38 SJR 0.853 SNIP 1.051
Web of Science (2016): Indexed yes
Comparative genomics of toxigenic and non-toxigenic Staphylococcus hyicus

The most common causative agent of exudative epidermitis (EE) in pigs is Staphylococcus hyicus. S. hyicus can be grouped into toxigenic and non-toxigenic strains based on their ability to cause EE in pigs and specific virulence genes have been identified. A genome wide comparison between non-toxigenic and toxigenic strains has never been performed. In this study, we sequenced eleven toxigenic and six non-toxigenic S. hyicus strains and performed comparative genomic and phylogenetic analysis. Our analyses revealed two genomic regions encoding genes that were predominantly found in toxigenic strains and are predicted to encode for virulence determinants for EE. All toxigenic strains encoded for one of the exfoliative toxins ExhA, ExhB, ExhC, or ExhD. In addition, one of these regions encoded for an ADP-ribosyltransferase (EDIN, epidermal cell differentiation inhibitor) and a novel putative RNase toxin (polymorphic toxin) and was associated with the gene encoding ExhA. A clear differentiation between toxigenic and non-toxigenic strains based on genomic and phylogenetic analyses was not apparent. The results of this study support the observation that exfoliative toxins of S. hyicus and S. aureus are located on genetic elements such as pathogenicity islands, phages, prophages and plasmids.
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<td>0.714 SNIP 1.089</td>
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Comparing Hybrid Nano-microfibrous Constructs of Plastic Compressed Collagen - Electrospun PLGA: Collagen Content Percentage as Variable

General information
State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science, Karolinska Institutet
Authors: Ajalloueian, F. (Intern), Fossum, M. (Ekstern), Chronakis, I. S. (Intern)
Pages: 128-128
Publication date: 2016

Host publication information
Title of host publication: 2016 Termis-Ap - Abstract book
Place of publication: Taipei, Taiwan
Article number: S18-06
Main Research Area: Technical/natural sciences

Comparison of Three Methods for Extraction of Volatile Lipid Oxidation Products from Food Matrices for GC–MS Analysis
The aim of this study was to compare three different collection methods; purge and trap, solid phase micro extraction and automated dynamic headspace/thermal desorption, all followed by GC–MS analysis used for the measurements of concentrations of volatile oxidation products in three different food matrices, namely oil, emulsion and milk. The linearity ranges of calibration curves obtained by the three different methods were compared for oil samples. Overall, the results showed that the three collection methods were comparable, although there were large differences in the linearity range of the calibration curves depending on the collection method. However, some challenges were observed for solid phase micro extraction and automated dynamic headspace/thermal desorption, namely, competition problems and overestimation of concentration by calibration curves, respectively. Based on the results, we suggest mainly to apply solid phase micro extraction on simple matrices and to be cautious with more complex matrices such as enriched milk and highly oxidized oils. Thereby, the study confirmed some challenges observed by other authors regarding competition problems on the fiber when using solid phase micro extraction. Furthermore, we observed that purge and trap, and automated dynamic headspace/thermal desorption were excellent for extraction of volatile compounds in all three matrices. However, automated dynamic headspace/thermal desorption calibration curves did provide an overestimation for oil samples so results must be interpreted with caution.

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, MSCi ApS
Authors: Thomsen, B. R. (Intern), Yesiltas, B. (Intern), Sørensen, A. M. (Intern), Hermund, D. B. (Intern), Glastrup, J. (Ekstern), Jacobsen, C. (Intern)
Number of pages: 14
Pages: 929-942
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: J A O C S
Volume: 93
Issue number: 7
ISSN (Print): 0003-021x
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
ConFerm - A tool to predict the reduction of pathogens during the production of fermented and matured sausages

Existing growth models and non-thermal survival models for Salmonella, Shiga-toxin producing Eschericia coli (STEC) and Listeria monocytogenes primarily focus on the static effect of a(w), sodium nitrite (NaNO2), pH and temperature. However, during the production of fermented sausages, the intrinsic factors and temperature change, and there is a need to develop models that can predict pathogen survival under dynamic conditions. The objective of this study was to develop a novel mathematical model for predicting survival of Salmonella, STEC and L. monocytogenes, taking into account the dynamics of the sausage environment during fermentation and maturation of fermented sausages. A total of 73 experiments were carried out in sausages containing different levels of NaCl in the water phase (WPS) (3.9-6.8%), NaNO2 (0-200 ppm) and pH(48h) (4.3-5.6). The minced meat was inoculated with approx. 10^6 cfu/g of a multi-strain cocktail of 3 strains of Salmonella (S. Dublin, S. Typhimurium, S. Derby), 3 strains of STEC (O26:H-, O111:H- and O157) and five L. monocytogenes strains isolated from different meat products and environment. The sausages were fermented at 24 degrees C for 48 h using three different commercially available starter cultures followed by maturation at 16 degrees C until a weight loss of between 15% and 35% was achieved. Enumeration of Salmonella, STEC and L. monocytogenes was performed up to six times during fermentation and maturation, allowing for calculation of the logio reductions at each time point. The microbiological data, together with data for NaNO2 and changes in pH and WPS, were used to develop the "ConFerm" tool, which consists of three separate partial least squares regression (PLS) models for predicting the reduction of Salmonella, STEC and L. monocytogenes, respectively, as a function of weight loss, pH decrease, NaNO2 and WPS. The "ConFerm" tool was validated on a separate data set (n = 19). The Salmonella model had bias and accuracy factors of 1.02 and 1.15, the STEC model 1.04 and 1.24 and the L. monocytogenes model 0.99 and 1.27, respectively, indicating highly acceptable models. In conclusion, the models are applicable for predicting reduction of Salmonella, STEC and L. monocytogenes during the production of fermented sausages fermented at 24 degrees C and matured at 16 degrees C. The model has been made available to producers and other interested parties at http://dmrnpredict.dk (in English). (C) 2016 Elsevier Ltd. All rights reserved.

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Food Safety and Quality, Danish Technological Institute
Authors: Gunvig, A. (Ekstern), Borggaard, C. (Ekstern), Hansen, F. (Ekstern), Hansen, T. B. (Intern), Aabo, S. (Intern)
Number of pages: 9
Pages: 9-17
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Food Control
Volume: 67
ISSN (Print): 0956-7135
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SJR 1.502 SNIP 1.69
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.86 SJR 1.492 SNIP 1.709
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.498 SNIP 1.73 CiteScore 3.65
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.38 SNIP 1.717 CiteScore 3.27
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.278 SNIP 1.728 CiteScore 3.14
Salmonella, ST E. coli, L. monocytogenes, Predictive modelling, Reduction

DOIs: 10.1016/j.foodcont.2016.02.026
Source: FindIt
Source-ID: 2292384824
Publication: Research - peer-review › Journal article – Annual report year: 2016

Consolidating and Exploring Antibiotic Resistance Gene Data Resources
The unrestricted use of antibiotics has resulted in rapid acquisition of antibiotic resistance (AR) and spread of multidrug-resistant (MDR) bacterial pathogens. With the advent of next-generation sequencing technologies and their application in understanding MDR pathogen dynamics, it has become imperative to unify AR gene data resources for easy accessibility for researchers. However, due to the absence of a centralized platform for AR gene resources, availability, consistency, and accuracy of information vary considerably across different databases. In this article, we explore existing AR gene data resources in order to make them more visible to the clinical microbiology community, to identify their limitations, and to propose potential solutions.

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, University of Antwerp, European Bioinformatics Institute
Authors: Xavier, B. B. (Ekstern), Das, A. J. (Ekstern), Cochrane, G. (Ekstern), De Ganck, S. (Ekstern), Kumar-Singh, S. (Ekstern), Aarestrup, F. M. (Intern), Goossens, H. (Ekstern), Malhotra-Kumar, S. (Ekstern)
Number of pages: 9
Pages: 851-859
Publication date: 2016
Main Research Area: Technical/natural sciences
Corrigendum to "Reproductive and behavioral effects of diisononyl phthalate (DINP) in perinatally exposed rats" [Reprod. Toxicol. 31 (2) (2011) 200–209]

General information
State: Published
Organisations: National Food Institute, Research Group for Reproductive Toxicology, Research Group for Molecular Toxicology, Technical University of Denmark
Authors: Boberg, J. (Intern), Christiansen, S. (Intern), Petersen, M. A. (Intern), Kledal, T. S. (Ekstern), Vinggaard, A. M. (Intern), Dalgaard, M. (Ekstern), Nellemann, C. (Intern), Hass, U. (Intern)
Number of pages: 2
Pages: 183-184
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Reproductive Toxicology
Volume: 63
ISSN (Print): 0890-6238
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 0.761 SJR 0.846
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 2.92 SJR 1.078 SNIP 1.001
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.229 SNIP 1.102 CiteScore 3.36
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.274 SNIP 1.101 CiteScore 3.28
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.036 SNIP 1.061 CiteScore 2.91
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.198 SNIP 1.088 CiteScore 3.28
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.138 SNIP 1.231 CiteScore 3.15
ISI indexed (2011): ISI indexed yes
Cost-effectiveness of Campylobacter interventions on broiler farms in six European countries

Broilers are an important reservoir for human Campylobacter infections, one of the leading causes of acute diarrheal disease in humans worldwide. Therefore, it is relevant to control Campylobacter on broiler farms. This study estimated the cost-effectiveness ratios of eight Campylobacter interventions on broiler farms in six European countries: Denmark, the Netherlands, Norway, Poland, Spain, and United Kingdom. The cost-effectiveness ratio of an intervention was the estimated costs of the intervention divided by the estimated public health benefits due to the intervention, and was expressed in euro per avoided disability-adjusted life year (DALY). Interventions were selected on the basis of a European risk factor study and other risk factor research. A deterministic simulation model was developed to estimate the cost-effectiveness ratio of each intervention, if it would be implemented on all broiler farms in a country where it isn't implemented yet and implementation is possible. The model considered differences between countries in number and size of broiler farms and established practices, in import, export and transit of live broilers, broiler meat and meat products, in effect of interventions on Campylobacter prevalence in broilers, in disease burden of Campylobacter related human illness, in national economic factors, such as interest rate and general cost levels, and in technical and economic farm performance. Across interventions, cost-effectiveness ratios were the lowest for Poland and Spain, and highest for Norway and Denmark. Across countries, applying designated tools for each farm house and building an anteroom with hygiene barrier in each farm house had the lowest cost-effectiveness ratios, whereas a ban on thinning (partial depopulation), slaughter at 35 days, replacing old houses by new houses, and applying drink nipples without cup had the highest. Applying fly screens in Denmark had an intermediate cost-effectiveness ratio. A maximum downtime between flocks of ten days had a negative cost-effectiveness ratio (i.e. revenue) in Poland, a low positive cost-effectiveness ratio in Spain and high positive cost-effectiveness ratios in Denmark, the Netherlands and United Kingdom. Estimated cost-effectiveness ratios of Campylobacter interventions on broiler farms differed substantially between the six countries, but the order of interventions in increasing cost-effectiveness ratio was generally similar across the countries.

General information
State: Published
Organisations: National Food Institute, Research Group for Risk-Benefit, Wageningen University & Research
Authors: van Wagenberg, C. (Ekstern), van Horne, P. (Ekstern), Sommer, H. M. (Intern), Nauta, M. (Intern)
Number of pages: 10
Pages: 53-62
Publication date: 2016
Main Research Area: Technical/natural sciences
Cultivation of microalgae in industrial wastewaters

Microalgae production for the purpose of clearing wastewater has been researched for at least half a century. Such systems have a dual benefit: first, they prevent nutrients from entering water bodies and causing eutrophication; second, they transform sunlight and carbon dioxide into a biomass that has many potential uses. Unfortunately, the current high costs of cultivation have limited the development and exploitation of such systems, resulting in only a few full-scale algae wastewater treatment installations and a small industry based mostly around food and pigments. This thesis contributes to a growing body of knowledge with the aim to make algae cultivation viable for the production of sustainable products. Specific contributions include: improvement in the methods of screening the growth potential of different microalgae species; identification of an industrial wastewater that allows good algae growth; knowledge about the mixotrophic utilization of chemical energy present in organic waste; demonstration of a method to optimize efficiency of culture growth and nutrient removal; and biochemical characterization of the produced biomass.

When designing algae cultivation, one challenge is that there are many potential combinations which must empirically screened. Tens of thousands of microalgae species have been identified so far and there are numerous waste-streams that potentially could be of interest. A screening system was developed using the microplate as cultivation vessel and measurement cuvette. Fluorescence was demonstrated to be an order of magnitude more sensitive than optical density for detecting biomass growth, which increased the length of time in which exponential growth was observable from hours to days. This enabled growth rate-light intensity (µ-I) curves to be measured in microplates which were found to be equivalent to those obtained in typical lab-scale photobioreactors. As µ-I curves are the key biological input to an already existing model, it was validated that low density microplate cultivations can be used to make predictions about industrially relevant autotrophic cultivation.

When algae are grown within a wastewater treatment plant, the use of the chemical energy stored in the organic carbon dissolved in the wastewater could also be a useful option. Conventional aerobic sewage treatment expends much energy in breaking down the biomass to CO2. However, various anaerobic treatment methods would result in effluent containing dissolved organic molecules suitable for algae species that have the ability to grow as mixo- or heterotrophs. Chlorella sorokiniana was cultivated in a lab scale photobioreactor under daily light dark cycles and various timing strategies were tested for adding acetate at concentrations that can be obtained in waste streams of 1 – 2 g L-1. The results showed that the fastest growth occurred when adding the acetate at night (cyclic autotrophy/heterotrophy). However adding the acetate during the day (mixotrophy) also improved growth compared to autotrophic controls.

Industrial wastewater was used as cultivation medium of Chlorella sorokiniana. The culture was able to grow at high rates upto a density of 4 g L-1. The deceleration-stat technique was used to create a series of pseudo-steady states to give information about the expected results of continuous cultivation of microalgae in the selected wastewater. At light intensities of 2100 and 200 µmol photon m-2 s-1 the algae grew at a rate of over 5 and 1.67 g L-1day-1, respectively. The corresponding removal rates of nitrogen were 238 and 93 mg L-1day-1 and 40 and 19 mg L-1day-1 for phosphorous. Ammonium removal varied from below 40% to 99%, while phosphate removal was always nearly total.

When the biomass was characterized, it was found that fertilizer value N and P content increased with growth rate. For animal feed, the amino acid content was about 40% of biomass. The content of the nutritionally important α-Linoleic fatty acid increased when light intensity and dilution rate were higher. Valuable pigments lutein, carotene and other carotenoids were higher in low-light conditions.

The results from this thesis demonstrate that industrial wastewater can be a suitable replacement for algae cultivation medium. The screening method developed will reduce the cost of identifying the best conditions to test at lab scale. The D-stat method offers a way to identify the best conditions for biomass production and nutrient removal. Various options for heterotrophic and mixotrophic utilization of waste organic carbon in effluents are identified. Further advances in microalgal cultivation and processing will be needed for the production of sustainable products from wastewater in the future.

General information
State: Published
Organisations: Department of Environmental Engineering, Residual Resource Engineering, National Food Institute, Research Group for Bioactives – Analysis and Application
Authors: van Wagenen, J. M. (Intern), Angelidaki, I. (Intern), De Francisci, D. (Intern), Holdt, S. L. (Intern)
Number of pages: 49
Publication date: 2016
Current challenges facing the assessment of the allergenic capacity of food allergens in animal models

Food allergy is a major health problem of increasing concern. The insufficiency of protein sources for human nutrition in a world with a growing population is also a significant problem. The introduction of new protein sources into the diet, such as newly developed innovative foods or foods produced using new technologies and production processes, insects, algae, duckweed, or agricultural products from third countries, creates the opportunity for development of new food allergies, and this in turn has driven the need to develop test methods capable of characterizing the allergenic potential of novel food proteins. There is no doubt that robust and reliable animal models for the identification and characterization of food allergens would be valuable tools for safety assessment. However, although various animal models have been proposed for this purpose, to date, none have been formally validated as predictive and none are currently suitable to test the allergenic potential of new foods. Here, the design of various animal models are reviewed, including among others considerations of species and strain, diet, route of administration, dose and formulation of the test protein, relevant controls and endpoints measured.
Current uses of nanomaterials in biocidal products and treated articles in the EU

Nanomaterials (NMs) are currently being used for a wide variety of products, and a number of them are utilized as biocides due to their antimicrobial or antifungal properties. Little is known to what extent these biocides are available on the market as consumer products. In the EU, the Biocidal Product Regulation (BPR) lays out a list of requirements that manufacturers of biocidal products have to comply with before they can place their products on the market. It is not entirely clear which commercially available articles in the EU have been treated with or incorporate NMs to provide biocidal properties to the product. To obtain an insight into what biocidal products are on the EU market, we used The Nanodatabase (nanodb.dk) for analyzing which NMs are being used and what product categories they represent. In this paper, we address the issue of the current uses of NMs in biocidal products and discuss how they are currently regulated under the BPR. Even though the BPR already entails nanospecific provisions, correct labelling of biocidal products containing NMs is virtually non-existent. By using The Nanodatabase, it was possible to identify 88 biocidal products containing NMs available on the EU market, none of which had the specific labelling required by the BPR. The analysis of biocidal products pinpoints the challenges and limitations for obtaining a reasonable overview of the current uses of NMs in biocidal products as defined in the BPR.

General information
State: Published
Organisations: National Food Institute, Department of Environmental Engineering, Environmental Chemistry, Technical University of Denmark
Authors: Mackevica, A. (Intern), Revilla Besora, P. (Intern), Brinch, A. (Ekstern), Hansen, S. F. (Intern)
Number of pages: 11
Pages: 1195-1205
Publication date: 2016
Main Research Area: Technical/natural sciences

Cyclic imines evaluation in European commercial shellfish samples

Cyclic imines constitute a quite recently discovered group of marine biotoxins that act on neural receptors and that bioaccumulate in seafood. They are grouped together due to the imino group functioning as their common pharmacore, responsible for acute neurotoxicity in mice. Cyclic imines have not been linked yet to human poisoning and are not regulated in Europe, although the EFSA requires more data to perform conclusive risk assessment for consumers. Spirolides (SPXs) are produced by the dinoflagellate Alexandrium ostenfeldii, gymnodimines (GYMs) are also produced by
A. ostenfeldii and by Karenia selliformis. The dinoflagellate Vulcanodinium rugosum produces pinnatoxins (PnTXs). In addition, not all cyclic imines are equally potent: SPX-1 showed about 300 fold more activity than GYM-A on equimolar basis in a in vivo study about neuromuscular excitability in mice. Oral toxicity of SPXs is much lower (10-100 times less toxic orally, depending on the toxin and how the toxins are administered). In contrast to spirolides, PnTXs have proven to be almost as toxic via oral dosing as they are by i.p. injection to mice. Levels of toxicity of spirolide C and pinnatoxin E+F in feed were 500 and 60 (LD50, mice, µg/kg), respectively, which is more relevant to protect consumers. Several commercial samples from eight different countries (Italy, Portugal, Slovenia, Spain, Ireland, Norway, Netherlands and Denmark) were obtained over 2 years. Emerging cyclic imine concentrations in all the samples were analysed on a LC-300QTRAP and LC-HRMS QExactive mass spectrometer. All this data will be used in an European risk evaluation.

**General information**

State: Published
Organisations: National Food Institute, Research Group for Analytical Food Chemistry
Authors: Rambla, M. (Ekstern), Fernandez-Tejedor, M. (Ekstern), Miles, C. O. (Ekstern), Samdal, I. A. (Ekstern), Diogène, J. (Ekstern), Barbosa, V. (Ekstern), Tediosi, A. (Ekstern), Madorran, E. (Ekstern), Calis, T. (Ekstern), Kotterman, M. (Ekstern), Granby, K. (Intern)
Number of pages: 1
Publication date: 2016
Event: Abstract from 17th international conference on harmful algae blooms (ICHA), Brazil.
Main Research Area: Technical/natural sciences
Source: PublicationPreSubmission
Source-ID: 127990160
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2016

**Danish (Q)SAR Models: A free online DTU QSAR predictor powered by Leadscope**

**General information**

State: Published
Organisations: National Food Institute, Research Group for Molecular and Reproductive Toxicology, Leadscope Inc.
Number of pages: 1
Publication date: 2016
Event: Poster session presented at QSAR 2016 conference, Miami Beach, United States.
Main Research Area: Technical/natural sciences
Electronic versions:

Danish_Q_SAR_Models_A_free_online_DTU_QSAR_predictor_powered_by_Leadscope._Nikolai_G._Nikolov_Kevin_P._Cr oss_Patrick_Quigley_Marianne_Dybdahl_Trine_K_Reffstrup_Sine_A_Rosenberg_Eva_B_Wedebye.pdf
Source: PublicationPreSubmission
Source-ID: 134360215
Publication: Research - peer-review › Poster – Annual report year: 2017

**DANMAP 2015: DANMAP 2015 - Use of antimicrobial agents and occurrence of antimicrobial resistance in bacteria from food animals, food and humans in Denmark**

**General information**

State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition , Research Group for Genomic Epidemiology, Research Group for Microbial Food Safety, Statens Serum Institute, State Serum Institute, Statens Serum Institut
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Danske dyrlægers brug af Antibiotikavejledning til familiedyr: en spørgeskemaundersøgelse

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, University of Copenhagen
Authors: Lilja, Z. (Ekstern), Møller Sørensen, T. (Ekstern), Kristensend, M. (Ekstern), Hald, T. (Intern), Damborg, P. P. (Ekstern), Jessen, L. R. (Ekstern)
Pages: 18-25
Publication date: 2016
Main Research Area: Technical/natural sciences

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Journal: Dansk Veterinaertidsskrift
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BFI (2018): BFI-level 1
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BFI (2013): BFI-level 1
ISI indexed (2013): ISI indexed no
BFI (2012): BFI-level 1
ISI indexed (2012): ISI indexed no
BFI (2011): BFI-level 1
ISI indexed (2011): ISI indexed no
BFI (2010): BFI-level 1
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BFI (2008): BFI-level 1
Original language: Danish
Electronic versions:
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Danske kvinder er blevet mindre fysisk aktive

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition
Authors: Matthiessen, J. (Intern)
Pages: 1-8
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: E-artikel fra DTU Fødevareinstitutet
Issue number: 1
Danskerne kostvaner nu og i fremtiden

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition
Authors: Fagt, S. (Intern), Biltoft-Jensen, A. P. (Intern), Sørensen, M. R. (Intern), Trolle, E. (Intern), Christensen, T. (Intern), Matthiessen, J. (Intern)
Pages: 4-9
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Perspektiv
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Ratings:
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ISI indexed (2011): ISI indexed no
Original language: Danish
Electronic versions:
Danske_kvinder_er_blevet_mindre_fysisk_aktive.pdf
Publication: Research › Journal article – Annual report year: 2016

De fleste får nok vitaminer og mineraler fra kosten alene

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Research Group for Risk-Benefit
Pages: 1-13
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: E-artikel fra DTU Fødevareinstitutet
Volume: 2016
Issue number: 2
ISSN (Print): 1904-5581
Original language: Danish
Electronic versions:
E_artikel_De_fleste_faar_nok_vitaminer_og_mineraler_fra_kosten_alene.pdf
Publication: Research - peer-review › Journal article – Annual report year: 2016

Detection of plasmid-mediated colistin resistance (mcr-1) in E. coli isolated from pig caecum in Austria

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, National Reference Laboratory for Antimicrobial Resistance
Authors: Jelovcan, S. (Ekstern), Leekitcharoenphon, P. (Intern), Weissensteiner, G. (Ekstern), Hendriksen, R. S. (Intern), Lassig, H. (Ekstern), Allerberger, F. (Ekstern), Springer, B. (Ekstern)
Number of pages: 1
Pages: 44
Developing a Macroscopic Mechanistic Model for Low Molecular Weight Diffusion through Polymers in the Rubbery State

Raman microspectroscopy was used to determine the Fickian diffusivity of two families of low molecular weight molecules through amorphous polystyrene in the rubbery state. Different effects of the temperature on diffusivity for each of the families suggested that molecular mobility is controlled by both the volume and flexibility of the diffusing substance when the movement of polymer chains can generate stress induced deformation of molecules. The diffusing molecules were represented as Newtonian spring–bead systems, which allowed us to quantify their flexibility, in function of the vibration frequency of their bonds by reconstructing their theoretical spectra. Results showed that the use of molecular descriptors that take into account flexibility rather than the most stable conformation of the diffusing molecules may improve the description of the diffusion behavior caused by variations in shape and size of the free volumes of the polymeric matrix in the rubbery state.

General information
State: Published
Organisations: National Food Institute, Research Group for Food Production Engineering, Université Montpellier
Authors: Martínez-López, B. (Intern), Huguet, P. (Ekstern), Gontard, N. (Ekstern), Peyron, S. (Ekstern)
Pages: 5078-5089
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Industrial and Engineering Chemistry Research
Volume: 55
Issue number: 17
Development and validation of extensive growth and growth boundary models for psychrotolerant pseudomonads in seafood, meat and vegetable products

Extensive growth and growth boundary models were developed and validated for psychrotolerant pseudomonads growing in seafood, meat and vegetable products. The new models were developed by expanding an existing cardinal parameter-type model for growth of pseudomonads in milk (Martinez-Rios et al., Int. J. Food Microbiol. 216. 110-120, 2016). MIC-values for acetic-, benzoic- and citric acids were determined in broth and terms modelling their antimicrobial effect were added to the model. Cardinal parameter values for CO2 and aw were obtained from literature. The new model included 9 environmental parameters and their interactive effects. It was successfully validated using 319 growth rates ($\mu_{max}$-values) for psychrotolerant pseudomonads in seafood and meat products. These data from literature (n=291) or own experiments (n=28) resulted in bias and accuracy factor values of 1.14 and 1.28, respectively, when observed and predicted $\mu_{max}$-values were compared. Thus, on average $\mu_{max}$-values for seafood and meat products were overestimated by 14%. Additionally, the reference growth rate parameter $\mu_{ref25}$ was calibrated by fitting the model to 21 $\mu_{max}$-values in vegetable products. This resulted in a $\mu_{ref25}$-value of 0.54 1/h. The calibrated vegetable model was successfully validated using 51 $\mu_{max}$-values for psychrotolerant pseudomonads in vegetables. Average bias and accuracy factor values of 1.24 and 1.38 were obtained, respectively. Lag time models were developed by using relative lag times from literature data. Performance of the new expanded model was equally good for seafood and meat products, and importance of including the effect of acetic, benzoic, citric acids and CO2 in order to accurately predict growth of psychrotolerant pseudomonads was clearly demonstrated e.g. for brined shrimps. The high number of environmental parameters included in the two models make them flexible and suitable for product development as the effect of substituting one combination of preservatives with another can be predicted.

General information
State: Published
Organisations: National Food Institute, Research Group for Analytical and Predictive Microbiology
Authors: Martinez Rios, V. (Intern), Dalgaard, P. (Intern)
Number of pages: 1
Publication date: 2016
Main Research Area: Technical/natural sciences
Chilled food chain, Model validation, Product development, Shelf-life prediction, Spoilage
Electronic versions:
DEVELOPMENT_AND_VALIDATION_OF_EXTENSIVE_GROWTH_AND_GROWTH_BOUNDARY_MODELS.pdf
Source: PublicationPreSubmission
Source-ID: 125210135
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2016

Development of a broodstock diet to improve developmental competence of embryos in European eel, Anguilla anguilla

We examined the effect of dietary arachidonic acid (ARA) and eicosapentaenoic acid (EPA) on the production of embryos and hatched larvae in the European eel, Anguilla anguilla. Two diets with high and intermediate levels of ARA and low and intermediate levels of EPA (Feed 1: ARA 1.9%, EPA 4.2%; Feed 2: ARA 1.2%, EPA 5.1% of total fatty acids) were tested against a commercial diet (DE: ARA: 0.5%, EPA: 8.2% of total fatty acids). After 24 weeks of feeding, ARA levels in the muscles and ovaries increased to 0.9% and 1.3% of total fatty acids, respectively, in Feed 1 and were significantly higher than in Feed 2 and DE. Female broodstock was not fed during hormonal treatment to induce vitellogenesis and ovulation. EPA levels in females fed the test diets decreased in the both muscle and ovary and were significantly lower in eggs from females fed Feed 1. The highest percentage of stripped females, producing viable eggs and larvae, were those females fed the highest dietary ARA levels (Feed 1). The level of lipid peroxidation products in eggs was similar among treatment, indicating that the lowest dietary levels of vitamin C and vitamin E were sufficient. In the unfertilized eggs, ARA levels were also highest (1.1% of total fatty acids) in the diet with highest ARA levels (Feed 1).

General information
State: Published
Authors: Støttrup, J. G. (Intern), Tomkiewicz, J. (Intern), Jacobsen, C. (Intern), Butts, I. (Intern), Holst, L. (Ekstern), Krüger-Johnsen, M. (Intern), Graver, C. (Ekstern), Lauesen, P. (Ekstern), Fontagné-Dicharry, S. (Ekstern), Heinsbroek, L.
Development of a food allergy skin sensitisation model in naive Brown Norway rats

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology
Authors: Ballegaard, A. R. (Intern), Madsen, C. B. (Intern), Gregersen, J. M. (Intern), Bøgh, K. L. (Intern)
Number of pages: 1
Publication date: 2016
Event: Abstract from 4th Food Allergy and Anaphylaxis Meeting, Rome, Italy.
Main Research Area: Technical/natural sciences

Development of an LC-ICP-MS method for zinc speciation in fish feeds

General information
State: Published
Authors: Silva, M. (Ekstern), Sloth, J. J. (Intern), Waagbø, R. (Ekstern), Ørnsrud, R. (Ekstern), Amlund, H. (Ekstern)
Number of pages: 1
Publication date: 2016
Main Research Area: Technical/natural sciences
Electronic versions:
Silva_Sloth_Zn_speciation_PosterNordicPlasma2016.pdf
Source: PublicationPreSubmission
Source-ID: 127052228
Publication: Research - peer-review › Poster – Annual report year: 2016

Development of a QSAR Model for Thyroperoxidase Inhibition and Screening of 72,526 REACH substances
Thyroid hormones (THs) are involved in multiple biological processes and are critical modulators of fetal development. Even moderate changes in maternal or fetal TH levels can produce irreversible neurological deficits in children, such as lower IQ. The enzyme thyroperoxidase (TPO) plays a key role in the synthesis of THs, and inhibition of TPO by xenobiotics results in decreased TH synthesis. Recently, a high-throughput screening assay for TPO inhibition (AUR-TPO) was developed and used to test the ToxCast Phase I and II chemicals. In the present study, we used the results from AUR-TPO to develop a Quantitative Structure Activity Relationship (QSAR) model for TPO inhibition. The training set consisted of 898 discrete organic chemicals: 134 inhibitors and 764 non-inhibitors. A five times two-fold cross-validation of the model was performed, yielding a balanced accuracy of 78.7%. More recently, an additional ~800 chemicals were tested in the AUR-TPO assay. These data were used for a blinded external validation of the QSAR model, demonstrating a balanced accuracy of 85.7%. Overall, the cross- and external validation indicate a robust model with high predictive performance. Next, we used the QSAR model to predict 72,526 REACH pre registered substances. The model could predict 49.5% (35,925) of the substances in its applicability domain and of these, 8,863 (24.7%) were predicted to be TPO inhibitors. Predictions from this screening can be used in a tiered approach to prioritize potential thyroid disrupting chemical substances for further evaluation.

General information
State: Published
Organisations: National Food Institute, U.S. Environmental Protection Agency
Authors: Abildgaard Rosenberg, S. (Intern), Nikolov, N. G. (Intern), Dybdahl, M. (Intern), Simmons, S. (Ekstern), Crofton, K. M. (Ekstern), D. Watt, E. (Ekstern), Paul Friedmann, K. (Ekstern), Judson, R. S. (Ekstern), Wedebye, E. B. (Intern)
Number of pages: 1
Publication date: 2016
Main Research Area: Technical/natural sciences

Bibliographical note
Sustain Abstract U-9
This abstract does not necessarily reflect U.S. EPA policy
Development, validation and implementation of a quantitative food frequency questionnaire to assess habitual vitamin D intake

Background A well-designed, validated quantitative food frequency questionnaire (FFQ) could offer an efficient and cost-effective method for assessing habitual vitamin D intake. The present study aimed to describe the development, validation and implementation of a vitamin D FFQ. Methods National food consumption survey data obtained from Irish adults (18–64 years) were used to identify foods that contribute 95% of vitamin D intake. A winter-based validation study was carried out for the resulting FFQ in 120 females, including 98 women [mean (SD) 65.0 (7.3) years] and 22 girls [12.2 (0.8) years], using a 14-day diet history (DH) as a comparator. Serum 25(OH)D concentrations were analysed. Validity coefficients were calculated using the method of triads. Cross-classification and Bland–Altman analysis were also performed. Results Median (interquartile range) vitamin D intakes (including the contribution from nutritional supplements) were 5.4 (3.7) and 3.7 (5.9) μg day⁻¹ from the FFQ and DH, respectively and intakes of vitamin D from food sources were 3.6 (3.1) and 2.4 (2.2) μg day⁻¹. The FFQ and DH classified 86% and 87% of individuals into the same and adjacent thirds of wintertime serum 25(OH)D status, respectively. There was a strong association (r = 0.71, P < 0.0001) and no significant systematic or proportional bias observed for the difference between estimates from the FFQ and DH. The validity coefficient for the FFQ was 0.92 (95% confidence interval = 0.80–0.97). Repeatability analysis (n = 56) performed 6–12 months later showed no significant difference in estimates of vitamin D between administrations. Conclusions The data obtained in the present study indicate high validity and good reproducibility of a short, interviewer-administered FFQ for vitamin D.
Dietary adequacy of lunch meals served and consumed at Danish daycare centers

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Research Group for Risk-Benefit
Authors: Tørsleff, E. H. (Intern), Trolle, E. (Intern), Tetens, I. (Intern), Lassen, A. D. (Intern)
Number of pages: 1
Publication date: 2016
Main Research Area: Technical/natural sciences
Electronic versions:
Poster_Ellen_H_T_rsleff.pdf
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Source-ID: 127215452
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Dietary adequacy of lunch meals served and consumed at Danish daycare centers

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Research Group for Risk-Benefit
Authors: Tørsleff, E. H. (Intern), Trolle, E. (Intern), Tetens, I. (Intern), Lassen, A. D. (Intern)
Number of pages: 1
Publication date: 2016
Main Research Area: Technical/natural sciences
Electronic versions:
160602_175_A_preview_1.pdf
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2016

Differences in the effects of school meals on children's cognitive performance according to gender, household education and baseline reading skills

BACKGROUND/OBJECTIVES: We previously found that the OPUS School Meal Study improved reading and increased errors related to inattention and impulsivity. This study explored whether the cognitive effects differed according to gender, household education and reading proficiency at baseline.

SUBJECTS/METHODS: This is a cluster-randomised cross-over trial comparing Nordic school meals with packed lunch from home (control) for 3 months each among 834 children aged 8 to 11 years. At baseline and at the end of each dietary period, we assessed children's performance in reading,
mathematics and the d2-test of attention. Interactions were evaluated using mixed models. Analyses included 739 children.

RESULTS: At baseline, boys and children from households without academic education were poorer readers and had a higher d2-error%. Effects on dietary intake were similar in subgroups. However, the effect of the intervention on test outcomes was stronger in boys, in children from households with academic education and in children with normal/good baseline reading proficiency. Overall, this resulted in increased socioeconomic inequality in reading performance and reduced inequality in impulsivity. Contrary to this, the gender difference decreased in reading and increased in impulsivity. Finally, the gap between poor and normal/good readers was increased in reading and decreased for d2-error%.

CONCLUSIONS: The effects of healthy school meals on reading, impulsivity and inattention were modified by gender, household education and baseline reading proficiency. The differential effects might be related to environmental aspects of the intervention and deserves to be investigated further in future school meal trials.
Disease burden due to gastrointestinal pathogens in a wastewater system in Kampala, Uganda

In wastewater systems in Kampala, Uganda, microbial contamination has increased over the past two decades. Those people who live or work along the Nakivubo channel and wetland and those who use the recreational areas along the shores of Lake Victoria are at an elevated risk of gastrointestinal infections. A quantitative microbial risk assessment (QMRA) was applied for five population groups, characterised by different levels of exposure to wastewater in the Nakivubo area, namely: (i) slum dwellers at risk of flooding; (ii) children living in these slum settlements; (iii) workers maintaining the drainage system or managing faecal sludge (sanitation workers); (iv) urban farmers; and (v) swimmers in Lake Victoria. The QMRA was based on measured concentrations of Escherichia coli, Salmonella spp. and Ascaris spp. eggs in wastewater samples. Published ratios between measured organism and pathogenic strains of norovirus, rotavirus, Campylobacter spp., pathogenic E. coli, pathogenic Salmonella spp., Cryptosporidium spp. and Ascaris lumbricoides were used to estimate annual incidence of gastrointestinal illness and the resulting disease burden. The QMRA estimated a total of 59,493 disease episodes per year across all 18,204 exposed people and an annual disease burden of 304.3 disability-adjusted life years (DALYs). Incidence estimates of gastrointestinal disease episodes per year were highest for urban farmers (10.9) and children living in slum communities (8.3), whilst other exposed groups showed lower incidence (<4.3). Disease burden per person per year was highest in urban farmers (0.073 DALYs) followed by sanitation workers (0.040 DALYs) and children in slum communities (0.017 DALYs). Our findings suggest that the exposure to wastewater is associated with public health problems, particularly children and adults living and working along the major wastewater and reuse system in Kampala. Our findings call for specific interventions to reduce the disease burden due to exposure to wastewater.

General information

State: Published
Organisations: National Food Institute, Research Group for Risk-Benefit, University of Basel, Makerere University, National Water and Sewerage Corporation, Imperial College London
Authors: Fuhrimann, S. (Ekstern), Winkler, M. S. (Ekstern), Stalder, M. (Ekstern), Niwagaba, C. B. (Ekstern), Babu, M. (Ekstern), Kabatereine, N. B. (Ekstern), Halage, A. A. (Ekstern), Utzinger, J. (Ekstern), Cissé, G. (Ekstern), Nauta, M. (Intern)
Number of pages: 13
Pages: 16-28
Publication date: 2016
Main Research Area: Technical/natural sciences
Does your milling procedure for cereals influence your pesticide residue results?

**General information**
- **State:** Published
- **Organisations:** National Food Institute, Research Group for Analytical Food Chemistry
- **Authors:** Poulsen, M. E. (Intern), Herrmann, S. S. (Intern), Hajeb, P. (Intern)
- **Number of pages:** 1
- **Publication date:** 2016
- **Event:** Poster session presented at 11th European Pesticide Residue Workshop, Limassol, Cyprus.
- **Main Research Area:** Technical/natural sciences
- **Electronic versions:**
  - NRLmilling_Poster_160517_4.pdf
- **Source:** PublicationPreSubmission
- **Source-ID:** 124170285
- **Publication:** Research - peer-review › Poster – Annual report year: 2016

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Draft Genome Sequence of Hymenobacter sp. Strain AT01-02, Isolated from a Surface Soil Sample in the Atacama Desert, Chile

Here, we report the 5.09-Mb draft genome sequence of Hymenobacter sp. strain AT01-02, which was isolated from a surface soil sample in the Atacama Desert, Chile. The isolate is extremely resistant to UV-C radiation and is able to accumulate high intracellular levels of Mn/Fe.

**General information**
- **State:** Published
- **Organisations:** National Food Institute, Research Group for Microbial Biotechnology and Biorefining, NASA Ames Research Center
- **Authors:** Hansen, A. C. H. (Intern), Paulino-Lima, I. G. (Ekstern), Fujishima, K. (Ekstern), Rothschild, L. J. (Ekstern), Jensen, P. R. (Intern)
- **Number of pages:** 2
- **Publication date:** 2016
- **Main Research Area:** Technical/natural sciences

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**Publication information**
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- **Volume:** 4
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- **Ratings:**
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  - Scopus rating (2016): CiteScore 0.41 SJR 0.583 SNIP 0.469
  - Web of Science (2016): Indexed yes
  - Scopus rating (2015): SJR 0.591 SNIP 0.398
  - Scopus rating (2014): SJR 0.539 SNIP 0.344
  - ISI indexed (2013): ISI indexed no
- **Original language:** English
Dynamic Cluster Analysis: An Unbiased Method for Identifying A+2 Element Containing Compounds in Liquid Chromatographic High-Resolution TOF Mass Spectrometric Data

Dynamic Cluster Analysis (DCA) is an automated, unbiased technique which can identify Cl, Br, S, and other A+2 element containing metabolites in liquid chromatographic high resolution mass spectrometric data. DCA is based on three features, primarily the previously unutilised A+1 to A+2 isotope cluster spacing which is a strong classifier in itself, but improved with the addition of the monoisotopic mass, and the well-known A:A+2 intensity ratio. Utilizing only the A+1 to A+2 isotope cluster spacing and the monoisotopic mass it was possible to filter a chromatogram for metabolites which contain Cl, Br, and S. Screening simulated isotope patterns of the Antibase Natural Products Database it was determined that the A+1 to A+2 isotope cluster spacing can be used to correctly classify 97.4% of molecular formulas containing these elements, only misclassifying a few metabolites which were either over 2800 u or metabolites which contained other A+2 elements, such as Cu, Ni, Mg, and Zn. It was determined that with an inter-isotopic mass accuracy of 1 ppm, in a fully automated process, using all three parameters, it is possible to specifically filter a chromatogram for S containing metabolites with monoisotopic masses less than 825 u. Furthermore, it was possible to specifically filter a chromatogram for Cl and Br containing metabolites with monoisotopic masses less than 1613 u. Here DCA is applied on: i) simulated isotope patterns of the Antibase natural products databases; ii) LC-QTOF data of reference standards; and iii) LC-QTOF data of crude extracts of 10 strains of laboratory grown cultures of the microalga Prymnesium parvum where it identified known metabolites of the prymnesin series as well as over 20 previously undescribed prymnesin-like molecular features.
Effect of administration of antibiotics peripartum to wistar rats on bile acid profiles in offspring

Vertical transmission of the maternal microbiota is assumed to be crucial for the offspring's development. A disrupted microbiota composition leading to an altered metabolic activity of the microbiota can affect bile acid profiles, which are known to influence host metabolism. Here, we examined whether perturbation of the maternal gut microbiota during pregnancy, induced by administration of either amoxicillin or vancomycin to pregnant rats, influenced bile acid profiles in the offspring. The dams were treated with antibiotics from 8 days before the dams gave birth and continued until weaning (4 weeks later). Blood samples were collected from offspring at ages 2, 4 and 14 weeks, and from dams at the end of treatment. From these blood samples, bile acids were extracted and 22 bile acids were quantified by targeted liquid chromatography mass spectrometry. Comparing the serum bile acid profiles of antibiotic-treated rat dams with non-treated dams, we found that the antibiotic treatments significantly changed the bile acid profiles. However, no effect was seen in the offspring of the antibiotic-treated dams at any age. The bile acid profiles of the offspring did however change significantly with age, where the largest amounts of bile acids were found in the 4-weeks old pups. Future work will involve integrating the bile acid data with physiology and microbiota data of both pups and dams.
Effect of a long-term high-protein diet on survival, obesity development, and gut microbiota in mice

Female C57BL/6J mice were fed a regular low-fat diet or high-fat diets combined with either high or low protein-to-sucrose ratios during their entire lifespan to examine the long-term effects on obesity development, gut microbiota, and survival. Intake of a high-fat diet with a low protein/sucrose ratio precipitated obesity and reduced survival relative to mice fed a low-fat diet. By contrast, intake of a high-fat diet with a high protein/sucrose ratio attenuated lifelong weight gain and adipose tissue expansion, and survival was not significantly altered relative to low-fat-fed mice. Our findings support the notion that reduced survival in response to high-fat/high-sucrose feeding is linked to obesity development. Digital gene expression analyses, further validated by qPCR, demonstrated that the protein/sucrose ratio modulated global gene expression over time in liver and adipose tissue, affecting pathways related to metabolism and inflammation. Analysis of fecal bacterial DNA using the Mouse Intestinal Tract Chip revealed significant changes in the composition of the gut microbiota in relation to host age and dietary fat content, but not the protein/sucrose ratio. Accordingly, dietary fat rather than the protein/sucrose ratio or adiposity is a major driver shaping the gut microbiota, whereas the effect of a high-fat diet on survival is dependent on the protein/sucrose ratio.
Effect of oxygen level on the oxidative stability of two different retail pork products stored using modified atmosphere packaging (MAP)

The characteristics and the oxidative stability of pork steaks and of pork mince were investigated during 2, 5 and 7 days of refrigerated storage using oxygen (O2) levels of 0%, 20%, 50% and 80% in modified atmosphere packaging (MAP). Steaks stored during 7 days were not affected by an increase in O2 concentration, as revealed by lipid and protein oxidation markers. In contrast, the mince was characterised by an altered protein profile, loss of free thiol groups and increased protein oxidation, early during storage. The oxidative stability of pork mince was improved by using intermediate (50%) O2 MAP. The results show that fresh pork products are affected differently by the MAP O2 concentration and strongly indicate that optimisation of MAP based on the retail product type would be of considerable benefit to their oxidative stability.

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Carometec A/S
Authors: Spanos, D. (Intern), Ann Tørngren, M. (Ekstern), Christensen, M. (Ekstern), Baron, C. P. (Intern)
Number of pages: 8
Pages: 162-169
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Meat Science
Volume: 113
ISSN (Print): 0309-1740
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 1.9 SJR 1.643
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 2
Effect of slaughterhouse and day of sample on the probability of a pig carcass being Salmonella-positive according to the Enterobacteriaceae count in the largest Brazilian pork production region

Sources of contamination of carcasses during slaughter include infected pigs as well as environmentally related sources. There are many microbial indicators that can be used in the processing of food to assess food hygiene and the safety of food processing. The presence of some microbial indicators can be viewed as a result of direct or indirect contamination of a food with fecal material. The presence of Enterobacteriaceae is often used as a hygiene indicator, as they are found...
both in the environment and in the intestine of warm-blooded animals. An association between Salmonella isolation and Enterobacteriaceae count (EC) on pre-chill carcasses has been described, however the impact of slaughterhouse and the day of sampling on the occurrence of Salmonella has not been previously investigated. To this end, mixed logistic regressions (MLRs) with random effects and fixed slopes were performed to assess the change in EC and its correlation with Salmonella occurrence using two data sets. The first describes the EC and Salmonella isolation in 60 pork carcasses in one slaughterhouse sampled at 11 different slaughter steps, including the carcass as a random effect. The second describes the EC and Salmonella isolation on 1150 pre-chill carcasses sampled in 13 slaughterhouses over 230 sampling days, and the model combined two random intercepts, slaughterhouse and date of sampling nested with slaughterhouse (day/slaughterhouse). Statistically significant associations (p <0.0001) between the log of the EC and Salmonella occurrence were found in all models. Nevertheless, although a strong association was found between Enterobacteriaceae and Salmonella contamination in pork carcasses, this association was not constant, given that there was a high variation in the probability of a carcass being positive for Salmonella according to the EC mainly between days of samples. The effect of the day of sampling on Salmonella prevalence was so large that the predictive value of the EC count for Salmonella isolation on a daily basis was compromised. It is possible that on some days batches with a high prevalence of Salmonella carriers shedding a high number of Salmonella were slaughtered. On these days, the potential for contamination/cross-contamination of carcasses will be so large that even hygienic slaughter, confirmed by the low EC on carcasses, will not be able to prevent the presence of Salmonella on some carcasses. The results of this study demonstrate that, despite the statistically significant association found, it may be difficult to predict when hygiene failure measured via EC actually indicates Salmonella contamination, and neither the inverse.

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, Research Group for Risk-Benefit, Ministério da Agricultura, Universidade Federal do Rio Grande do Sul, Embrapa Suínos e Aves
Number of pages: 9
Pages: 58-66
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: International Journal of Food Microbiology
Volume: 228
ISSN (Print): 0168-1605
Ratings:
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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SJR 1.366 SNIP 1.436
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.97 SJR 1.481 SNIP 1.553
Web of Science (2016): Indexed yes
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Scopus rating (2015): SJR 1.614 SNIP 1.683 CiteScore 4.02
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.493 SNIP 1.695 CiteScore 3.62
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.612 SNIP 1.841 CiteScore 3.8
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.603 SNIP 1.705 CiteScore 3.7
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.607 SNIP 1.713 CiteScore 3.63
Effect of sodium bicarbonate and varying concentrations of sodium chloride in brine on the liquid retention of fish muscle: High quality low salt saithe muscle

BACKGROUND Negative health effects associated with excessive sodium (Na) intake have increased the demand for tasty low-Na products (<2% NaCl) rather than traditional heavily salted fish products (~20% NaCl). This study investigates the causes of improved yield and liquid retention of fish muscle brined with a combination of salt (NaCl) and sodium bicarbonate (NaHCO3). RESULTS Water characteristics and microstructure of saithe (Pollachius virens L.) muscle brined in solutions of NaCl and NaHCO3 or NaCl alone were compared using low-field nuclear magnetic resonance (LF-NMR) T2 relaxometry, microscopy, salt content, liquid retention and colorimetric measurements. Saithe muscle was brined for 92 h in 0, 30, 60, 120 or 240 g kg\(^{-1}\) NaCl or the respective solutions with added 7.5 g kg\(^{-1}\) NaHCO3. NaHCO3 inclusion improved the yield in solutions ranging from 0 to 120 g kg\(^{-1}\) NaCl, with the most pronounced effect being observed at 30 g kg\(^{-1}\) NaCl. The changes in yield were reflected in water mobility, with significantly shorter T2 relaxation times in all corresponding brine concentrations. Salt-dependent microstructural changes were revealed by light microscopy, where NaHCO3 supplementation resulted in greater intracellular space at 30 and 60 g kg\(^{-1}\) NaCl. CONCLUSION Sodium bicarbonate addition to low-salt solutions can improve yield and flesh quality of fish muscle owing to altered water mobility and wider space between the muscle cells.

General information
State: Published
Organisations: National Food Institute, Research Group for Food Production Engineering, Norwegian University of Life Sciences, Nofima AS
Authors: Åsli, M. (Ekstern), Ofstad, R. (Ekstern), Böcker, U. (Ekstern), Jessen, F. (Intern), Einen, O. (Ekstern), Mørkøre, T. (Ekstern)
Effect of storage on oxidative quality and stability of extruded astaxanthin-coated fish feed pellets

This study examined the stability of extruded and astaxanthin-coated fish feed pellets during storage in a light box at 28°C and 620lx. Seven groups of fish feed pellets were vacuum coated with fish oil that contained levels of astaxanthin ranging from 0 to 100ppm. To equalize differences in the conditions for the fish feed pellets inside the light box, the samples were systematically circled during the experimental storage period of 183 days. The degradation of astaxanthin was monitored using multi-spectral images, captured 28 times in the course of the storage period. Additionally, samples were collected at storage day 8, 15, 22, 92 and 183 for chemical determination of the astaxanthin concentration. The degradation of astaxanthin was shown to primarily be affected by light and limited to occur at the surface of the fish feed pellets, whereas the astaxanthin embedded in the core of the pellets was comparatively protected against degradation. Furthermore, the initial concentrations of astaxanthin influenced the degradation per se, signifying self-protective properties of astaxanthin.
Effects of 14-day oral low dose selenium nanoparticles and selenite in rat—as determined by metabolite pattern determination

Selenium (Se) is an essential element with a small difference between physiological and toxic doses. To provide more effective and safe Se dosing regimens, as compared to dosing with ionic selenium, nanoparticle formulations have been developed. However, due to the nano-formulation, unexpected toxic effects may occur. We used metabolite pattern determination in urine to investigate biological and/or toxic effects in rats administered nanoparticles and for comparison included ionic selenium at an equimolar dose in the form of sodium selenite. Low doses of 10 and 100 fold the recommended human high level were employed to study the effects at borderline toxicity. Evaluations of all significantly changed putative metabolites, showed that Se nanoparticles and sodium selenite induced similar dose dependent changes of the metabolite pattern. Putative identified metabolites included increased decenedioic acid and hydroxydecanedioic acid for both Se formulations whereas dipeptides were only increased for selenite. These effects could reflect altered fatty acid and protein metabolism, respectively.

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State: Published
Authors: Hadrup, N. (Intern), Löschner, K. (Intern), Skov, K. (Intern), Ravn-Haren, G. (Intern), Larsen, E. H. (Intern), Mortensen, A. (Intern), Lam, H. R. (Ekstern), Frandsen, H. L. (Intern)
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Effects of dietary microplastic exposure on the organ toxicity of a mixture of chemical contaminants in zebrafish

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Authors: Rainieri, S. (Ekstern), Conlledo, N. (Ekstern), Larsen, B. K. (Intern), Granby, K. (Intern), Barranco, A. (Ekstern)
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Effects of dietary microplastic exposure on the organ toxicity of a mixture of chemical contaminants in zebrafish (Danio rerio)

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Organisations: National Food Institute, Research Group for Analytical Food Chemistry, National Institute of Aquatic Resources, Section for Aquaculture
Authors: Rainieri, S. (Ekstern), Conlledo, N. (Ekstern), Larsen, B. K. (Intern), Granby, K. (Intern), Barranco, A. (Ekstern)
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Effects of oily fish intake on cardiovascular risk markers, cognitive function, and behavior in school-aged children: study protocol for a randomized controlled trial

Background
Most children in Western populations do not meet recommendations for fish consumption. Oily fish is an important source of n-3 long-chain polyunsaturated fatty acids (LCPUFA), which reduce blood pressure and plasma triacylglycerol in adults and may affect cognitive development and behavior. However, to our knowledge, the potential effects of oily fish on cardiometabolic health, cognitive function, and behavior in children have not been investigated. The aim of the FISK Junior study is to investigate the effects of oily fish consumption on cardiovascular risk markers, cognitive function, and behavior in healthy children.

Methods/design
We are conducting a randomized controlled trial with 8- to 9-year-old Danish children, comparing the effect of consuming 300 g/week of oily fish with poultry (control) for 12 weeks between August 2016 and June 2017. The primary outcomes are blood pressure and fasting plasma triacylglycerol, which will be measured at baseline and endpoint. In addition, we will assess erythrocyte fatty acid composition (compliance), heart rate, plasma cholesterol, markers of glucose homeostasis, growth and body composition, dietary intake, and physical activity and sleep. We will also examine effects on cognitive function (attention, memory, and executive functions) by using standardized tests, behavior and emotions by administering parent-rated questionnaires and child interviews, and we will measure physiological stress response and cortisol levels. We need 150 children to complete the trial to detect a between-groups difference of 2.7 mmHg in diastolic blood pressure and 0.13 mmol/L in plasma triacylglycerol; thus, we aim to recruit 200 children. All outcomes will be analyzed in completer analysis supplemented with sensitivity analyses for the primary outcomes, and attention will be given to potential sex and genotype specificity.

Discussion
The results of the FISK Junior study are expected to fill important gaps in the current knowledge about the importance of dietary fish and n-3 LCPUFA for children’s health and development, and may be used when setting dietary recommendations.
Effects of the Commercial Flame Retardant Mixture DE-71 on Cytokine Production by Human Immune Cells

Introduction Although production of polybrominated diphenyl ethers (PBDEs) is now banned, release from existing products will continue for many years. The PBDEs are assumed to be neurotoxic and toxic to endocrine organs at low concentrations. Their effect on the immune system has not been investigated thoroughly. We aimed to investigate the influence of DE-71 on cytokine production by peripheral blood mononuclear cells (PBMCs) stimulated with Escherichia Coli lipopolysaccharide (LPS) or phytohaemagglutinin-L (PHA-L). Material and Methods PBMCs isolated from healthy donors were pre-incubated with DE-71 at various concentrations and subsequently incubated with the monocyte stimulator LPS, or the T-cell activator PHA-L. Interferon (IFN)-γ, interleukin (IL)-1β, IL-2, IL-4, IL-6, IL-8, IL-10, tumor necrosis factor (TNF)-α, IL-17A, and IL-17F were quantified in the supernatants by Luminex kits. Results At non-cytotoxic concentrations (0.01–10 μg/mL), DE-71 significantly enhanced secretion of IL-1β, IL-6, CXCL8, IL-10, and TNF-α (p<0.001–0.019; n = 6) from LPS-stimulated PBMCs. IFN-γ, TNF-α, IL-17A, and IL-17F (p = <0.001–0.043; n = 6) secretion were enhanced from PHA-L-stimulated PBMCs as well. Secretion of IL-1β, IL-2, IL-10, IL-8 and IL-6 was not significantly affected by DE-71. Conclusions We demonstrate an enhancing effect of DE-71 on cytokine production by normal human PBMCs stimulated with LPS or PHA-L ex vivo.

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Web of Science (2017): Indexed yes
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Scopus rating (2016): CiteScore 3.11 SJR 1.236 SNIP 1.101
Effects of vitamin D2-fortified bread v. supplementation with vitamin D2 or D3 on serum 25-hydroxyvitamin D metabolites: an 8-week randomised-controlled trial in young adult Finnish women

There is a need for food-based solutions for preventing vitamin D deficiency. Vitamin D3 (D3) is mainly used in fortified food products, although the production of vitamin D2 (D2) is more cost-effective, and thus may hold opportunities. We investigated the bioavailability of D2 from UV-irradiated yeast present in bread in an 8-week randomised-controlled trial in healthy 20–37-year-old women (n 33) in Helsinki (60°N) during winter (February–April) 2014. Four study groups were given different study products (placebo pill and regular bread=0 µg D2 or D3/d; D2 supplement and regular bread=25 µg D2/d; D3 supplement and regular bread=25 µg D3/d; and placebo pill and D2-biofortified bread=25 µg D2/d). Serum 25-hydroxyvitamin D2 (S-25(OH)D2) and serum 25-hydroxyvitamin D3 (S-25(OH)D3) concentrations were measured at baseline, midpoint and end point. The mean baseline total serum 25-hydroxyvitamin D (S-25(OH)D=S-25(OH)D2+S-25(OH)D3) concentration was 65·1 nmol/l. In repeated-measures ANCOVA (adjusted for baseline S-25(OH)D as total/D2/D3), D2-bread did not affect total S-25(OH)D (P=0·707) or S-25(OH)D3 (P=0·490), but increased S-25(OH)D2 compared with placebo (P

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State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, University of Helsinki, University College Cork
Authors: Itkonen, S. T. (Ekstern), Skaffari, E. (Ekstern), Saaristo, P. (Ekstern), Saarnio, E. M. (Ekstern), Erkkola, M. (Ekstern), Jakobsen, J. (Intern), Cashman, K. D. (Ekstern), Lamberg-Allardt, C. (Ekstern)
EFSA CEF Panel (EFSA Panel on Food Contact Materials, Enzymes, Flavourings and Processing Aids), 2016. Scientific opinion on Flavouring Group Evaluation 313, (FGE.313): α,β-unsaturated 3(2H)-furanone derivatives from chemical group 13

The Panel on Food Contact Materials, Enzymes, Flavourings and Processing Aids of EFSA was requested to evaluate three flavouring substances, 2,5-dimethyl-4-ethoxyfuran-3(2H)-one [FL-no: 13.117], 2,5-dimethylfuran-3(2H)-one [FL-no: 13.119] and 4-Acetyl-2,5-dimethylfuran-3(2H)-one [FL-no: 13.175] in the Flavouring Group Evaluation 313 (FGE.313), using the Procedure in Commission Regulation (EC) No 1565/2000. The substances were considered in FGE.220, and revisions hereof, not to have genotoxic potential. They were evaluated through a stepwise approach that integrates information on the structure–activity relationships, intake from current uses, toxicological threshold of concern, and available data on metabolism and toxicity. The Panel concluded that the two flavouring substances [FL-no: 13.117, 13.119] do not give rise to safety concerns at their level of dietary intake, estimated on the basis of the Maximised Survey-derived Daily Intake (MSDI) approach. For the flavouring substance [FL-no: 13.175], toxicity data are required. Besides the safety assessment of the flavouring substance, the specifications for the materials of commerce have also been considered. Adequate specifications including complete purity criteria and identity for the materials of commerce have been provided for the three flavouring substances. The Panel concluded that for 2,5-dimethyl-4-ethoxyfuran-3(2H)-one [FL-no: 13.117], 2,5-dimethylfuran-3(2H)-one [FL-no: 13.119] and 4-acetyl-2,5-dimethylfuran-3(2H)-one [FL-no: 13.175] for which the Modified Theoretical Added Maximum Daily Intakes (mTAMDIs) are above the thresholds for their structural class, more reliable exposure data are required for a re-evaluation.
EFSA CEF Panel (EFSA Panel on Food Contact Materials, Enzymes, Flavourings and Processing Aids), 2016. Scientific opinion on Flavouring Group Evaluation 400 (FGE.400): 3-(1-((3,5-dimethylisoxazol-4-yl)methyl)-1H-pyrazol-4-yl)-1-(3-hydroxybenzyl)imidazolidine-2,4-dione

The Panel on Food Contact Materials, Enzymes, Flavourings and Processing Aids (CEF) of EFSA was requested to deliver a scientific opinion on the implications for human health of the flavouring substance 3-(1-((3,5-dimethylisoxazol-4-yl)methyl)-1H-pyrazol-4-yl)-1-(3-hydroxybenzyl)imidazolidine-2,4-dione [FL-no: 16.127], in the Flavouring Group Evaluation 400 (FGE.400), according to Regulation (EC) No 1331/2008 of the European Parliament and of the Council. The substance has not been reported to occur in natural source materials of botanical or animal origin. It is intended to be used as a flavour modifier in specific categories of food. There is no safety concern with respect to genotoxicity. A 90-day dietary administration study in rats showed no adverse effects for doses up to 100 mg/kg body weight (bw) per day, providing an adequate margin of safety. Developmental toxicity was not observed in a study with rats at dose levels up to 1,000 mg/kg bw per day. The Panel concluded that [FL-no: 16.127] is not expected to be of safety concern at the estimated levels of intake. This conclusion applies only to the use of the substance as a flavour modifier and when used at levels up to those specified for various foods in different food categories.

The Panel on Food Contact Materials, Enzymes, Flavourings and Processing Aids (CEF Panel) of the European Food Safety Authority was requested to consider evaluations of flavouring substances assessed since 2000 by the Joint FAO/WHO Expert Committee on Food Additives (JECFA), and to decide whether further evaluation is necessary, as laid down in Commission Regulation (EC) No 1565/2000. The substances were evaluated through a stepwise approach that integrates information on structure-activity relationships, intake from current uses, toxicological threshold of concern, and available data on metabolism and toxicity. The present consideration concerns a group of 24 alicyclic ketones and secondary alcohols and related esters evaluated by JECFA (59th meeting in 2002 and 63rd meeting in 2004). This revision is made due to inclusion of four additional substances cleared for genotoxicity concern compared to the previous version [FL-no: 07.033, 07.094, 07.112 and 07.140]. The Panel concluded for 23 substances that these do not give rise to safety concerns at the levels of dietary intake, estimated on the basis of the MSDI approach [FL-no: 02.209, 07.034, 07.035, 07.045, 07.094, 07.095, 07.098, 07.112, 07.126, 07.129, 07.140, 07.148, 07.149, 07.172, 07.179, 07.180, 07.257, 09.027, 09.140, 09.160, 09.230, 09.464 and 09.930]. However, for all substances use levels are needed to calculate the mTAMDIs in order to identify those flavouring substances that need more refined exposure assessment and to finalise the evaluation. Besides the safety assessment of these flavouring substances, the specifications for the materials of commerce have been considered and are adequate for 21 substances. For [FL-no: 07.094 and 07.112], information on the solubility in water and ethanol is missing. The chemical identity could not be unambiguously confirmed for substance [FL-no: 07.033]. Therefore the Panel could not consider the JECFA evaluation of this substance and information as to its chemical identity should be submitted.

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The Panel on Food Contact Materials, Enzymes, Flavourings and Processing Aids (CEF) of the EFSA was requested to consider evaluations of flavouring substances assessed since 2000 by the Joint FAO/WHO Expert Committee on Food Additives (the JECFA), and to decide whether further evaluation is necessary, as laid down in Commission Regulation (EC) No 1565/2000. The present consideration concerns a group of 10 tetrahydrofuran derivatives and one furanone derivative evaluated by the JECFA at the 63rd meeting in 2004. This revision is made due to additional toxicity data have become available for anhydrolinalool oxide (5) [FL-no: 13.097]. The substances were evaluated through a stepwise approach that integrates information on structure-activity relationships, intake from current uses, toxicological threshold of concern, and available data on metabolism and toxicity. The JECFA concluded all the 11 tetrahydrofuran derivatives at step A3. The Panel agrees with the application of the Procedure as performed by the JECFA for 10 of the 11 substances. For the remaining substance [FL-no: 13.097] the Panel did not find that it could be metabolised to innocuous products and should accordingly be evaluated via the B-side of the Procedure scheme. A no observed adverse effect level (NOAEL) of 52 mg/kg body weight was derived from a 90-day study in rats and compared with an exposure estimate of 0.9 µg/capita / per day for anhydrolinalool oxide a margin of safety of 3.5 × 106 was calculated. Accordingly, the Panel agrees with the
JECFA conclusion 'No safety concern at estimated level of intake as flavouring substances' based on the maximised survey-derived daily intake (MSDI) approach. The specifications for the materials of commerce have also been considered and for all 11 substances, the information is adequate.

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EFSA CEF Panel (EFSA Panel on Food Contact Materials, Enzymes, Flavourings and Processing Aids), 2016. Scientific Opinion on Flavouring Group Evaluation 90, Revision 1 (FGE.90Rev1): consideration of six substances evaluated by JECFA (68th meeting) structurally related to aliphatic, acyclic and aromatic saturated and unsaturated tertiary alcohols, aromatic tertiary alcohols and their esters evaluated by EFSA in FGE.18Rev1 and FGE.75Rev1
The Panel on Food Contact Materials, Enzymes, Flavourings and Processing Aids of EFSA was requested to consider evaluations of flavouring substances assessed since 2000 by the Joint FAO/WHO Expert Committee on Food Additives (the JECFA), and to decide whether further evaluation is necessary, as laid down in Commission Regulation (EC) No 1565/2000. The present consideration concerns a group of six aliphatic, acyclic and acyclic terpenoid tertiary alcohols and structurally related substances evaluated by JECFA at the 68th meeting in 2007. This revision of FGE.90 is made because additional toxicity data have become available for a structurally related substance in FGE.75Rev1, anhydrolinalool oxide (5) [FL-no: 13.097]. The Panel agrees with the application of the Procedure as performed by the JECFA for four substances [FL-no: 02.018, 02.245, 02.250 and 02.251]. For two substances [FL-no: 13.076 and 13.087] it could not be concluded that they are metabolised to innocuous substances. Based on the exposure estimates (MSDI) and the no observed adverse effect level (NOAEL) from 90-day toxicity study with anhydrolinalool oxide (5), the Panel considered that the substances [FL-no: 13.076 and 13.087] were not of safety concern at the estimated levels of intake based on the maximised survey-derived daily intake (MSDI) approach. The specifications for the materials of commerce have also been considered. For substance [FL-no: 02.251] information on the stereoisomeric composition has not been specified, and for substance [FL-no: 13.087], the identity of the isomers needs to be specified. For three substances [FL-no: 02.018, 13.076 and 13.087] the modified theoretical added maximum daily intake (mTAMDI) is above the threshold of concern and therefore more reliable exposure data are required to perform a more refined exposure estimation and to judge whether a re-evaluation according to the Procedure is needed.

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EFSA CONTAM Panel (EFSA Panel on Contaminants in the Food Chain), 2016. Scientific opinion on malachite green in food.: EFSA-Q-2014-00815
Malachite green (MG) has been used globally in aquaculture but is not registered for use in food-producing animals in the European Union. The European Commission requested EFSA to evaluate whether a reference point for action (RPA) of 2 lg/kg for the sum of MG and its major metabolite leucomalachite green (LMG) is adequate to protect public health. Available occurrence data were not suitable for a reliable exposure assessment. The hypothetical dietary exposure was calculated, considering the RPA as occurrence value for all types of fish, fish products and crustaceans. Meandietary exposure across different European dietary surveys and age classes would range from 0.1 to 5.0 ng/kg body weight (bw) per day. For high and frequent fish consumers, the exposure would range from 1.3 to 11.8 ng/kg bw per day. Both MG and LMG induced formation of DNA adducts in livers of rats and/or mice, and of micronuclei in mice. LMG also induced cII transgene mutations in mouse liver. MG caused a small, not dose-related, increase in thyroid gland follicular adenomas and carcinomas, and of mammary gland carcinomas in female rats. MG caused an increase in hepatocellular adenomas and carcinomas in female mice. Both MG and LMG may be considered as carcinogenic and as genotoxic in vivo. A lower 95% confidence limit for a benchmark response of 10% extra risk (BMDL10) of 13 mg/kg bw per day for hepatocellular adenomas and carcinomas was selected as reference point for neoplastic effects. For non-neoplastic effects, a lower 95% confidence limit for a benchmark response of 5% extra risk (BMDL05) of 6 mg/kg bw per day was selected for the effect of MG on liver weight and of LMG on body weight. The margins of exposure were 1.1 \times 10^6 or greater for neoplastic effects and 4.9 \times 10^5 or greater for non-neoplastic effects. The CONTAM Panel concluded that it is unlikely that exposure to food contaminated with MG/LMG at or below the RPA of 2 lg/kg represents a health concern.

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EFSA (European Food Safety Authority), 2016. Dietary exposure assessment to pyrrolizidine alkaloids in the European population

Chronic and acute dietary exposure to pyrrolizidine alkaloids (PAs) was estimated in the European population via the consumption of plant-derived foods. This resulted in highest estimates of mean chronic dietary exposure of 34.5–48.4 ng/kg body weight (bw) per day in ‘Toddlers’ (LB–UB) and 154–214 ng/kg bw per day in the highly exposed population (LB–UB, also in ‘Toddlers’). Following a rather conservative scenario, the highest estimates of acute mean exposure and 95th percentile exposure were calculated for ‘Toddlers’, with mean exposure up to 311 ng/kg bw per day and 95th percentile exposure up to 821 ng/kg bw per day. Tea and herbal infusions were by far the main average contributors to the total exposure to PAs. Among consumers only, in the adult population, the mean chronic exposure via the consumption of honey ranged between 0.1 and 7.4 ng/kg bw per day (minimum LB–maximum UB), while for high consumers, it was between 0.4 and 18 ng/kg bw per day (minimum LB–maximum UB). In the young population, for the average consumers of honey, estimates were between 0.3 and 27 ng/kg bw per day (minimum LB–maximum UB), and between 0.7 and 31 ng/kg bw per day (minimum LB–maximum UB) among the high consumers. Ad hoc exposure scenarios for food supplements via consumption of pollen-based supplements showed chronic exposure to PAs that ranged between 0.7 and 12 ng/kg bw per day (minimum LB–maximum UB), while acute exposure was between 2.8 and 44 ng/kg bw per day (minimum LB–maximum UB), in both cases among consumers only. Likewise, the consumption of 150 mL infusion of 2 g of selected plant extracts led to exposures to PAs up to 67,000 ng/kg bw per day (e.g. infusion of Borage).

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EFSA NDA Panel (EFSA Panel on Dietetic Products, Nutrition and Allergies), 2016. Scientific opinion on the safety of fermented soybean extract NSK-SD® as a novel food pursuant to Regulation (EC) No 258/97

Following a request from the European Commission, the EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA) was asked to deliver an opinion on the fermented soybean extract NSK-SD®, which is standardised to a nattokinase enzyme activity of 20,000–28,000 fibrin degradation units/g. The information provided on the composition of the NF, the specific activity of nattokinase, the batch-to-batch variability, the storage stability and the chemical purity is sufficient and does not raise safety concerns. The proposed maximum intake is 100 mg NSK-SD®/day as a food supplement. The target population proposed by the applicant is healthy men and women over the age of 35 years, excluding pregnant and lactating women. The Panel noted that nattokinase exhibits in vitro fibrinolytic activity and in vivo thrombolytic activity in animals when administered parenterally. However, the information provided with respect to absorption, distribution, metabolism and excretion of the NF does not allow conclusions to be drawn on the absorption of active nattokinase or any functional metabolites thereof. A bacterial reverse mutation test did not show any indication of mutagenicity, and the NF was not clastogenic in
an in vitro chromosome aberration assay. Taking into account the no observed adverse effect level (NOAEL) of 1,000 mg/kg body weight per day in the subchronic toxicity study in rats, and considering the proposed maximum intake level for the NF, the Panel concludes that the margin of exposure is sufficient. The Panel concludes that the NF, the fermented soybean extract NSK-SD®, is safe under the intended conditions of use as specified by the applicant.

Electrospinning of Chitosan-Xanthan Nanofibers
Electrospun chitosan-xanthan gum nanofibers were produced and the correlation between the rheological properties of chitosan-xanthan solutions and electrospinnability were investigated at different xanthan gum concentrations. Uniform chitosan-xanthan nanofibers with diameters ranging from 382±182 to 842±296 nm were developed based on the chitosan-xanthan gum content. Overall chitosan-xanthan gum solutions exhibited shear thinning behavior for all the concentrations tested, which tended to increase with the increase of concentration of xanthan. Furthermore the electrical conductivity of the chitosan-xanthan solutions was observed to increase with the increase of xanthan gum concentrations. We can conclude that the optimal electrospinning process is directed by the apparent viscosity properties and the electrical conductivity of the chitosan-xanthan solutions. We are currently investigating the utilisation of these electrospun chitosan-xanthan nanofibers as a carrier for bioactive compounds.

Electrospraying Chitosan Particles for Oral Vaccine Delivery
Electrosprayed chitosan nanoparticles were produced and the correlation between the rheological properties of chitosan-xanthan solutions and electrospraying were investigated at different xanthan gum concentrations. Uniform chitosan-xanthan nanoparticles with diameters ranging from 382±182 to 842±296 nm were developed based on the chitosan-xanthan gum content. Overall chitosan-xanthan gum solutions exhibited shear thinning behavior for all the concentrations tested, which tended to increase with the increase of concentration of xanthan. Furthermore the electrical conductivity of the chitosan-xanthan solutions was observed to increase with the increase of xanthan gum concentrations. We can conclude that the optimal electrospraying process is directed by the apparent viscosity properties and the electrical conductivity of the chitosan-xanthan solutions. We are currently investigating the utilisation of these electrosprayed chitosan-xanthan nanoparticles as a carrier for bioactive compounds.
Electrospraying particles for loading into microcontainers for drug delivery

**General information**
State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science, Department of Micro- and Nanotechnology, Nanoprobes
Authors: Sevilla Moreno, J. A. (Intern), Boutrup Stephansen, K. (Intern), Nielsen, L. H. (Intern), Chronakis, I. S. (Intern), Boisen, A. (Intern)
Publication date: 2016
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Main Research Area: Technical/natural sciences
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Source-ID: 127315846
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Elucidation of the regulatory role of the fructose operon reveals a novel target for enhancing the NADPH supply in Corynebacterium glutamicum

The performance of *Corynebacterium glutamicum* cell factories producing compounds which rely heavily on NADPH has been reported to depend on the sugar being metabolized. While some aspects of this phenomenon have been elucidated, there are still many unresolved questions as to how sugar metabolism is linked to redox and to the general metabolism. We here provide new insights into the regulation of the metabolism of this important platform organism by systematically characterizing mutants carrying various lesions in the fructose operon. Initially, we found that a strain where the dedicated fructose uptake system had been inactivated (KO-ptsF) was hampered in growth on sucrose minimal medium, and suppressor mutants appeared readily. Comparative genomic analysis in conjunction with enzymatic assays revealed that suppression was linked to inactivation of the pfkB gene, encoding a fructose-1-phosphate kinase. Detailed characterization of KO-ptsF, KO-pfkB and double knock-out (DKO) derivatives revealed a strong role for sugar-phosphates, especially fructose-1-phosphate (F1P), in governing sugar as well as redox metabolism due to effects on transcriptional regulation of key genes. These findings allowed us to propose a simple model explaining the correlation between sugar phosphate concentration, gene expression and ultimately the observed phenotype. To guide us in our analysis and help us identify bottlenecks in metabolism we debugged an existing genome-scale model onto which we overlaid the transcriptome data. Based on the results obtained we managed to enhance the NADPH supply and transform the wild-type strain into delivering the highest yield of lysine ever obtained on sucrose and fructose, thus providing a good example of how regulatory mechanisms can be harnessed for bioproduction.

**General information**
State: Published
Organisations: National Food Institute, Research Group for Microbial Biotechnology and Biorefining, RWTH Aachen University
Authors: Wang, Z. (Intern), Chan, S. H. J. (Intern), Sudarsan, S. (Ekstern), Blank, L. M. (Ekstern), Jensen, P. R. (Intern), Solem, C. (Intern)
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Main Research Area: Technical/natural sciences

Publication information
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Scopus rating (2017): SJR 3.337 SNIP 1.865
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 8.33 SJR 3.626 SNIP 1.865
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 3.6 SNIP 1.809 CiteScore 8.2
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 3.395 SNIP 2.009 CiteScore 7.23
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 4.036 SNIP 2.164 CiteScore 8.43
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.989 SNIP 1.847 CiteScore 6.72
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 3.049 SNIP 2.038 CiteScore 6.75
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 2.375 SNIP 1.786
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 2.621 SNIP 1.4
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 1.789 SNIP 1.03
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.508 SNIP 1.182
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.28 SNIP 0.897
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 1.069 SNIP 1.042
Scopus rating (2004): SJR 1.688 SNIP 1.255
Scopus rating (2003): SJR 1.177 SNIP 0.869
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 1.702 SNIP 1.068
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 0.925 SNIP 0.755
Scopus rating (2000): SJR 0.724 SNIP 0.9
Original language: English
Corynebacterium glutamicum, Fructose operon, Convergent evolution, Transcriptomics, Hexose phosphates, NADPH
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Source: FindIt
Encapsulation of fish oil in nanofibers by emulsion electrospinning: Physical characterization and oxidative stability

The encapsulation of fish oil in poly(vinyl alcohol) (PVA) nanofibers by emulsion electrospinning was investigated. Independently of the emulsifier used, whey protein isolate (WPI) or fish protein hydrolysate (FPH), PVA concentration had a high influence on fiber morphology. Fibers without bead defects were only produced for solutions with 10.5% (w/w) PVA, which presented sufficient number of polymer chain entanglements. On the other hand, increasing oil load from 1.5 to 3% (w/w) resulted in fibers with larger diameters containing spindle-like enlargements interspersed. High omega-3 encapsulation efficiency (92.4 ± 2.3%) was obtained for fibers produced from 10.5% (w/w) PVA-5% (w/w) emulsion blend stabilized with WPI, resulting in an oil load capacity of 11.3 ± 0.3%. Moreover, the encapsulated oil was randomly distributed as small droplets inside the fibers. However, the electrospun fibers presented a higher content of hydroperoxides and secondary oxidation products (e.g. 1-penten-3-ol, hexanal, octanal and nonanal) compared to emulsified and unprotected fish oil.

General information

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Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Research Group for Nano-Bio Science, Technical University of Denmark, University of Granada
Authors: García Moreno, P. J. (Intern), Boutrup Stephansen, K. (Intern), van derKruijs, J. (Ekstern), Guadix, A. (Ekstern), Guadix, E. M. (Ekstern), Chronakis, I. S. (Intern), Jacobsen, C. (Intern)
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BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.71 SJR 1.476 SNIP 1.837
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.475 SNIP 1.858 CiteScore 3.58
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.496 SNIP 1.96 CiteScore 3.44
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Scopus rating (2011): SJR 1.334 SNIP 1.911 CiteScore 2.84
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.447 SNIP 1.795
BFI (2009): BFI-level 1
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Relations
Projects:
Encapsulation of fish oil in nanofibers by emulsion electrospinning: Physical characterization and oxidative stability
Publication: Research - peer-review › Journal article – Annual report year: 2016

Engineering of High Yield Production of L-serine in *Escherichia coli*
L-serine is a widely used amino acid that has been proposed as a potential building block biochemical. The high theoretical yield from glucose makes a fermentation based production attractive. In order to achieve this goal, serine degradation to pyruvate and glycine in *E. coli* MG1655 was prevented by deletion of three L-serine deaminases *sdaA*, *sdaB*, and *tdcG*, as well as serine hydroxyl methyl transferase (SHMT) encoded by *glyA*. Upon overexpression of the serine production pathway, consisting of a feedback resistant version of *serA* along with *serB* and *serC*, this quadruple deletion strain showed a very high serine production yield (0.45 g/g glucose) during small-scale batch fermentation in minimal medium. Serine, however, was found to be highly toxic even at low concentrations to this strain, which lead to slow growth and production during fed batch fermentation, resulting in a serine production of 8.3 g/L. The production strain was therefore evolved by random mutagenesis to achieve increased tolerance towards serine. Additionally, overexpression of *eamA*, a cysteine/homoserine transporter was demonstrated to increase serine tolerance from 1.6 g/L to 25 g/L. During fed batch fermentation, the resulting strain lead to the serine production titer of 11.7 g/L with yield of 0.43 g/g glucose, which is the highest yield reported so far for any organism.

General information
State: Published
Organisations: Bacterial Cell Factories, Novo Nordisk Foundation Center for Biosustainability, iLoop, National Food Institute
Authors: Mundhada, H. (Intern), Schneider, K. (Intern), Christensen, H. B. (Intern), Nielsen, A. T. (Intern)
Number of pages: 10
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Main Research Area: Technical/natural sciences

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Scopus rating (2017): SNIP 1.186 SJR 1.372
Web of Science (2017): Indexed yes
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Scopus rating (2016): CiteScore 4.14 SJR 1.447 SNIP 1.178
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.632 SNIP 1.355 CiteScore 4.44
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.612 SNIP 1.395 CiteScore 4.16
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.637 SNIP 1.427 CiteScore 4.44
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.62 SNIP 1.364 CiteScore 4.04
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.668 SNIP 1.481 CiteScore 4.08
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 1.551 SNIP 1.354
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 1.498 SNIP 1.358
Web of Science (2009): Indexed yes
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Scopus rating (2008): SJR 1.248 SNIP 1.283
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.363 SNIP 1.356
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.467 SNIP 1.437
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 1.135 SNIP 1.23
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 1.105 SNIP 1.245
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 1.052 SNIP 1.228
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 1.117 SNIP 1.263
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 1.059 SNIP 1.16
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 1.428 SNIP 1.529
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 1.494 SNIP 1.531

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Amino acids, E. coli, Fermentation, L-serine production, L-serine toxicity, Metabolic engineering

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Enhancement of Protein and Pigment Content in Two Chlorella Species Cultivated on Industrial Process Water

Chlorella pyrenoidosa and Chlorella vulgaris were cultivated in pre-gasified industrial process water with high concentration of ammonia representing effluent from a local biogas plant. The study aimed to investigate the effects of growth media and cultivation duration on the nutritional composition of biomass. Variations in proteins, lipid, fatty acid composition, amino acids, tocopherols, and pigments were studied. Both species grew well in industrial process water. The contents of proteins were affected significantly by the growth media and cultivation duration. Microalga Chlorella pyrenoidosa produced the highest concentrations of protein (65.2% ± 1.30% DW) while Chlorella vulgaris accumulated extremely high concentrations of lutein and chlorophylls (7.14 ± 0.66 mg/g DW and 32.4 ± 1.77 mg/g DW, respectively). Cultivation of Chlorella species in industrial process water is an environmentally friendly, sustainable bioremediation method with added value biomass production and resource valorization, since the resulting biomass also presented a good source of proteins, amino acids, and carotenoids for potential use in aquaculture feed industry.

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Technical University of Denmark
Authors: Safafar, H. (Intern), Uldall Nørregaard, P. (Ekstern), Ljubic, A. (Ekstern), Møller, P. (Ekstern), Holdt, S. L. (Intern), Jacobsen, C. (Intern)
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Main Research Area: Technical/natural sciences

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Volume: 4
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BFI (2014): BFI-level 1
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Enterococci as indicator of potential growth of Salmonella in fresh minced meat at retail

The present study had the purpose of demonstrating a positive correlation between enterococci and Salmonella in minced pork and beef. Data from 2001 to 2002 from retail minced pork and beef in Denmark were used and the association between concentration of enterococci and prevalence and concentration of Salmonella was examined. A total of 2187 and 2747 samples of minced pork and beef, respectively, were collected from butcher shops and supermarkets throughout the country. In pork, 2.1% of all samples were positive for Salmonella whereas 1.5% of beef samples were positive. Among samples with ≥100 CFU/g of enterococci, prevalence of Salmonella positive samples was 3.4%, which was significantly higher than 1.2% observed in minced meat with less than 100 CFU/g of enterococci (P <0.001). A positive association between occurrence of enterococci and presence of Salmonella in retail minced meat was supported as both prevalence and concentration of Salmonella in positive samples increased with increasing concentrations of enterococci in minced meat. From our data, we suggest that minced meat containing more than 500 enterococci per gram is suspected of having been exposed to temperatures allowing growth of Salmonella. This is to our knowledge the first report, which links presence of an indicator to potential growth of Salmonella.

General information
Environmental chemicals and their effects on female reproductive health: Searching for molecular mechanisms and effect biomarkers

Incorrect developmental programming of the female reproductive tract can lead to compromised reproductive fitness later in life. It has been suggested that exposure to endocrine disrupting chemicals (EDCs) in utero can disrupt ovarian programming in humans, which is supported by several animal studies. However, it remains unclear which specific processes during development are affected, and if there are particular sensitive developmental windows. Most of the etiological evidence derives from rodent studies, whereas cause-effect relationships in humans are extremely difficult to obtain, not least due to the fact that there is a significant lag time between exposure during fetal life and disease symptoms in adulthood. Furthermore, humans are typically exposed to chemicals at a much lower dose than those of experimental studies, but exposed to a large number of different chemicals. This may lead to combination or mixture effects, where chemicals present at doses that would not cause effects on their own, can add up and cause an effect. The aim of the PhD project was to identify early biomarkers and sensitive windows for late life effects on the ovary after chemical exposure to mixtures of EDCs during early development.

A comprehensive literature review was synthesized to obtain an overview over current knowledge on the effects environmental chemicals can have on the developing ovary. This work identified four potentially sensitive windows of reproductive programming in females; i) primordial germ cell migration and gonadal sex determination, ii) meiosis, iii) follicle assembly, and iv) early folliculogenesis. For the experimental work, which aimed at identifying potential early biomarkers for late life diseases, two general approaches were adopted; a targeted approach looking at specific endpoints and a selection of effect biomarkers, and a more open-ended screening approach looking for potentially novel biomarkers. In the targeted approach, endpoints known to be important for reproductive function and ovary health were investigated at the molecular and morphological levels in neonatal, pre-pubertal and adult rat ovaries exposed to mixtures of EDCs during development. In the screening approach, a proteomics screen was performed to investigate differentially expressed proteins in the rat ovary after developmental exposure to mixtures of EDCs.

In the initial targeted approach, rat dams were exposed to a mixture of phthalates, pesticides, UV-filters, bisphenol A, butyl-paraben, as well as the mild analgesic paracetamol (PM). The compounds were tested all together (Totalmix) or in subgroups with anti-androgenic (AAmix) or estrogenic (Emix) properties. PM was tested separately. Reproductive endpoints were investigated in offspring at pre-puberty (PD22) and adulthood (approx. 1 year of age). In pre-pubertal animals a significant reduction in primordial follicle numbers was seen after AAmix and PM exposure, whereas in the 1 year old animals reduced ovary weights were seen in Totalmix-, AAmix-, and PM-groups. Finally, animals in the Totalmix group showed a higher incidence rate of irregular estrous cycles than control animals.

The reduction in primordial follicles after AAmix exposure was suspected to be caused by interruption to follicle assembly. Thus, a small pilot study, exposing explanted neonatal ovaries to AAmix, submixtures (pesticide mix (PMemix), phthalate mix (PHmix)), and mono(2-ethylhexyl)phthalate (MEHP), was conducted. No significant effects were seen on gene expression, but histological evaluation showed that primordial follicles were reduced in the PEmix exposed ovaries. For the proteomics screening study, a shotgun proteomics approach was performed on PD17 ovaries from offspring corresponding to those of the initial targeted study. Protein extracts were analyzed by LC-MS/MS, and evaluation of the data for potential effect biomarkers showed that three proteins, Trimethyllysine dioxygenase (TMLH), Keratin, type II cytoskeletal 8 (KRT8), and anti-Müllerian hormone (AMH) were dysregulated in all exposure groups. Also, ingerenuty pathway analysis revealed canonical pathways known to be involved in ovary function, such as mTOR and HIPPO signaling, to be affected in all exposure groups.

In conclusion, the studies conducted for this PhD revealed that follicle count in pre-pubertal rats can potentially be used as a marker for early life affected ovary development caused by EDC mixture exposure, leading to reproductive senescence later in life. Furthermore, three proteins were identified as possible biomarkers for effects on the developing ovary, and potentially for late life adverse effects.
Enzymatic, urease-mediated mineralization of gellan gum hydrogel with calcium carbonate, magnesium-enriched calcium carbonate and magnesium carbonate for bone regeneration applications

Introduction: Mineralization of hydrogel biomaterials is considered desirable to improve their suitability as materials for bone regeneration[1],[2]. Hydrogels have been most commonly mineralized with calcium phosphate (CaP), but hydrogel-CaCO₃ composites have received less attention. Magnesium (Mg) has been added to CaP to stimulate cell adhesion and proliferation and bone regeneration in vivo, but its effect as a component of carbonate-based biomaterials remains uninvestigated. In this study, gellan gum (GG) hydrogels were mineralized enzymatically with (CaCO₃), Mg-enriched CaCO₃ and magnesium carbonate to generate composite biomaterials for bone regeneration. GG is an inexpensive, biotechnologically produced anionic polysaccharide, from which hydrogels for cartilage regeneration have been formed by crosslinking with divalent ions[3].

Methods: GG hydrogels were loaded with the enzyme urease by incubation in 5% (w/v) urease solution and mineralized for 5 days in five different media denoted as UA, UB, UC, UD and UE, which contained urea (0.17 M) and different concentrations of CaCl₂ and MgCl₂ (270:0, 202.5:67.5, 135:135, 67.5:202.5 and 0:250, respectively (mmol dm⁻³)). Discs were autoclaved and subjected to physiochemical, mechanical and cell biological characterization.

Results: FTIR, SEM, TGA and XRD analysis revealed that increasing magnesium concentration decreased mineral crystallinity. At low magnesium concentrations calcite was formed, while at higher concentrations magnesian calcite was formed. Hydromagnesite formed at high magnesium concentration in the absence of calcium. Amount of mineral formed and compressive strength decreased with increasing magnesium concentration in the mineralization medium. ICP analysis revealed that Ca:Mg elemental ratio in the mineral formed was higher than in the respective mineralization media. Mineralization of hydrogels promoted adhesion and growth of osteoblast-like cells, which were supported best on mineralized hydrogels containing no or little magnesium. Hydrogels mineralized with hydromagnesite displayed higher cytotoxicity.

Discussion: Enzymatic mineralization of GG hydrogels with CaCO₃ in the form of calcite successfully reinforced hydrogels and promoted osteoblast-like cell adhesion and growth, but Mg enrichment had no positive effect. This is in contrast with other studies reporting that incorporation of Mg into GG mineralized with CaP promotes cell adhesion and proliferation[4].

Conclusion: Sample groups UA and UB seem to be the most promising due to the superior amount of mineral formed and cell adhesion and proliferation.
Epoxy composite dusts with and without carbon nanotubes cause similar pulmonary responses, but differences in liver histology in mice following pulmonary deposition

Background: The toxicity of dusts from mechanical abrasion of multi-walled carbon nanotube (CNT) epoxy nanocomposites is unknown. We compared the toxic effects of dusts generated by sanding of epoxy composites with and without CNT. The used CNT type was included for comparison.

Methods: Mice received a single intratracheal instillation of 18, 54 and 162 μg of CNT or 54, 162 and 486 μg of the sanding dust from epoxy composite with and without CNT. DNA damage in lung and liver, lung inflammation and liver histology were evaluated 1, 3 and 28 days after intratracheal instillation. Furthermore, the mRNA expression of interleukin 6 and heme oxygenase 1 was measured in the lungs and serum amyloid A1 in the liver. Printex 90 carbon black was included as a reference particle.

Results: Pulmonary exposure to CNT and all dusts obtained by sanding epoxy composite boards resulted in recruitment of inflammatory cells into lung lumen: On day 1 after instillation these cells were primarily neutrophils but on day 3, eosinophils contributed significantly to the cell population. There were still increased numbers of neutrophils 28 days after intratracheal instillation of the highest dose of the epoxy dusts. Both CNT and epoxy dusts induced DNA damage in lung tissue up to 3 days after intratracheal instillation but not in liver tissue. There was no additive effect of adding CNT to epoxy resins for any of the pulmonary endpoints. In livers of mice instilled with CNT and epoxy dust with CNTs inflammatory and necrotic histological changes were observed, however, not in mice instilled with epoxy dust without CNT.

Conclusions: Pulmonary deposition of epoxy dusts with and without CNT induced inflammation and DNA damage in lung tissue. There was no additive effect of adding CNT to epoxies for any of the pulmonary endpoints. However, hepatic inflammatory and necrotic histopathological changes were seen in mice instilled with sanding dust from CNT-containing epoxy but not in mice instilled with reference epoxy.

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Department of Micro- and Nanotechnology, National Research Center for Working Environment, University of Warmia and Mazury in Olsztyn, European Centre for the Sustainable Impact of Nanotechnology, European Commission - Joint Research Center

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Scopus rating (2016): CiteScore 9.4 SJR 2.755 SNIP 2.144
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 3.074 SNIP 2.023 CiteScore 8.84
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Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Research Group for Risk-Benefit, University of Copenhagen
Authors: Kristensen, N. B. (Ekstern), Madsen, M. L. (Ekstern), Hansen, T. H. (Ekstern), Allin, K. H. (Ekstern), Hoppe, C. (Intern), Fagt, S. (Intern), Lausten, M. S. (Intern), Gøbel, R. J. (Ekstern), Vestergaard, H. (Ekstern), Hansen, T. (Ekstern), Pedersen, O. (Ekstern)
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Establishing methods to evaluate intestinal uptake of food proteins

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Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, Utrecht University
Authors: Graversen, K. (Intern), Bøgh, K. L. (Intern), Smit, J. (Ekstern)
Number of pages: 1
Publication date: 2016
Event: Abstract from 2nd ImpARAS congress, Warsaw, Poland.
Main Research Area: Technical/natural sciences
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2017

Estimating the true burden of foodborne diseases in Denmark

**General information**
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Authors: Pires, S. M. (Intern)
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Rapport_Annual_Report_On_Zoonoses_in_Denmark_2015_FINAL.pdf
Source: PublicationPreSubmission
Source-ID: 127954071
Publication: Commissioned › Report chapter – Annual report year: 2016

EU Proficiency test EUPT-CF10 – Incurred and Spiked Pesticide Residues in Rye Flour

**General information**
State: Published
Organisations: National Food Institute, Research Group for Analytical Food Chemistry
Authors: Poulsen, M. E. (Intern), Herrmann, S. S. (Intern), Hajeb, P. (Intern)
Number of pages: 1
Publication date: 2016
Event: Poster session presented at 11th European Pesticide Residue Workshop, Limassol, Cyprus.
Main Research Area: Technical/natural sciences
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EUPT_CF10_Poster_16051_short.pdf
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Publication: Research - peer-review › Poster – Annual report year: 2016

Evaluation of a cross contamination model describing transfer of Salmonella spp. and Listeria monocytogenes during grinding of pork and beef

A cross contamination model was challenged and evaluated applying a new approach. • QMRA and Total Transfer Potential (TTP) were included. • Transfer estimates were not applicable for unlike processing. • The risk of disease may be reduced when using a stainless steel grinder. • Well-sharpened knife, and room temperatures lower than 4°C can be beneficial.

**General information**
State: Published
Organisations: National Food Institute, Research Group for Microbial Food Safety and Quality, Research Group for Risk-Benefit, University of Campinas, Universidade de Sao Paulo
Evaluation of a Performance-Based Expert Elicitation: WHO Global Attribution of Foodborne Diseases

For many societally important science-based decisions, data are inadequate, unreliable or non-existent, and expert advice is sought. In such cases, procedures for eliciting structured expert judgments (SEJ) are increasingly used. This raises questions regarding validity and reproducibility. This paper presents new findings from a large-scale international SEJ study intended to estimate the global burden of foodborne disease on behalf of WHO. The study involved 72 experts distributed over 134 expert panels, with panels comprising thirteen experts on average. Elicitations were conducted in five languages. Performance-based weighted solutions for target questions of interest were formed for each panel. These weights were based on individual expert's statistical accuracy and informativeness, determined using between ten and fifteen calibration variables from the experts' field with known values. Equal weights combinations were also calculated.

The main conclusions on expert performance are: (1) SEJ does provide a science-based method for attribution of the global burden of foodborne diseases; (2) equal weighting of experts per panel increased statistical accuracy to acceptable levels, but at the cost of informativeness; (3) performance-based weighting increased informativeness, while retaining accuracy; (4) due to study constraints individual experts' accuracies were generally lower than in other SEJ studies, and (5) there was a negative correlation between experts' informativeness and statistical accuracy which attenuated as accuracy improved, revealing that the least accurate experts drive the negative correlation. It is shown, however, that performance-based weighting has the ability to yield statistically accurate and informative combinations of experts' judgments, thereby offsetting this contrary influence. The present findings suggest that application of SEJ on a large scale is feasible, and motivate the development of enhanced training and tools for remote elicitation of multiple, internationally-dispersed panels.

General information

State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, University of Bristol, Delft University of Technology, Utrecht University
Authors: Aspinall, W. P. (Ekstern), Cooke, R. M. (Ekstern), Havelaar, A. H. (Ekstern), Hoffmann, S. (Ekstern), Hald, T. (Intern)
Number of pages: 14
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Main Research Area: Technical/natural sciences

Publication information

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Volume: 11
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BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SJR 1.164 SNIP 1.111
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.11 SJR 1.236 SNIP 1.101
Evaluation of cyclic imines in commercial shellfish samples in Europe samples

General information
State: Published
Organisations: National Food Institute, Research Group for Analytical Food Chemistry
Authors: Rambla, M. (Ekstern), del Rio, V. (Ekstern), Miles, C. O. (Ekstern), Samdal, I. A. (Ekstern), Fernandez, M. (Ekstern), de la Iglesia, P. (Ekstern), Barbosa, V. (Ekstern), Tediosi, A. (Ekstern), Madorran, E. (Ekstern), Calis, T. (Ekstern), Kotterman, M. (Ekstern), Granby, K. (Intern), Diogène, J. (Ekstern)
Number of pages: 2
Publication date: 2016
Event: Abstract from Aquaculture Europe 2016, Edinburgh, United Kingdom.
Main Research Area: Technical/natural sciences
Electronic versions:
2016_EAS_Maria_Rambla_JDF.pdf
Source: PublicationPreSubmission
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Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2016
Evaluation of direct lysis for the extraction of norovirus RNA from raspberries and strawberries

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Food Safety
Authors: Rajuuddin, S. M. (Intern), Schultz, A. C. (Intern)
Pages: 100-100
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Article number: P93
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Conference: Danish Microbiological Society Annual Congress 2016, Copenhagen, Denmark, 14/11/2016 - 14/11/2016
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Programme & Abstracts book
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2016

Evaluation of minerals and vitamins in the Danish cultivated sugar kelp
Seaweeds are known for their nutraceutical applications, but also the ability to accumulate e.g. very high iodine concentrations and toxic heavy metals. In this study, cultivated Saccharina latissima (sugar kelp) harvested year-round was analysed for minerals (incl. heavy metals) and vitamins (vit A and E) to evaluate the nutritional value, possible risks and harvest time for optimized value and application. Rope cultivated sugar kelp was sampled both in close proximity to a blue mussel and fish farm (IMTA) and in a reference/control site, both outside Horsens fjord in Denmark, and freeze dried and stored frozen for further analyses. Sugar kelp biomass was sampled (n=3) at 2 m depth in 2013-2014. Surprisingly high concentrations of K and Ca (up to more than 100 and 150 g/kg DW, respectively) were found, along with other trace metals: Cr, Fe, Mn, Co, Cu, Na, Zn, and Se. Undesirable elements such as Pb, Hg, and inorganic As were below legislative threshold values for edible seaweed in France and food supplements in EU, whereas Cd concentrations in some seasons were above the French limits. However, a 70 kg person would need an intake of 0.77-2.0 kg DW of sugar kelp to reach the provisional tolerable weekly intake limit set for Cd. The iodine was found in so high levels (up to 5 g/kg) that this will be the limiting element for intake of sugar kelp. Moreover, the concentrations of total As found from September to March were above the EU regulatory levels for feed ingredients (40 mg/kg DW. Pb and Cd concentrations were below threshold values. The vitamin E (alpha-tocopherol) concentrations (6-25 mg/kg DW) were similar to what is found in broccoli. Generally the year-round variations were due season, and not between the two locations (reference and IMTA), so harvest time is important for optimized use, and may be conflicting with highest yields of sugar kelp. High concentrations of iodine and total As may be of concern regarding food and feed regulations, respectively.

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Research Group for Nano-Bio Science, Department of Environmental Engineering, Residual Resource Engineering, Technical University of Denmark
Authors: Silva Marinho, G. (Intern), Holdt, S. L. (Intern), Sloth, J. J. (Intern), Jacobsen, J. (Ekstern), Angelidaki, I. (Intern)
Number of pages: 1
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Event: Abstract from 22nd International Seaweed Symposium, Copenhagen, Denmark.
Main Research Area: Technical/natural sciences

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Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2016

Evaluation of the antioxidant activity in food model system of fish peptides released during simulated gastrointestinal digestion
In the last decade, increasing evidences of the occurrence of lipid oxidation during digestion have been reported, in either in vivo or in vitro studies (1,2,3). As a result, the nutritional quality and safety of foodstuffs could be affected by the decrease of certain lipids compounds of interest and the generation of potentially toxic oxidation products. Regarding fish composition, the high content in polyunsaturated ω-3 acyl groups renders its lipids especially prone to oxidation. However, fish is also a major source of protein, which could greatly influence the extent of oxidation reactions taking place in the gastrointestinal tract. In fact, several studies have reported antioxidant activity of fish protein hydrolysates, coming from fish industry waste by-products (3,4). Thus, the potential release of peptides showing antioxidant properties during fish digestion cannot be ruled out. In order to shed light on these aspects, in vitro digestates of European sea bass were
submitted to ultrafiltration using membranes with different cut off size. Afterwards, the potential antioxidant activity of the peptide fractions obtained was evaluated by comparing the oxidative stability of fish oil-in-water emulsions (5%), containing or not the isolated fractions (2 mg/ml final protein concentration). For this purpose, the occurrence of volatile markers of lipid oxidation, the tocopherol content, and the lipid composition of the emulsions during storage were studied. At day 12 of storage, emulsions made with digested protein fractions showed a higher content of docosahexanoic acyl groups and tocopherol than the emulsion control (without fractions), and also a lower content of volatile oxidation markers.

**General information**

State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, University of the Basque Country
Authors: Nieva-Echevarria, B. (Ekstern), Jacobsen, C. (Intern), Garcia Moreno, P. J. (Intern), Sørensen, A. M. (Intern), Goicoechea, E. (Ekstern), Guillen, M. D. (Ekstern)
Number of pages: 1
Publication date: 2016
Main Research Area: Technical/natural sciences
Electronic versions:
abstract_2.pdf
Source: PublicationPreSubmission
Source-ID: 126531512
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2016

**Evidence for Human Adaptation and Foodborne Transmission of Livestock-Associated Methicillin-Resistant Staphylococcus aureus**

We investigated the evolution and epidemiology of a novel live-stock-associated methicillin-resistant Staphylococcus aureus strain, which colonizes and infects urban-dwelling Danes even without a Danish animal reservoir. Genetic evidence suggests both poultry and human adaptation, with poultry meat implicated as a probable source.

**General information**

State: Published
Organisations: National Food Institute, Division of Epidemiology and Microbial Genomics, Robert Koch Institute, Statens Serum Institut, University of Copenhagen, Federal Institute for Risk Assessment, Friedrich-Loeffler-Institute, Ghent University, Universite Libre de Bruxelles, ANSES - French Agency for Food, Environmental and Occupational Health & Safety, Universite Claude Bernard Lyon 1, Istituto Zooprofilattico Sperimentale delle Regioni Lazio e Toscana, University of Palermo, Istituto Superiore di Sanita, Netherlands Food and Consumer Product Safety Authority, National Institute for Public Health and the Environment, Complutense University, Universidad de La Rioja, George Washington University, Utrecht University
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Pages: 1349-1352
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Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 4.88 SJR 4.614 SNIP 2.56
Expanding the Repertoire of Carbapenem-Hydrolyzing Metallo-ß-Lactamases by Functional Metagenomic Analysis of Soil Microbiota

Carbapenemases are bacterial enzymes that hydrolyze carbapenems, a group of last-resort ß-lactam antibiotics used for treatment of severe bacterial infections. They belong to three ß-lactamase classes based amino acid sequence (A, B, and D). The aim of this study was to elucidate occurrence, diversity and functionality of carbapenemase-encoding genes in soil microbiota by functional metagenomics. Ten plasmid libraries were generated by cloning metagenomic DNA from agricultural (n = 6) and grassland (n = 4) soil into Escherichia coli. The libraries were cultured on amoxicillin-containing agar and up to 100 colonies per library were screened for carbapenemase production by CarbaNP test. Presumptive carbapenemases were characterized with regard to DNA sequence, minimum inhibitory concentration (MIC) of ß-lactams, and imipenem hydrolysis. Nine distinct class B carbapenemases, also known as metallo-ß-lactamases (MBLs), were identified in six soil samples, including two subclass B1 (GRD23-1 and SPN79-1) and seven subclass B3 (CRD3-1, PEDO-1, GRD33-1, ESP-2, ALG6-1, ALG11-1, and DHT2-1). Except PEDO-1 and ESP-2, these enzymes were distantly related to any previously described MBLs (33 to 59% identity). RAlphy analysis indicated that six enzymes (CRD3-1, GRD23-1, DHT2-1, SPN79-1, ALG6-1, and ALG11-1) originated from Proteobacteria, two (PEDO-1 and ESP-2) from Bacteroidetes and one (GRD33-1) from Gemmatimonadetes. All MBLs detected in soil microbiota were functional when expressed in E. coli, resulting in detectable imipenem-hydrolyzing activity and significantly increased MICs of clinically relevant ß-lactams. Interestingly, the MBLs yielded by functional metagenomics generally differed from those detected in the same soil samples by antibiotic selective culture, showing that the two approaches targeted different subpopulations in soil microbiota.
Expansion of cereal multi residue method with pesticides planned for review under regulation No 396/2005 Article 12

General information
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Organisations: National Food Institute, Research Group for Analytical Food Chemistry
Authors: Herrmann, S. S. (Intern), Hajeb, P. (Intern), Poulsen, M. E. (Intern)
Number of pages: 1
Publication date: 2016
Event: Poster session presented at 11th European Pesticide Residue Workshop, Limassol, Cyprus.
Main Research Area: Technical/natural sciences
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Explanation and Elaboration Document for the STROBE-Vet Statement: Strengthening the Reporting of Observational Studies in Epidemiology - Veterinary Extension

The STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) statement was first published in 2007 and again in 2014. The purpose of the original STROBE was to provide guidance for authors, reviewers and editors to improve the comprehensiveness of reporting; however, STROBE has a unique focus on observational studies. Although much of the guidance provided by the original STROBE document is directly applicable, it was deemed useful to map those statements to veterinary concepts, provide veterinary examples and highlight unique aspects of reporting in veterinary observational studies. Here, we present the examples and explanations for the checklist items included in the STROBE-Vet Statement. Thus, this is a companion document to the STROBE-Vet Statement Methods and process document, which describes the checklist and how it was developed.

General information
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Organisations: National Veterinary Institute, National Food Institute, Research Group for Genomic Epidemiology
Pages: 662-698
Publication date: 2016
Main Research Area: Technical/natural sciences
Explanation and Elaboration Document for the STROBE-Vet Statement: Strengthening the Reporting of Observational Studies in Epidemiology-Veterinary Extension

The STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) statement was first published in 2007 and again in 2014. The purpose of the original STROBE was to provide guidance for authors, reviewers, and editors to improve the comprehensiveness of reporting; however, STROBE has a unique focus on observational studies. Although much of the guidance provided by the original STROBE document is directly applicable, it was deemed useful to map those statements to veterinary concepts, provide veterinary examples, and highlight unique aspects of reporting in veterinary observational studies. Here, we present the examples and explanations for the checklist items included in the STROBE-Vet statement. Thus, this is a companion document to the STROBE-Vet statement methods and process document (JVIM_14575 "Methods and Processes of Developing the Strengthening the Reporting of Observational Studies in Epidemiology—Veterinary (STROBE-Vet) Statement" undergoing proofing), which describes the checklist and how it was developed.

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Organisations: National Food Institute, Research Group for Genomic Epidemiology
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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 1.787 SJR 1.481
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 2
Scopus rating (2016): SJR 1.35 SNIP 1.286 CiteScore 2.06
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.217 SNIP 1.233 CiteScore 2.09
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.273 SNIP 1.495 CiteScore 2.08
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.541 SNIP 1.674 CiteScore 2.24
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.301 SNIP 1.522 CiteScore 2.08
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.604 SNIP 1.499 CiteScore 1.98
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
Exploring the dynamics of a free fruit at work intervention

Background: The workplace has been identified as an ideal setting for health interventions. However, few UK-based workplace intervention studies have been published. Fewer still focus on the practicalities and implications when running an intervention within the workplace setting. The objective of this paper was to qualitatively determine the perceived behaviour changes of participants in a free fruit at work intervention. Understanding the dynamics of a workplace intervention and establishing any limitations of conducting an intervention in a workplace setting were also explored.

Methods: Twenty-three face-to-face interviews were conducted with individuals receiving free fruit at work for 18 weeks (74 % female). The worksite was the offices of a regional local government in the North East of England. Analysis was guided theoretically by Grounded Theory research and the data were subjected to content analysis. The transcripts were read repeatedly and cross-compared to develop a coding framework and derive dominant themes.

Results: Topics explored included: the workplace food environment; the effect of the intervention on participants and on other related health behaviours; the effect of the intervention on others; participant's fruit consumption; reasons for not taking part in the intervention; expectations and sustainability post-intervention; and how to make the workplace healthier. Five emergent themes included: the office relationship with food; desk based eating; males and peer support; guilt around consumption of unhealthy foods; and the type of workplace influencing the acceptability of future interventions.

Conclusion: Exploring the perceptions of participants offered valued insights into the dynamics of a free fruit workplace intervention. Findings suggest that access and availability are both barriers and facilitators to encouraging healthy eating in the workplace.
Extraction, characterization and application of antioxidants from the Nordic brown alga Fucus vesiculosus

Marine algae are a huge underutilized resource in the Nordic countries with a potential to be used in the development of new natural ingredients for the food, cosmetics and pharmaceutical industry. Such ingredients can act as natural preservatives and prevent product deterioration during storage, in particular in the form of rancidity due to oxidation of unsaturated fatty acids in the products.

A characteristic feature of Fucus vesiculosus, also known as bladder wrack, is a high content of phlorotannins – a particular type of polyphenol group. Previous studies have shown positive correlations between the phlorotannin content and radical scavenging capacity of extracts derived from Nordic F. vesiculosus. Radical scavenging capacity is an important antioxidant property in terms of preventing the oxidation of unsaturated fatty acids. The high content of antioxidative phlorotannins in F. vesiculosus therefore makes this alga particularly attractive for the development of new natural antioxidants. While the in vitro antioxidant properties of F. vesiculosus extracts are widely studied, studies evaluating the antioxidant efficacy of such extracts in food and skin care products are scarce.

This PhD study investigated the possibilities of using extracts from Nordic F. vesiculosus as natural antioxidants in food and skin care products. All tested food products were fortified with fish oil rich in polyunsaturated omega-3 fatty acids. The fish oil was added specifically in order to examine the effectiveness of the antioxidants in systems which are more likely to
oxidize compared with conventional products. The products tested were all oil-in-water emulsions except for granola bars, which were instead added 70% fish oil-in-water emulsions. Tests were made on a selection of extracts made from water, acetone, and ethanol, as well as a fraction of purified phlorotannins. Investigations also highlighted the influence of the extraction medium on the antioxidant properties, the phlorotannin content as well as other co-extracted substances. Moreover, it was examined which phlorotannins were present in each of the extracts, and how each specific phlorotannin contributed to the overall antioxidant activity.

All extracts examined and also the phlorotannin-rich fraction were somewhat able to improve the oxidative stability of the food and skin care products. The effectiveness of these extracts was to a large degree dependant on their antioxidant properties and composition, which in turn depended on the extraction medium used. In general, water was efficient in extracting iron chelating compounds. However, it was also found that water was not effective in extracting phlorotannins, and that the iron chelating ability, according to our results, to a greater extent was due to the presence of the pigment 19-hex-fucoxanthin. It has also been discussed whether algal sugars with iron chelating ability may be extracted with water and hence affect the antioxidant properties of the water extract. However, this aspect was not investigated. The high iron chelating ability of the water extract proved particularly effective in FO-enriched mayonnaise. Previous studies have also shown that iron chelating ability is an important property of antioxidants to work efficiently in this particular food. Acetone and ethanol were highly effective in extracting phlorotannins, which were found to have good radical scavenging capacity as well as reducing power. In addition, these phlorotannins exhibited a high affinity to the interface between the hydrophilic and the hydrophobic phase, compared to phlorotannins extracted with water. The more amphiphilic phlorotannins were also found to be effective antioxidants in FO-enriched granola bars. It was examined from microscopy how the emulsified fish oil added seaweed extracts localized when added to the granola bars. Emulsions added extracts with more amphiphilic phlorotannins clearly improved incorporation of the fish oil emulsions into the granola bars, which in turn had a major impact on the oxidative stability of these products. It was concluded that the surface active phlorotannins were important radical scavengers in granola bars. These phlorotannins are chain-breaking antioxidants that deactivate lipid radicals formed in the first part of lipid oxidation. In addition, it was discussed whether some of these phlorotannins also regenerated antioxidative tocopherols from the oil phase.

A structural characterization and on-line detection of phlorotannins in the purified fraction was carried out in support of a further characterisation of phlorotannins and how they each contribute to the overall antioxidant activity. By mass spectrometry 13 phlorotannin isomers were identified with molecular weights between 374 and 870 Da (3 to 7 phloroglucinol units). It was found that the antioxidant activity is decreasing with increased molecular weight and hence with increased polymerization of the phlorotannins.

This PhD work has contributed basic knowledge of relevance to future large scale development of natural antioxidants from seaweeds to the benefit of the food, cosmetic and pharmaceutical industrial sectors. It is clearly demonstrated that it is possible to produce antioxidants from seaweed thallus, and also that it is possible to use alternative environment-friendly extraction methods. In addition, the studies highlight examples of application possibilities of seaweed extracts as natural antioxidants, e.g. in the formulation of functional foods enriched with fish oil.
Factors influencing the gelation and rennetability of camel milk using camel chymosin

The effects of temperature, pH, concentration of camel chymosin and addition of CaCl₂ on the hydrolysis of κ-casein (κ-CN) and the coagulation kinetics of camel milk were investigated. The rate of κ-CN hydrolysis was higher at 40 °C than at 30 °C and with increasing addition of chymosin and decreasing pH. For all samples gelation was initiated at levels of camel milk κ-CN hydrolysis >95%. The gelation time (Tg) of camel milk was significantly reduced (from 717 to 526 s) at 30 °C when the concentration of chymosin was increased, but was independent of chymosin concentration at 40 °C. Reducing pH also reduced Tg. The gel firmness increased at 40 °C (58 Pa) compared with 30 °C (44 Pa) and effect of CaCl₂ addition on the gelation properties of camel milk was found to be dependent on pH; a significant improvement was only found at pH 6.3.

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, University of Copenhagen, University of Botswana, Haramaya University
Authors: Hailu, Y. (Ekstern), Hansen, E. B. (Intern), Seifu, E. (Ekstern), Eshetu, M. (Ekstern), Ipsen, R. (Ekstern)
Number of pages: 8
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Main Research Area: Technical/natural sciences

Publication information
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Volume: 60
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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 1.031 SJR 1.051
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 2.34 SJR 1.124 SNIP 1.272
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 0.961 SNIP 1.15 CiteScore 2.18
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.06 SNIP 1.174 CiteScore 2.24
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.239 SNIP 1.394 CiteScore 2.79
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.268 SNIP 1.467 CiteScore 2.55
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.282 SNIP 1.491 CiteScore 2.73
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.329 SNIP 1.468
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.633 SNIP 1.763
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 1.441 SNIP 1.51
Scopus rating (2007): SJR 1.225 SNIP 1.621
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.379 SNIP 1.779
Farm specific risk factors for *Campylobacter* colonisation in Danish and Norwegian broilers

Campylobacteriosis has become the leading bacterial zoonosis in humans in the European Union and other developed countries. There are many sources of human *Campylobacter* infections, but broilers and broiler meat have been shown to be the most important. In order to implement effective interventions that reduce the probability of *Campylobacter* colonisation of broiler flocks, it is essential to fully understand the risk factors involved. We present a bi-national risk factor survey comprising *Campylobacter* data from more than 5200 Danish and Norwegian indoor, conventional broiler flocks and the responses to a standardised questionnaire, with more than 40 explanatory variables from 277 Danish and Norwegian farms. We explored several models by using different combinations of the Danish and Norwegian data, including models with single-country datasets. All models were analysed using a generalized linear model using backwards elimination and forward selection. The results show that Norwegian broiler flocks had a lower risk of being colonised than Danish flocks. Farm specific variables that increased the risk of flocks becoming colonised with *Campylobacter* in both countries were: broiler houses older than five years; longer downtime (no. of days between flocks), probably a consequence of longer downtimes being associated with less focus on maintaining a high biosecurity level; broiler houses without a separate ante-room or barrier; and the use of the drinker nipples with cups or bells compared with nipples without cups. Additional country specific risk factors were also identified. For Norway, the risk of colonisation increased with increasing numbers of houses on a farm and when the water used for the broilers originated from surface water or bore holes instead of mains. For Denmark, having boot dips or low stocking density increased the risk of a flock becoming *Campylobacter* positive. The different model approaches allowed us to explore the effect of having a large number of data available to identify the significant variables. To a large extent, the country specific models identified risk factors that were also found in the bi-national model. However, the bi-national model identified more risk factors than the country specific models. This indicated that combining the data sets from the two countries did not disrupt the results but was beneficial due to the greater strength achieved in the statistical analyses and the possibility of examining interactions terms with the variable *Country*.
Fatal septicemia linked to transmission of MRSA clonal complex 398 in hospital and nursing home, Denmark

We describe 2 fatal cases of methicillin-resistant Staphylococcus aureus (MRSA) clonal complex 398 septicemia in persons who had no contact with livestock. Whole-genome sequencing of the isolated MRSA strains strongly suggest that both were of animal origin and that the patients had been infected through 2 independent person-to-person transmission chains.

General information
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Organisations: National Food Institute, Research Group for Genomic Epidemiology, Odense University Hospital, Hvidovre University Hospital
Authors: Nielsen, R. T. (Ekstern), Kemp, M. (Ekstern), Holm, A. (Ekstern), Skov, M. N. (Ekstern), Detlefsen, M. (Ekstern), Hasman, H. (Intern), Aarestrup, F. M. (Intern), Kaas, R. S. (Intern), Nielsen, J. B. (Ekstern), Westh, H. (Ekstern), Kolmos, H. J. (Ekstern)
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Scopus rating (2017): SNIP 1.916 SJR 3.278
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BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 4.92 SJR 3.428 SNIP 2.198
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 3.101 SNIP 2.012 CiteScore 4.23
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 3.509 SNIP 2.406 CiteScore 4.59
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BFI (2013): BFI-level 2
Scopus rating (2013): SJR 3.254 SNIP 2.266 CiteScore 4.68
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
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ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 3.021 SNIP 2.319
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 3.168 SNIP 2.701
BFI (2008): BFI-level 2
Final Report on SSD2 pilot results in Denmark
This document is the "Report on SSD2 pilot results" of the project OC/EFSA/DCM/2013/05: "Pilot project on the implementation of SSD2 in the frame of the electronic transmission of harmonised data collection of analytical results to EFSA". The report includes a description of the software and tools used, a description of the challenges encountered in migrating data structure from SSD1/XML to SSD2 in the national data repositories, a summary of the experience gained in testing SSD2 and recommendations for EFSA on effectiveness and suitability of the SSD2 in the different domains. The following domains are included: Pesticides Residues (under Regulation (EC) No 396/2005), Contaminants (under...
Fish oil extracted from fish-fillet by-products is weakly linked to the extraction temperatures but strongly linked to the omega-3 content of the raw material

Rainbow trout (Oncorhynchus mykiss) is the main species produced in Danish fresh water farming. Therefore, a large amount of filleting by-products such as heads, bones, and tails (HBT) and intestines are available and can be used to produce high quality fish oil. The main aim in this study was to investigate whether different extraction temperatures (70 and 90°C) during production of crude fish oil from two fractions (HBT and intestines) separately or together affected the quality of the oil. The quality of the oil was measured by determination of peroxide value, anisidine value, volatile oxidation products, % free fatty acids as well as content of omega-3 PUFA. Furthermore, an experiment was carried out to elucidate the effect of extraction temperature on oil produced from raw materials with a different content of omega-3 fatty acids. For this purpose filleting by-products from conventional (low omega-3 PUFA content) and organic (high omega-3 PUFA content) fish farming were used. Findings showed that the natural variation between production days influenced the quality of the produced oil to a high extent. The temperature was found to play a minor role regarding oxidative quality of the produced oil. However, the omega-3 fatty acid content of the raw material influenced the oil quality.
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Scopus rating (2016): CiteScore 2.06 SJR 0.712 SNIP 1.042
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.643 SNIP 0.878 CiteScore 1.85
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.742 SNIP 1.052 CiteScore 1.98
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.863 SNIP 1.122 CiteScore 2.16
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.864 SNIP 1.221 CiteScore 2.06
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.742 SNIP 0.94 CiteScore 1.75
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.799 SNIP 1.05
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.84 SNIP 1.07
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.612 SNIP 0.855
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.607 SNIP 0.801
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 0.715 SNIP 0.962
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 0.684 SNIP 1.002
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 0.599 SNIP 0.96
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 0.48 SNIP 0.751
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Fluorerede stoffer i mademballage af pap og papir
Fluorinated alkyl substances and technical mixtures used in food paper-packaging exhibit endocrine-related activity in vitro

Migration of chemicals from packaging materials to foods may lead to human exposure. Polyfluoroalkyl substances (PFAS) can be used in technical mixtures (TMs) for use in food packaging of paper and board, and PFAS have been detected in human serum and umbilical cord blood. The specific structures of the PFAS in TMs are often unknown, but polyfluorinated alkyl phosphate esters (PAPs) have been characterized in TMs, food packaging, and in food. PAPs can be metabolized into fluorotelomer alcohols (FTOHs) and perfluoroalkyl carboxylic acids (PFCAs). Some PFAS have endocrine activities, highlighting the need to investigate these effects. Herein, we studied the endocrine activity of less characterized PFAS, including short-chain PFCAs and FTOHs, PAPs, and TMs of unknown chemical composition. Long-chain PFCAs were also included. We applied seven assays covering effects on estrogen, glucocorticoid, androgen, and peroxisome proliferator-activated receptor (PPAR) activity, as well as steroidogenesis in vitro and ex vivo. In general, PAPs, FTOHs, TMs, and long-chain PFCAs showed estrogenic activity through receptor activation and/or increasing 17β-estradiol levels. Furthermore, short- and long-chain PFCAs activated PPARα and PPARγ. Collectively, this means that (i) PAPs, FTOHs, and PFCAs exhibit endocrine activity through distinct and sometimes different mechanisms, (ii) two out of three tested TMs exhibited estrogenic activity, and (iii) short-chain FTOHs showed estrogenic activity and short-chain PFCAs generally activate both PPARα and PPARγ with similar potency and efficacy as long-chain PFCAs. In conclusion, several new and divergent toxicological targets were identified for different groups of PFAS.
Food Allergens: Is There a Correlation between Stability to Digestion and Allergenicity?

Food allergy is a major health problem in the Western countries, affecting 3-8% of the population. It has not yet been established what makes a dietary protein a food allergen. Several characteristics have been proposed to be shared by food allergens. One of these is resistance to digestion. This paper reviews data from digestibility studies on purified food allergens and evaluates the predictive value of digestibility tests on the allergenic potential. We point out that food allergens do not necessarily resist digestion. We discuss how the choice of in vitro digestibility assay condition and the method used for detection of residual intact protein as well as fragments thereof may greatly influence the outcome as well as the interpretation of results. The finding that digests from food allergens may retain allergenicity, stresses the importance of using immunological assays for evaluating the allergenic potential of food allergen digestion products. Studies assessing the allergenicity of digestion products, by either IgE-binding, elicitation or sensitizing capacity, shows that digestion may abolish, decrease, have no effect, or even increase the allergenicity of food allergens. Therefore, the predictive value of the pepsin resistance test for assessing the allergenic potential of novel proteins can be questioned.
Food allergy, degradation, dietary allergens, elicitation, proteolysis, risk assessment, sensitization

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Fortsat indsats i handlingsplaner overfor campylobacter og salmonella - koordineret med VTEC i kvæg

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Functional and technological properties of camel milk proteins: a review
This review summarises current knowledge on camel milk proteins, with focus on significant peculiarities in protein composition and molecular properties. Camel milk is traditionally consumed as a fresh or naturally fermented product. Within the last couple of years, an increasing quantity is being processed in dairy plants, and a number of consumer products have been marketed. A better understanding of the technological and functional properties, as required for product improvement, has been gained in the past years. Absence of the whey protein β-LG and a low proportion of κ-casein cause differences in relation to dairy processing. In addition to the technological properties, there are also implications for human nutrition and camel milk proteins are of interest for applications in infant foods, for food preservation and in functional foods. Proposed health benefits include inhibition of the angiotensin converting enzyme, antimicrobial and antioxidant properties as well as an antidiabetogenic effect. Detailed investigations on foaming, gelation and solubility as well as technological consequences of processing should be investigated further for the improvement of camel milk utilisation in the near future.

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BFI (2014): BFI-level 1
Gender differences in purchase intentions and reasons for meal selection among fast food customers – Opportunities for healthier and more sustainable fast food

Understanding the factors that influence food selection and dietary behavior is fundamental to support the successful translation of dietary goals into consumer behavior. The present study aims to identify gender differences in fast food consumers’ reasons for actual fast food meal selection and their purchase intentions. Based on this background, possible opportunities toward implementing healthier and more sustainable fast food options are discussed. Data were collected at three fast food restaurants from different parts of Denmark among randomly selected customers (aged 15 or above). The customers were approached after having ordered their meal. They filled out a questionnaire on reasons for their actual fast food meal selection and purchase intentions in relation to four hypothesized burger menus, including a regular beef burger menu, a wholegrain beef burger menu, a nutrition labeled beef burger menu and a nutrition labeled chicken burger menu.

Results showed that the majority of the fast food customers expressed a wish for healthier menus (55% males vs. 64% females agree or strongly agree, p < 0.001) and more sustainable menus in terms of environmental impact (43% males vs. 52% females agree or strongly agree, p < 0.001), however only 7% of the participants’ meals included healthier food choices (n = 740). Habits, taste and price were the main drivers among both genders for the actual fast food meal selection. Compared with women, more men expressed that actual food choice was based on offers and promotions (p < 0.001), and on food perceived as the most satiating (p = 0.001). With regard to purchase intentions, the majority of men preferred a beef burger menu (healthier or regular) over a healthier chicken burger menu or a wholegrain burger menu, whereas the majority of women responded positively to either of the healthier-labeled burger menus (p < 0.001). In conclusion, the study shows that having a focus on gender differences is of particular importance in order to improve the food nutrition environment and support healthier food selections among fast food customers.
Genes involved in *Listeria monocytogenes* biofilm formation at a simulated food processing plant temperature of 15 °C

Listeria monocytogenes is a pathogenic foodborne bacterium whose persistence in food processing environments is in part attributed to its biofilm formation. Most biofilm studies have been carried out at 30–37 °C rather than at temperatures found in the food processing plants (i.e., 10–20 °C). The objective of the present study was to mine for novel genes that contribute to *L. monocytogenes* biofilm formation at 15 °C using the random insertional mutagenesis approach. A library of 11,024 *L. monocytogenes* 568 (serotype 1/2a) Himar1 insertional mutants was created. Mutants with reduced or enhanced biofilm formation at 15 °C were detected in microtiter plate assays with crystal violet and safranin staining. Fourteen mutants expressed enhanced biofilm phenotypes, and harbored transposon insertions in genes encoding cell wall biosynthesis, motility, metabolism, stress response, and cell surface associated proteins. Deficient mutants (n=5) contained interruptions in genes related to peptidoglycan, teichoic acid, or lipoproteins. Enhanced mutants produced significantly (p < 0.05) higher cell densities in biofilm formed on stainless steel (SS) coupons at 15 °C (48 h) than deficient mutants, which were also more sensitive to benzalkonium chloride. All biofilm deficient mutants and four enhanced mutants in the microtiter plate assay (flaA, cheR, lmo2563 and lmo2488) formed no biofilm in a peg lid assay (Calgary biofilm device) while insertions in lmo1224 and lmo0543 led to excess biofilm in all assays. Two enhanced biofilm formers were more resistant to enzymatic removal with DNase, proteinase K or pectinase than the parent strain. Scanning electron microscopy of individual biofilms made by five mutants and the parent on SS surfaces showed formation of heterogeneous biofilm with dense zones by immotile mutants, while deficient mutants exhibited sparse growth. In conclusion, interruptions of 9 genes not previously linked to biofilm formation in *L. monocytogenes* (lmo2572, lmo2488 (uvrA), lmo1224, lmo0434 (inlB), lmo263 (inlH), lmo0543, lmo0057 (EsaA), lmo2563, lmo0453), caused enhanced biofilm formation in the bacterium at 15 °C. The remaining mutants harbored interruptions in 10 genetic loci previously associated with biofilm formation at
higher temperatures, indicating some temperature driven differences in the formation of biofilm by L. monocytogenes. © 2016 Elsevier B.V. All rights reserved.

**General information**

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Organisations: National Food Institute, Research Group for Diagnostic Engineering, Dalhousie University
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Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.97 SJR 1.481 SNIP 1.553
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.614 SNIP 1.683 CiteScore 4.02
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BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.612 SNIP 1.841 CiteScore 3.8
ISI indexed (2013): ISI indexed yes
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BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.603 SNIP 1.705 CiteScore 3.7
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Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.607 SNIP 1.713 CiteScore 3.63
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 1.61 SNIP 1.666
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 1.475 SNIP 1.539
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 1.442 SNIP 1.509
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.349 SNIP 1.692
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.541 SNIP 1.788
Web of Science (2006): Indexed yes
Genomic Epidemiology: Whole-Genome-Sequencing–Powered Surveillance and Outbreak Investigation of Foodborne Bacterial Pathogens

As we are approaching the twentieth anniversary of PulseNet, a network of public health and regulatory laboratories that has changed the landscape of foodborne illness surveillance through molecular subtyping, public health microbiology is undergoing another transformation brought about by so-called next-generation sequencing (NGS) technologies that have made whole-genome sequencing (WGS) of foodborne bacterial pathogens a realistic and superior alternative to traditional subtyping methods. Routine, real-time, and widespread application of WGS in food safety and public health is on the horizon. Technological, operational, and policy challenges are still present and being addressed by an international and multidisciplinary community of researchers, public health practitioners, and other stakeholders.
Genotoxicity of copper oxide nanoparticles with different surface chemistry on rat bone marrow mesenchymal stem cells

The surface chemistry of nanoparticles (NPs) is one of the critical factors determining their cellular responses. In this study, the cytotoxicity and genotoxicity of copper oxide (CuO) NPs with a similar size but different surface chemistry to rat bone marrow mesenchymal stem cells (MSCs) were investigated. The morphology, size and surface charge of four types of CuO NPs, i.e., CuO-core, CuO-COOH, CuO-NH2 and CuO-PEG NPs, were characterized by TEM, dynamic light scattering (DLS) and zeta-potential measurement, respectively. All of the four CuO NPs had a negative surface charge around -10 mV and showed a similar tendency to form agglomerates with a size of ~200 nm in cell culture environment. The cytotoxicity of CuO NPs to MSCs at various concentrations and incubation periods were firstly evaluated. The CuO NPs showed dose-dependent and time-dependent toxicity to MSCs, and their surface chemistry had influence on the toxicity to some extent too. The intracellular reactive oxygen species (ROS) level of MSCs was then quantified. Finally, the genotoxicity of the CuO NPs was studied by comet assay. The results suggest that the genotoxicity of CuO NPs was mainly dependent on NPs concentration, and was only slightly influenced by their surface chemistry. The osteogenic and adipogenic differentiation abilities of the MSCs exposed to different CuO NPs were studied by Alizarin Res S and Oil Red O staining. The preliminary results showed that the exposure to 10 μg/mL CuO NPs will not lead to significant impact on the differentiation potential of the MSCs.
Global Genomic Epidemiology of *Salmonella enterica* Serovar Typhimurium DT104

It has been 30 years since the initial emergence and subsequent rapid global spread of multidrug-resistant *Salmonella enterica* serovar Typhimurium DT104 (MDR DT104). Nonetheless, its origin and transmission route have never been revealed. We used whole-genome sequencing (WGS) and temporally structured sequence analysis within a Bayesian framework to reconstruct temporal and spatial phylogenetic trees and estimate the rates of mutation and divergence times of 315 *S* Typhimurium DT104 isolates sampled from 1969 to 2012 from 21 countries on six continents. DT104 was estimated to have emerged initially as antimicrobial susceptible in ∼1948 (95% credible interval [CI], 1934 to 1962) and later became MDR DT104 in ∼1972 (95% CI, 1972 to 1988) through horizontal transfer of the 13-kb *Salmonella* genomic island 1 (SGI1) MDR region into susceptible strains already containing SGI1. This was followed by multiple transmission events, initially from central Europe and later between several European countries. An independent transmission to the United States and another to Japan occurred, and from there MDR DT104 was probably transmitted to Taiwan and Canada. An independent acquisition of resistance genes took place in Thailand in ∼1975 (95% CI, 1975 to 1990). In Denmark, WGS analysis provided evidence for transmission of the organism between herds of animals. Interestingly, the demographic history of Danish MDR DT104 provided evidence for the success of the program to eradicate *Salmonella* from pig herds in Denmark from 1996 to 2000. The results from this study refute several hypotheses on the evolution of DT104 and suggest that WGS may be useful in monitoring emerging clones and devising strategies for prevention of *Salmonella* infections.
GLP-1 Induces Barrier Protective Expression in Brunner's Glands and Regulates Colonic Inflammation

Background: Beneficial roles for glucagon-like peptide 1 (GLP-1)/GLP-1R signaling have recently been described in diseases, where low-grade inflammation is a common phenomenon. We investigated the effects of GLP-1 in Brunner's glands and duodenum with abundant expression of GLP-1 receptors, as well as GLP-1 effect on colonic inflammation.

Methods: RNA from Brunner's glands of GLP-1R knockout and wild-type mice were subjected to full transcriptome profiling. Array results were validated by quantitative reverse transcription polymerase chain reaction in wild-type mice and compared with samples from inflammatory bowel disease (IBD) patients and controls. In addition, we performed a detailed investigation of the effects of exogenous liraglutide dosing in a T-cell driven adoptive transfer (AdTr) colitis mouse model.

Results: Analyses of the Brunner's gland transcriptomes of GLP-1R knockout and wild-type mice identified 722 differentially expressed genes. Upregulated transcripts after GLP-1 dosing included IL-33, chemokine ligand 20 (CCL20), and mucin 5b. Biopsies from IBD patients and controls, as well as data from the AdTr model, showed deregulated expression of GLP-1R, CCL20, and IL-33 in colon. Circulating levels of GLP-1 were found to be increased in mice with colitis. Finally, the colonic cytokine levels and disease scores of the AdTr model indicated reduced levels of colonic inflammation in liraglutide-dosed animals.

Conclusions: We demonstrate that IL-33, GLP-1R, and CCL20 are deregulated in human IBD, and that prophylactic treatment with 0.6 mg/kg liraglutide improves disease in AdTr colitis. In addition, GLP-1 receptor agonists upregulate IL-33, mucin 5b, and CCL20 in murine Brunner's glands. Taken together, our data indicate that GLP-1 receptor agonists affect gut homeostasis in both proximal and distal parts of the gut.

General information
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Authors: Bang-Berthelsen, C. H. (Intern), Holm, T. L. (Ekstern), Pyke, C. (Ekstern), Simonsen, L. (Ekstern), Sokilde, R. (Ekstern), Pociot, F. (Ekstern), Heller, R. S. (Ekstern), Folkersen, L. (Intern), Kvist, P. H. (Ekstern), Jackerott, M. (Ekstern), Fleckner, J. (Ekstern), Vilien, M. (Ekstern), Knudsen, L. B. (Ekstern), Heding, A. (Ekstern), Frederiksen, K. S. (Ekstern)
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BFI (2016): BFI-level 1
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BFI (2014): BFI-level 1
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Scopus rating (2011): SJR 1.68 SNIP 1.486 CiteScore 3.16
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
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Scopus rating (2010): SJR 1.519 SNIP 1.481
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.615 SNIP 1.438
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Scopus rating (2008): SJR 1.892 SNIP 1.26
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Gluten, Enzymatic or Acid hydrolysed gluten does not induce sensitisation by the oral route in contrast to i.p. dosing: A study in gluten-tolerant Brown Norway rats.

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Growth potential of exponential- and stationary-phase Salmonella Typhimurium during sausage fermentation

Raw meat for sausage production can be contaminated with Salmonella. For technical reasons, meat is often frozen prior to mincing but it is unknown how growth of Salmonella in meat prior to freezing affects its growth potential during sausage fermentation. We investigated survival of exponential- and stationary-phase Salmonella Typhimurium (DT12 and DTU292) during freezing at − 18 °C and their subsequent growth potential during 72 h sausage fermentation at 25 °C. After 0, 7 and > 35 d of frozen storage, sausage batters were prepared with NaCl (3%) and NaNO2 (0, 100 ppm) and fermented with and without starter culture. With no starter culture, both strains grew in both growth phases. In general, a functional starter culture abolished S. Typhimurium growth independent of growth phase and we concluded that ensuring correct fermentation is important for sausage safety. However, despite efficient fermentation, sporadic growth of exponential-phase cells of S. Typhimurium was observed drawing attention to the handling and storage of sausage meat.
Growth promotion in pigs by oxytetracycline coincides with down regulation of serum inflammatory parameters and of hibernation-associated protein HP-27

The growth promoting effect of supplementing animal feed with antibiotics like tetracycline has traditionally been attributed to their antibiotic character. However, more evidence has been accumulated on their direct anti-inflammatory effect during the last two decades. Here we used a pig model to explore the systemic molecular effect of feed supplementation with sub therapeutic levels of oxytetracycline (OTC) by analysis of serum proteome changes. Results showed that OTC promoted growth, coinciding with a significant down regulation of different serum proteins related to inflammation, oxidation and lipid metabolism, confirming the anti-inflammatory mechanism of OTC. Interestingly, apart from the classic acute phase reactants also down regulation was seen of a hibernation associated plasma protein (HP-27), which is to our knowledge the first description in pigs. Although the exact function in non-hibernators is unclear, down regulation of HP-27 could be consistent with increased appetite, which is possibly linked to the anti-inflammatory action of OTC. Given that pigs are good models for human medicine due to their genetic and physiologic resemblance, the present results might also be used for rational intervention in human diseases in which inflammation plays an important role such as obesity, type 2 diabetes and cardiovascular diseases.

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Authors: Soler, L. (Ekstern), Miller, I. (Ekstern), Hummel, K. (Ekstern), Razzazi-Fazeli, E. (Ekstern), Jessen, F. (Intern), Escribano, D. (Ekstern), Niewold, T. (Ekstern)
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BFI (2013): BFI-level 1
Guidance on the preparation and presentation of an application for authorisation of a novel food in the context of Regulation (EU) 2015/2283

Following the adoption of Regulation (EU) 2015/2283 of the European Parliament and of the Council on novel foods, the European Commission requested EFSA to update and develop scientific and technical guidance for the preparation and presentation of applications for authorisation of novel foods. This guidance presents a common format for the organisation of the information to be presented in order to assist the applicant in preparing a well-structured application to demonstrate the safety of the novel food. The application should be comprehensive and complete. This guidance outlined the data needed for the safety assessments of novel foods. Requirements which should be covered in all applications relate to the description of the novel food, production process, compositional data, specification, proposed uses and use levels, and anticipated intake of the novel food. Further sections on the history of use of the novel food and/or its source, absorption, distribution, metabolism, excretion, nutritional information, toxicological information and allergenicity should be considered by the applicant by default. If not covered in the application, this should be justified. The applicant should integrate the data presented in the different sections to provide their overall considerations on how the information supports the safety
of the novel food under the proposed conditions of use. Where potential health hazards have been identified, they should be discussed in relation to the anticipated intakes of the novel food and the proposed target populations. On the basis of the information provided, EFSA will assess the safety of the novel food under the proposed conditions of use.

**Healthy kids: Making school health policy a participatory learning process**

**Introduction:**
Research has suggested various school health policy models aimed at promoting children’s health through policy processes. The models present some overall phases in the process, but also different barriers calling for more in-depth qualitative studies (1). With education as the school’s prime objective, barriers potentially prevail if models do not consider the existing structures of the school. As part of the on-going project - Healthy Kids -, this presentation introduces a school health policy model, developed as an ‘add-in’ to the school curriculum and organisational practices.

**Methods**
The presented model works at two levels - the classroom and the organizational level – and is based on four phases, namely: Investigation – Vision – Action – Change, viewed as an iterative process. Pupil perspectives and learning is the basis in all four phases based on a set of health education programmes. Simultaneously a staff health team is formed from existing organisational structures, integrating local knowledge and building support for school policy making based on the pupils’ visions. A pilot study - applying the model in one Danish elementary school - has been conducted as an action research process, combined with interviews and participatory observation with teachers, school nurses, and the pupils, with the purpose of exploring the applicability and value of the model. Hereafter the model will be tested at four interventions schools based on qualitative studies.

**Results**
Pupils enjoyed having a voice in school matters and to deal with real life during health education. Teachers were very positive towards the integration of school health policy work into teaching the curriculum in Danish, Maths and Biology. However, the transferring from the classroom to the organizational levels was weakening sustainable health changes.

**Conclusion**
Findings indicate that integrating school policy processes into the teaching of curriculum might pave the way for schools to engage in health promotion. But further knowledge on how to likewise engage the staff on an organisational level is needed.
Heavy metal and disinfectant resistance genes among livestock-associated methicillin-resistant Staphylococcus aureus isolates

Livestock associated methicillin-resistant Staphylococcus aureus (LA-MRSA) has emerged in animal production worldwide. Most LA-MRSA in Europe belong to the clonal complex (CC)398. The reason for the LA-MRSA emergence is not fully understood. Besides antimicrobial agents used for therapy, other substances with antimicrobial activity applied in animal feed, including metal-containing compounds might contribute to their selection. Some of these genes have been found in various novel SCCmec cassettes. The aim of this study was to assess the occurrence of metal-resistance genes among a LA-S. aureus collection [n = 554, including 542 MRSA and 12 methicillin-susceptible S. aureus (MSSA)] isolated from livestock and food thereof. Most LA-MRSA isolates (76%) carried at least one metal-resistance gene. Among the LA-MRSA CC398 isolates (n = 456), 4.8%, 0.2%, 24.3% and 71.5% were positive for arsA (arsenic compounds), cadD (cadmium), copB (copper) and czrC (zinc/cadmium) resistance genes, respectively. In contrast, among the LA-MRSA non-CC398 isolates (n = 86), 1.2%, 18.6% and 16.3% were positive for the cadD, copB and czrC genes, respectively, and none were positive for arsA. Of the LA-MRSA CC398 isolates, 72% carried one metal-resistance gene, and the remaining harboured two or more in different combinations. Differences between LA-MRSA CC398 and non-CC398 were statistically significant for arsA and czrC. The czrC gene was almost exclusively found (98%) in the presence of SCCmec V in both CC398 and non-CC398 LA-MRSA isolates from different sources. Regarding the LA-MSSA isolates (n = 12), some (n = 4) were also positive for metal-resistance genes. This study shows that genes potentially conferring metal-resistance are frequently present in LA-MRSA.

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Authors: Argudín, M. A. (Ekstern), Lauzat, B. (Ekstern), Kraushaar, B. (Ekstern), Alba, P. (Ekstern), Cavaco, L. (Intern), Butaye, P. (Ekstern), Porrero, M. C. (Ekstern), Battisti, A. (Ekstern), Tenhagen, B. (Ekstern), Fetsch, A. (Ekstern), Guerra, B. (Ekstern)
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Scopus rating (2013): SJR 1.459 SNIP 1.471 CiteScore 3
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Web of Science (2013): Indexed yes
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Nannochloropsis salina was grown on a mixture of standard growth media and pre-gasified industrial process water representing effluent from a local biogas plant. The study aimed to investigate the effects of enriched growth media and cultivation time on nutritional composition of Nannochloropsis salina biomass, with a focus on eicosapentaenoic acid (EPA). Variations in fatty acid composition, lipids, protein, amino acids, tocopherols and pigments were studied and results compared to algae cultivated on F/2 media as reference. Mixed growth media and process water enhanced the nutritional quality of Nannochloropsis salina in laboratory scale when compared to algae cultivated in standard F/2 medium. Data from laboratory scale translated to the large scale using a 4000 L flat panel photo-bioreactor system. The algae growth rate in winter conditions in Denmark was slow, but results revealed that large-scale cultivation of Nannochloropsis salina at these conditions could improve the nutritional properties such as EPA, tocopherol, protein and carotenoids compared to laboratory-scale cultivated microalgae. EPA reached 44.2% ± 2.30% of total fatty acids, and α-tocopherol reached 431 ± 28 µg/g of biomass dry weight after 21 days of cultivation. Variations in chemical compositions of Nannochloropsis salina were studied during the course of cultivation. Nannochloropsis salina can be presented as a good candidate for winter time cultivation in Denmark. The resulting biomass is a rich source of EPA and also a good source of protein (amino acids), tocopherols and carotenoids for potential use in aquaculture feed industry.

Zinc, Copper, Arsenic compounds, Cadmium, SCCmec

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**High-EPA Biomass from Nannochloropsis salina Cultivated in a Flat-Panel Photo-Bioreactor on a Process Water-Enriched Growth Medium**

*Nannochloropsis salina* was grown on a mixture of standard growth media and pre-gasified industrial process water representing effluent from a local biogas plant. The study aimed to investigate the effects of enriched growth media and cultivation time on nutritional composition of *Nannochloropsis salina* biomass, with a focus on eicosapentaenoic acid (EPA). Variations in fatty acid composition, lipids, protein, amino acids, tocopherols and pigments were studied and results compared to algae cultivated on F/2 media as reference. Mixed growth media and process water enhanced the nutritional quality of *Nannochloropsis salina* in laboratory scale when compared to algae cultivated in standard F/2 medium. Data from laboratory scale translated to the large scale using a 4000 L flat panel photo-bioreactor system. The algae growth rate in winter conditions in Denmark was slow, but results revealed that large-scale cultivation of *Nannochloropsis salina* at these conditions could improve the nutritional properties such as EPA, tocopherol, protein and carotenoids compared to laboratory-scale cultivated microalgae. EPA reached 44.2% ± 2.30% of total fatty acids, and α-tocopherol reached 431 ± 28 µg/g of biomass dry weight after 21 days of cultivation. Variations in chemical compositions of *Nannochloropsis salina* were studied during the course of cultivation. *Nannochloropsis salina* can be presented as a good candidate for winter time cultivation in Denmark. The resulting biomass is a rich source of EPA and also a good source of protein (amino acids), tocopherols and carotenoids for potential use in aquaculture feed industry.

**General information**
High frequencies of antibiotic resistance genes in infants’ meconium and early fecal samples

The gastrointestinal tract (GIT) microbiota has been identified as an important reservoir of antibiotic resistance genes (ARGs) that can be horizontally transferred to pathogenic species. Maternal GIT microbes can be transmitted to the offspring, and recent work indicates that such transfer starts before birth. We have used culture-independent genetic screenings to explore whether ARGs are already present in the meconium accumulated in the GIT during fetal life and in feces of 1-week-old infants. We have analyzed resistance to β-lactam antibiotics (BLr) and tetracycline (Tcr), screening for a variety of genes conferring each. To evaluate whether ARGs could have been inherited by maternal transmission, we have screened perinatal fecal samples of the 1-week-old babies’ mothers, as well as a mother–infant series including meconium, fecal samples collected through the infant’s 1st year, maternal fecal samples and colostrum. Our results reveal a high prevalence of BLr and Tcr in both meconium and early fecal samples, implying that the GIT resistance reservoir starts to accumulate even before birth. We show that ARGs present in the mother may reach the meconium and colostrum and establish in the infant GIT, but also that some ARGs were likely acquired from other sources. Alarmingly, we identified in both meconium and 1-week-olds’ samples a particularly elevated prevalence of mecA (>45%), six-fold higher than that detected in the mothers. The mecA gene confers BLr to methicillin-resistant Staphylococcus aureus, and although its detection does not imply the presence of this pathogen, it does implicate the young infant’s GIT as a noteworthy reservoir of this gene.

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Authors: Gosalbes, M. J. (Ekstern), Vallès, Y. (Ekstern), Jiménez-Hernández, N. (Ekstern), Balle, C. (Ekstern), Riva, P. (Ekstern), Miravet-Verde, S. (Ekstern), de Vries, L. E. (Ekstern), Llop, S. (Ekstern), Agersø, Y. (Intern), Sørensen, S. J. (Ekstern), Ballester, F. (Ekstern), Francino, M. P. (Ekstern)
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High Resolution Mass Spectrometry of Polyfluorinated Polyether-Based Formulation

High resolution mass spectrometry (HRMS) was successfully applied to elucidate the structure of a polyfluorinated polyether (PFPE)-based formulation. The mass spectrum generated from direct injection into the MS was examined by identifying the different repeating units manually and with the aid of an instrument data processor. Highly accurate mass spectral data enabled the calculation of higher-order mass defects. The different plots of MW and the nth-order mass defects (up to n = 3) could aid in assessing the structure of the different repeating units and estimating their absolute and relative number per molecule. The three major repeating units were -C2H4O-, -C2F4O-, and -CF2O-. Tandem MS was
used to identify the end groups that appeared to be phosphates, as well as the possible distribution of the repeating units. Reversed-phase HPLC separated of the polymer molecules on the basis of number of nonpolar repeating units. The elucidated structure resembles the structure in the published manufacturer technical data. This analytical approach to the characterization of a PFPE-based formulation can serve as a guide in analyzing not just other PFPE-based formulations but also other fluorinated and non-fluorinated polymers. The information from MS is essential in studying the physico-chemical properties of PFPEs and can help in assessing the risks they pose to the environment and to human health.

Graphical Abstract ᅟ.

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Authors: Dimzon, I. K. (Ekstern), Trier, X. (Intern), Frömel, T. (Ekstern), Helmus, R. (Ekstern), Knepper, T. P. (Ekstern), de Voogt, P. (Ekstern)
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Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
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Scopus rating (2012): SJR 1.809 SNIP 1.096 CiteScore 3.47
ISI indexed (2012): ISI indexed yes
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Scopus rating (2011): SJR 1.966 SNIP 1.186 CiteScore 3.8
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.763 SNIP 1.056
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Scopus rating (2009): SJR 1.641 SNIP 1.173
BFI (2008): BFI-level 1
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Scopus rating (2005): SJR 1.642 SNIP 1.194
Scopus rating (2004): SJR 1.571 SNIP 1.217
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Horizontal transfer of antimicrobial resistance in meat

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Host-Specific Patterns of Genetic Diversity among IncI1-I gamma and IncK Plasmids Encoding CMY-2 beta-Lactamase in Escherichia coli Isolates from Humans, Poultry Meat, Poultry, and Dogs in Denmark

CMY-2 is the most common plasmid-mediated AmpC beta-lactamase in Escherichia coli isolates of human and animal origin. The aim of this study was to elucidate the epidemiology of CMY-2-producing E. coli in Denmark. Strain and plasmid relatedness was studied in 93 CMY-2-producing clinical and commensal E. coli isolates collected from 2006 to 2012 from humans, retail poultry meat, broilers, and dogs. Multilocus sequence typing (MLST), antimicrobial susceptibility testing, and conjugation were performed in conjunction with plasmid replicon typing, plasmid multilocus sequence typing (pMLST), restriction fragment length polymorphism (RFLP), and sequencing of selected bla(CMY-2)-harboring plasmids. MLST revealed high strain diversity, with few E. coli lineages occurring in multiple host species and sample types. bla(CMY-2) was detected on plasmids in 83 (89%) isolates. Most (75%) of the plasmids were conjugative and did not (96%) cotransfer resistance to antimicrobials other than cephalosporins. The main replicon types identified were IncI1-I gamma (55%) and IncK (39%). Isolates from different host species mainly carried distinct plasmid subtypes. Seven of the 18 human isolates harbored IncI1-I gamma/sequence type 2 (ST2), IncI1-I gamma/ST12, or IncK plasmids highly similar to those found among animal isolates, even though highly related human and animal plasmids differed by nonsynonymous single nucleotide polymorphisms (SNPs) or insertion sequence elements. This study clearly demonstrates that the epidemiology of CMY-2 can be understood only by thorough plasmid characterization. To date, the spread of this beta-lactam resistance determinant in Denmark is mainly associated with IncK and IncI1-I gamma plasmids that are generally distributed according to host-specific patterns. These baseline data will be useful to assess the consequences of the increasing human exposure to CMY-2-producing E. coli via animal sources.IMPORTANCECMY-2 is the most common plasmid-mediated AmpC beta-lactamase in Escherichia coli. This beta-lactamase is poorly inhibited by clavulanic acid and confers resistance to cephamycins, third-generation cephalosporins, and aztreonam. Furthermore, resistance to carbapenems has been reported in E. coli as a result of production of plasmid-encoded CMY-2 beta-lactamase in combination with decreased outer membrane permeability. The gene encoding CMY-2 generally resides on transferable plasmids belonging to different incompatibility groups. The prevalence of CMY-2-mediated cephalosporin resistance in E. coli varies significantly depending on the geographical region and host. This study demonstrates that the epidemiology of CMY-2 can be understood only by thorough plasmid characterization. To date, the spread of this beta-lactam resistance determinant in Denmark is mainly associated with IncK and IncI1-I gamma plasmids, which are generally distributed according to host-specific patterns. These data will be useful to assess the consequences of the increasing human exposure to CMY-2-
producing E. coli via animal sources.

**General information**

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**Organisations:** National Food Institute, University of Copenhagen, Hvidovre Hospital

**Authors:** Hansen, K. H. (Ekstern), Bortolaia, V. (Intern), Nielsen, C. A. (Ekstern), Nielsen, J. B. (Ekstern), Schonning, K. (Ekstern), Agersø, Y. (Intern), Guardabassi, L. (Ekstern), Besser, T. E. (ed.) (Ekstern)

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- Web of Science (2015): Indexed yes
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Human risiko for infektioner med E. coli ESBL og CPE fra fødevarer

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Human risiko ved spredning af svine-MRSA fra staldmiljøet

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Hybrid electrospun chitosan-phospholipids nanofibers for transdermal drug delivery

Chitosan (Ch) polysaccharide was mixed with phospholipids (P) to generate electrospun hybrid nanofibers intended to be used as platforms for transdermal drug delivery. Ch/P nanofibers exhibited average diameters ranging from 248 +/- 94 nm to 600 +/- 201 nm, depending on the amount of phospholipids used. Fourier Transformed Infra-Red (FTIR) spectroscopy and Dynamic Light Scattering (DLS) data suggested the occurrence of electrostatic interactions between amine groups of chitosan with the phospholipid counterparts. The nanofibers were shown to be stable for at least 7 days in Phosphate Buffer Saline (PBS) solution. Cytotoxicity studies (WST-1 and LDH assays) demonstrated that the hybrid nanofibers have suitable biocompatibility. Fluorescence microscopy, also suggested that L929 cells seeded on top of the CH/P hybrid have similar metabolic activity comparatively to the cells seeded on tissue culture plate (control). The release of curcumin, diclofenac and vitamin B12, as model drugs, from Ch/P hybrid nanofibers was investigated, demonstrating their potential utilization as a transdermal drug delivery system.
Hybrid matrices of TiO2 and TiO2–Ag nanofibers with silicone for high water flux photocatalytic degradation of dairy effluent

TiO2 and TiO2–Ag nanofibers were produced by electrospinning technique and surface coated on silicone elastomer (diameter: 10.0 mm; thickness: 2.0 mm) by dipcoating method. These coated hybrid nanoporous matrices were characterized by various morphological and physicochemical techniques (like SEM, TEM, XRD, FTIR, EDS and UV). These characterizations reveal that the surface morphology of electrospun nanofibers remain intact by the dipcoating technique. The produced hybrid matrices of TiO2 and TiO2–Ag silicone were utilized as photocatalysts to degrade dairy waste water with an efficient water flux and water photosplitting properties.

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BFI (2016): BFI-level 1
Hybrid matrices of ZnO nanofibers with silicone for high water flux photocatalytic degradation of dairy effluent

Zinc oxide (ZnO) nanofibers were produced by electrospinning technique and surface coated on silicone elastomer substrate (diameter: 10.0 mm; thickness: 2.0 mm) by a dipcoating method. The obtained hybrid nanoporous matrices were investigated by scanning and transmission electron microscopy (SEM, TEM), X-ray diffraction (XRD) and Fourier transformation infrared techniques (FTIR). These characterizations reveal that the surface morphology of electrospun nanofibers remained intact by the dipcoating technique. The produced hybrid matrices showed high water flux of 9407 L/m²h, 38% removal rate of dairy effluent (DE) and 2298 ml/g h rate of hydrogen production. (C) 2016 Elsevier B.V. All rights reserved.

General information
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Authors: Kanjwal, M. A. (Intern), Shawabkeh, A. Q. (Ekstern), Alm, M. (Ekstern), Thomsen, P. (Ekstern), Barakat, N. A. M. (Ekstern), Chronakis, I. S. (Intern)
Number of pages: 6
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Publication information
Journal: Materials Chemistry and Physics
Volume: 181
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Ratings:
Identification of Baltic Sea salmon based on PCB and dioxin profiles

Salmon and herring from the Baltic Sea are prohibited for sale for human consumption in the European Union or only allowed to be marketed under certain conditions. Fish from certain specific geographical origins also command higher prices in the market than fish from elsewhere. It is, therefore, important to be able to enforce correct labeling of geographical origin through authentication. One authentication strategy is to examine trace markers specific for a geographical origin. The chemical contaminants polychlorinated biphenyls (PCBs) and polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/Fs) were released inhomogeneously into the environment for many years and may therefore be
suitable as markers. This study comprises PCBs and PCDD/Fs analyses of 79 samples of salmon originating from Canada, Chile, China, Norway, USA, Vietnam, and the Baltic Sea near Denmark, all sampled from 2002 through 2015. Principal component analyses (PCA) were built from the combined PCB and PCDD/F profile as well as separately from the individual PCB and PCDD/F profiles. Use of the PCB profile for the PCA provided stronger power to distinguish between salmon of different geographical origin than using the PCDD/F profile or the combined profiles.

General information
State: Published
Organisations: National Food Institute, Research Group for Analytical Food Chemistry, Danish Veterinary and Food Administration
Authors: Sørensen, S. (Ekstern), Lund, K. H. (Ekstern), Cederberg, T. L. (Intern), Ballin, N. Z. (Ekstern)
Number of pages: 7
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Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SJR 1.502 SNIP 1.69
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.86 SJR 1.492 SNIP 1.709
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.498 SNIP 1.73 CiteScore 3.65
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.38 SNIP 1.717 CiteScore 3.27
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.278 SNIP 1.728 CiteScore 3.14
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.245 SNIP 1.931 CiteScore 3.1
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.209 SNIP 1.723 CiteScore 2.9
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.23 SNIP 1.708
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.213 SNIP 1.691
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 1.076 SNIP 1.44
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.9 SNIP 1.558
"I feel good and I am not overweight" – A qualitative study of considerations underlying lay people's self-assessments of unhealthy diets

It has been suggested that optimistic self-assessments of unhealthy diets constitute a barrier to the promotion of healthier eating practices. In order to discuss possible reasons for such optimistic assessments, knowledge about the considerations underlying self-assessments of unhealthy diets is needed. The aim of this qualitative study is to explore this issue by comparing considerations underlying the assessments of people who overestimate the healthiness of their unhealthy diets with those of people who express more realistic assessments. Interviewees were recruited among those respondents to the Danish National Survey of Diet and Physical Activity 2011–2013, who had been accorded a low diet index score. A thematic analysis of qualitative interviews is undertaken (N = 16). When interviewees are asked to assess the healthiness of their diets, they draw upon their nutritional knowledge and their perceptions of healthy eating practices. However, these considerations tend to be overruled by more decisive criteria. Thus, diets are assessed as being not exactly healthy, but nevertheless healthy enough – so long as interviewees feel good. Moreover, a personal history of weight status and weight concerns emerge as decisive criteria in self-assessments. Those who experience problems in these areas tend to be realistic about the unhealthy character of their diets, while optimistic assessments appear to be linked to tendencies to perceive oneself as not being overweight, not having experienced weight gain or loss, or not being concerned about weight. This study concludes that decisive criteria in lay people's self-assessments of unhealthy diets – with regard to feeling and looking good – differ markedly from the criteria employed in food-based dietary guidelines. These broader criteria of assessment should be recognized by professionals engaged in planning health promotion strategies with reference to dietary health.
Impact of Sample Type and DNA Isolation Procedure on Genomic Inference of Microbiome Composition

Explorations of complex microbiomes using genomics greatly enhance our understanding about their diversity, biogeography, and function. The isolation of DNA from microbiome specimens is a key prerequisite for such examinations, but challenges remain in obtaining sufficient DNA quantities required for certain sequencing approaches, achieving accurate genomic inference of microbiome composition, and facilitating comparability of findings across specimen types and sequencing projects. These aspects are particularly relevant for the genomics-based global surveillance of infectious agents and antimicrobial resistance from different reservoirs. Here, we compare in a stepwise approach a total of eight commercially available DNA extraction kits and 16 procedures based on these for three specimen types (human feces, pig feces, and hospital sewage). We assess DNA extraction using spike-in controls and different types of beads for bead beating, facilitating cell lysis. We evaluate DNA concentration, purity, and stability and microbial community composition using 16S rRNA gene sequencing and for selected samples using shotgun metagenomic sequencing. Our results suggest that inferred community composition was dependent on inherent specimen properties as well as DNA extraction method. We further show that bead beating or enzymatic treatment can increase the extraction of DNA from Gram-positive bacteria. Final DNA quantities could be increased by isolating DNA from a larger volume of cell lysate than that in standard protocols. Based on this insight, we designed an improved DNA isolation procedure optimized for microbiome
genomics that can be used for the three examined specimen types and potentially also for other biological specimens. A standard operating procedure is available from https://dx.doi.org/10.6084/m9.figshare.3475406.

Impact on Vitamin D2, Vitamin D4 and Agaritine in Agaricus bisporus Mushrooms after Artificial and Natural Solar UV Light Exposure
Commercial mushroom production can expose mushrooms post-harvest to UV light for purposes of vitamin D2 enrichment by converting the naturally occurring provitamin D2 (ergosterol). The objectives of the present study were to artificially simulate solar UV-B doses occurring naturally in Central Europe and to investigate vitamin D2 and vitamin D4 production in sliced Agaricus bisporus (button mushrooms) and to analyse and compare the agaritine content of naturally and artificially UV-irradiated mushrooms. Agaritine was measured for safety aspects even though there is no rationale for a link between UV light exposure and agaritine content. The artificial UV-B dose of 0.53 J/cm(2) raised the vitamin D2 content to significantly (P < 0.001) higher levels of 67.1 ± 9.9 μg/g dry weight (DW) than sun exposure (3.9 ± 0.8 μg/g dry DW). We observed a positive correlation between vitamin D4 and vitamin D2 production (r(2) = 0.96, P < 0.001) after artificial UV irradiation, with vitamin D4 levels ranging from 0 to 20.9 μg/g DW. The agaritine content varied widely but remained within normal ranges in all samples. Irrespective of the irradiation source, agaritine dropped dramatically in conjunction with all UV-B doses both artificial and natural solar, probably due to its known instability. The biological action of vitamin D from UV-exposed mushrooms reflects the activity of these two major vitamin D analogues (D2, D4). Vitamin D4 should be analysed and agaritine disregarded in future studies of UV-exposed mushrooms.

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, University of Freiburg, Monaghan Mushrooms Ireland
Authors: Urban, P. (Ekstern), Valverde, J. (Ekstern), Jakobsen, J. (Intern)
Number of pages: 8
Pages: 314-321
Publication date: 2016
Main Research Area: Technical/natural sciences
Publication information
Journal: Plant Foods for Human Nutrition
Improving conceptual understanding by inductive teaching: an example of its success

We are teaching a PhD/MSc course on quantitative microbiological risk assessment with up to 20 students with a varying (international) background and two teachers. We have experienced a challenge in explaining one of the key concepts in the theory. It requires that the students adopt a way of thinking about the concepts variability and uncertainty that requires deeper understanding, and accommodation rather than assimilation of new knowledge is required. I therefore decided to change the teaching method, without impacting the rest of the course too much, as it is mainly successful as it is. I choose to try the use of an inductive instead of a deductive approach, based on Kolb's learning cycle (experience, reflection,
conceptualization, practice). The performance of the students after application of the inductive approach was compared with the performance with the old approach.

**General information**

State: Published  
Organisations: National Food Institute, Research Group for Risk-Benefit  
Authors: Nauta, M. (Intern)  
Number of pages: 2  
Publication date: 2016  
Event: Abstract from 5th DTU Biennial for Teaching and Learning, Lyngby, Denmark.  
Main Research Area: Technical/natural sciences  
Electronic versions: abstract_Maarten_Nauta_2.0.pdf

**Relations**

Activities:  
Improving conceptual understanding by inductive teaching: An example of its success  
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2017

**Industrial application of different heat treatments and cream fat contents for improving the spreadability of butter**

Background: Individual factors, which interfere in the continuous churning, were manipulated to enhance the rheological properties and chemical composition of butter. This process leads to achieve softer, more spreadable, and ultimately healthier product for consumers. In addition it could prevent hardening of texture especially in winter. Methods: Firstly, Pasteurized cream with different fat contents (40 & 45% fat) was passed through heat treatments, and then it was injected to a continuous churn. Textural and melting behavior and fatty acid composition of butter were analyzed. Results: Increasing the fat content of cream (from 40 to 45 %) and holding time (from 3h to 5h) in mid-temperature (18 Â°C) and reducing the churning temperature (from 12 Â°C to 10 Â°C), resulted in soft butter texture and improved butter spreadability. Loss Tangent (tan I) was increased from 0.11 to 0.74 (T=15 Â°C;f=1Hz). The melting temperature of butter was decreased from 36°C to 32°C and total trans fatty acid content was decreased from 3.2 % to 1.87 %. Conclusion: It was concluded that such heating process (which has been studied and reported in patents) absorbs the low- SFC fats of the cream, integrates them into the butter texture a softer and more spreadable product.

**General information**

State: Published  
Organisations: National Food Institute, Research Group for Food Production Engineering  
Authors: Tondhoosh, A. (Ekstern), Nayebzadeh, K. (Ekstern), Mohammadifar, M. A. (Intern), Homayouni-Rad, A. (Ekstern), Hosseinooghl, H. (Ekstern)  
Number of pages: 9  
Pages: 107-115  
Publication date: 2016  
Main Research Area: Technical/natural sciences

**Publication information**

Journal: Recent Patents on Food, Nutrition & Agriculture  
Volume: 8  
Issue number: 2  
ISSN (Print): 1876-1429  
Ratings:  
Web of Science (2018): Indexed yes  
Scopus rating (2017): SNIP 0.734 SJR 0.252  
Scopus rating (2016): CiteScore 0.95 SJR 0.27 SNIP 0.47  
Scopus rating (2015): SJR 0.36 SNIP 0.47 CiteScore 1.08  
Scopus rating (2014): SJR 0.468 SNIP 0.732 CiteScore 1.39  
Scopus rating (2013): SJR 0.368 SNIP 0.417 CiteScore 1.05  
ISI indexed (2013): ISI indexed no  
Scopus rating (2012): SJR 0.339 SNIP 0.462 CiteScore 0.99  
ISI indexed (2012): ISI indexed no  
Scopus rating (2011): SJR 0.2 SNIP 0.268 CiteScore 0.52  
ISI indexed (2011): ISI indexed no  
Scopus rating (2010): SJR 0.158 SNIP 0.18  
Original language: English  
Food Science, Agronomy and Crop Science, Butter, Heat treatment, Rheology, Spreadability
Infant Gut Microbiota Development Is Driven by Transition to Family Foods Independent of Maternal Obesity

The first years of life are paramount in establishing our endogenous gut microbiota, which is strongly affected by diet and has repeatedly been linked with obesity. However, very few studies have addressed the influence of maternal obesity on infant gut microbiota, which may occur either through vertically transmitted microbes or through the dietary habits of the family. Additionally, very little is known about the effect of diet during the complementary feeding period, which is potentially important for gut microbiota development. Here, the gut microbiotas of two different cohorts of infants, born either of a random sample of healthy mothers (n = 114), or of obese mothers (n = 113), were profiled by 16S rRNA amplicon sequencing. Gut microbiota data were compared to breastfeeding patterns and detailed individual dietary recordings to assess effects of the complementary diet. We found that maternal obesity did not influence microbial diversity or specific taxon abundances during the complementary feeding period. Across cohorts, breastfeeding duration and composition of the complementary diet were found to be the major determinants of gut microbiota development. In both cohorts, gut microbial composition and alpha diversity were thus strongly affected by introduction of family foods with high protein and fiber contents. Specifically, intake of meats, cheeses, and Danish rye bread, rich in protein and fiber, were associated with increased alpha diversity. Our results reveal that the transition from early infant feeding to family foods is a major determinant for gut microbiota development.

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, Division of Risk Assessment and Nutrition, University of Copenhagen
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: mSphere
Volume: 1
Issue number: 1
Article number: e00069-15
ISSN (Print): 2379-5042
Ratings:
Web of Science (2018): Indexed yes
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3 SJR 1.576 SNIP 1.043
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.873 SNIP 0.852 CiteScore 3.12
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.784 SNIP 0.9 CiteScore 3.13
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 2.073 SNIP 0.997 CiteScore 3.58
ISI indexed (2013): ISI indexed no
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 2.162 SNIP 0.998 CiteScore 3.81
ISI indexed (2012): ISI indexed no
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 2.049 SNIP 0.931 CiteScore 3.71
ISI indexed (2011): ISI indexed no
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 2.139 SNIP 0.943
Web of Science (2010): Indexed yes
Infant Gut Microbiota Development Is Driven by Transition to Family Foods Independent of Maternal Obesity

The first years of life are paramount in establishing our endogenous gut microbiota, which is strongly affected by diet and has repeatedly been linked with obesity. However, very few studies have addressed the influence of maternal obesity on infant gut microbiota, which may occur either through vertically transmitted microbes or through the dietary habits of the family. Additionally, very little is known about the effect of diet during the complementary feeding period, which is potentially important for gut microbiota development. Here, the gut microbiotas of two different cohorts of infants, born either of a random sample of healthy mothers (n = 114), or of obese mothers (n = 113), were profiled by 16S rRNA amplicon sequencing. Gut microbiota data were compared to breastfeeding patterns and detailed individual dietary recordings to assess effects of the complementary diet. We found that maternal obesity did not influence microbial diversity or specific taxon abundances during the complementary feeding period. Across cohorts, breastfeeding duration and composition of the complementary diet were found to be the major determinants of gut microbiota development. In both cohorts, gut microbial composition and alpha diversity were thus strongly affected by introduction of family foods with high protein and fiber contents. Specifically, intake of meats, cheeses and Danish rye bread, rich in protein and fiber, were associated with increased alpha diversity. Our results reveal that the transition from early infant feeding to family foods is a major determinant for gut microbiota development.

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, Division of Risk Assessment and Nutrition, Copenhagen Center for Health Technology, University of Copenhagen
Number of pages: 1
Publication date: 2016
Event: Abstract from 10th Joint Symposium INRA-Rowett 2016: Gut Microbiology, Clermont-Ferrand, France.
Main Research Area: Technical/natural sciences
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2016
plaque progression in aorta or BCA. Incubation with 0.5% plasma extracted from CB-exposed ApoE−/− mice caused vasoconstriction in aorta rings isolated from naive mice; this effect was abolished by the treatment with the serotonin receptor antagonist Ketanserin. In conclusion, repeated pulmonary exposure to nanosized CB and LPS caused lung inflammation without progression of atherosclerosis in ApoE−/− mice. Nevertheless, plasma extracted from mice exposed to nanosized CB induced vasoconstriction in aortas of naive wild-type mice, an effect possibly related to increased plasma serotonin.

General information
State: Published
Organisations: National Food Institute, University of Copenhagen, National Research Center for Working Environment
Number of pages: 24
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: P L o S One
Volume: 11
Issue number: 8
Article number: e0160731
ISSN (Print): 1932-6203
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SJR 1.164 SNIP 1.111
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.11 SJR 1.236 SNIP 1.101
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.427 SNIP 1.136 CiteScore 3.32
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.559 SNIP 1.148 CiteScore 3.54
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.772 SNIP 1.153 CiteScore 3.94
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.982 SNIP 1.156 CiteScore 4.15
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 2.425 SNIP 1.233 CiteScore 4.58
ISI indexed (2011): ISI indexed no
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 2.705 SNIP 1.178
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 2.614 SNIP 1.046
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 2.506 SNIP 1.006
Web of Science (2008): Indexed yes
Influence of Thawing Methods and Storage Temperatures on Bacterial Diversity, Growth Kinetics, and Biogenic Amine Development in Atlantic Mackerel

Limited knowledge is currently available on the influence of fish thawing and subsequent storage conditions on bacterial growth kinetics, succession, and diversity alongside the production of biogenic amines. This study aimed to address these factors during the thawing and subsequent storage of mackerel. Thawing was either done fast in 18 degrees C water for 2 h or slowly at 30 degrees C overnight. Subsequent storage was at 30 degrees C (ambient) for 36 h and 2 to 5 degrees C (refrigerated) for 12 days. The cultivation methods used were total viable counts, hydrogen sulfide producing bacteria, and Pseudomonas. Maximum growth rate, population density, and lag time were fitted on the counts using the Baranyi model. The bacterial diversity and succession were based on sequencing of 16S rRNA amplicons, and biogenic amines were quantified on high-pressure liquid chromatography UV. The results show that lag time of hydrogen sulfide producing bacteria was significantly affected by both thawing methods, and further, the interaction between thawing and storage significantly affected the maximum growth rate of these bacteria. However, the maximum growth rate of Pseudomonas was higher during refrigerated storage compared with storage at ambient temperature. Total viable counts showed longer lag time and reduced growth rate under refrigerated storage. Higher bacterial diversity was correlated to slow thawing and storage at ambient temperature compared with slow thawing and refrigerated storage. Overall, Acinetobacter and Psychrobacter genera were the dominant bacterial populations. The amine levels were low and could not be differentiated along the thawing and storage approaches, despite a clear increase in bacterial load, succession, and diversity. This corresponded well with the low abundance of biogenic amine producing bacteria, with the exception of the genus Proteus, which was 8.6% in fast-thawed mackerel during storage at ambient temperature. This suggests that the decarboxylation potential is dependent on both microbial load and microbial community structure.

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, United Nations University Fisheries Training Programme, Matís ltd.
Authors: Onyang, S. (Ekstern), Palmadottir, H. (Ekstern), Tomason, T. (Ekstern), Marteinsson, V. T. (Ekstern), Njage, P. M. K. (Intern), Reynisson, E. (Ekstern)
Number of pages: 9
Pages: 1929-1937
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Food Protection
Volume: 79
Issue number: 11
ISSN (Print): 0362-028x
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.823 SJR 0.761
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.68 SJR 0.769 SNIP 0.811
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.954 SNIP 1.024 CiteScore 2.03
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Integrating biocompatible chemistry and manipulating cofactor partitioning in metabolically engineered Lactococcus lactis for fermentative production of (3S)-acetoin

Biocompatible chemistry (BC), i.e. non-enzymatic chemical reactions compatible with living organisms, is increasingly used in conjunction with metabolically engineered microorganisms for producing compounds that do not usually occur naturally. Here we report production of one such compound, (3S)-acetoin, a valuable precursor for chiral synthesis, using a metabolically engineered Lactococcus lactis strain growing under respiratory conditions with ferric iron serving as a BC component. The strain used has all competing product pathways inactivated, and an appropriate cofactor balance is achieved by fine-tuning the respiratory capacity indirectly via the hemin concentration. We achieve high-level (3S)-acetoin production with a final titer of 66 mM (5.8 g/L) and a high yield (71% of the theoretical maximum). To the best of our knowledge, this is the first report describing production of (3S)-acetoin from sugar by microbial fermentation, and the
results obtained confirm the potential that lies with BC for producing useful chemicals.

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Biotechnology and Biorefining
Authors: Liu, J. (Intern), Solem, C. (Intern), Jensen, P. R. (Intern)
Pages: 2744-2748
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Main Research Area: Technical/natural sciences

Publication information
Journal: Biotechnology and Bioengineering
Volume: 113
Issue number: 12
ISSN (Print): 0006-3592
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.186 SJR 1.372
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 4.14 SJR 1.447 SNIP 1.178
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.632 SNIP 1.355 CiteScore 4.44
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.612 SNIP 1.395 CiteScore 4.16
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.637 SNIP 1.427 CiteScore 4.44
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.62 SNIP 1.364 CiteScore 4.04
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.668 SNIP 1.481 CiteScore 4.08
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 1.551 SNIP 1.354
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 1.498 SNIP 1.358
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 1.248 SNIP 1.283
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.363 SNIP 1.356
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.467 SNIP 1.437
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 1.135 SNIP 1.23
Interactions between Surfactants in Solution and Electrospun Protein Fibers: Effects on Release Behavior and Fiber Properties

Intermolecular interaction phenomena occurring between endogenous compounds, such as proteins and bile salts, and electrospun compounds are so far unreported, despite the exposure of fibers to such biorelevant compounds when applied for biomedical purposes, e.g., tissue engineering, wound healing, and drug delivery. In the present study, we present a systematic investigation of how surfactants and proteins, as physiologically relevant components, interact with insulin-loaded fish sarcoplasmic protein (FSP) electrospun fibers (FSP-Ins fibers) in solution and thereby affect fiber properties such as accessible surface hydrophilicity, physical stability, and release characteristics of an encapsulated drug. Interactions between insulin-loaded protein fibers and five anionic surfactants (sodium taurocholate, sodium taurodeoxycholate, sodium glycocholate, sodium glycodeoxycholate, and sodium dodecyl sulfate), a cationic surfactant (benzalkonium chloride), and a neutral surfactant (Triton X-100) were studied. The anionic surfactants increased the insulin release in a concentration-dependent manner, whereas the neutral surfactant had no significant effect on the release. Interestingly, only minute amounts of insulin were released from the fibers when benzalkonium chloride was present. The FSP-Ins fibers appeared dense after incubation with this cationic surfactant, whereas high fiber porosity was observed after incubation with anionic or neutral surfactants. Contact angle measurements and staining with the hydrophobic dye 8-anilino-1-naphthalenesulfonic acid indicated that the FSP-Ins fibers were hydrophobic, and showed that the fiber surface properties were affected differently by the surfactants. Bovine serum albumin also affected insulin release in vitro, indicating that also proteins may affect the fiber performance in an in vivo setting.

General information
State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science, Research Group for Food Production Engineering, University of Copenhagen
Authors: Boutrup Stephansen, K. (Intern), García-Díaz, M. (Ekstern), Jessen, F. (Intern), Chronakis, I. S. (Intern), Nielsen, H. M. (Ekstern)
Number of pages: 8
Pages: 748-755
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Molecular Pharmaceutics
Volume: 13
Issue number: 3
ISSN (Print): 1543-8384
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.24 SJR 1.572

Assessment of total vitamin D intake from foods and dietary supplements (DSs) may be incomplete if 25-hydroxyvitamin D [25(OH)D] intake is not included. However, 25(OH)D data for such intake assessments are lacking, no food or DS reference materials (RMs) are available, and comparison of laboratory performance has been needed. The primary goal of this study was to evaluate whether vitamin D3 and 25(OH)D3 concentrations in food and DS materials could be measured with acceptable reproducibility. Five experienced laboratories from the United States and other countries participated, all using liquid chromatography tandem-mass spectrometry but no common analytical protocol; however, various methods were used for determining vitamin D3 in the DS. Five animal-based materials (including three commercially available RMs) and one DS were analyzed. Reproducibility results for the materials were acceptable. Thus, it is possible to obtain consistent results among experienced laboratories for vitamin D3 and 25(OH)D3 in foods and a DS.

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application
Intrauterine Exposure to Paracetamol and Aniline Impairs Female Reproductive Development by Reducing Follicle Reserves and Fertility

Studies report that fetal exposure to paracetamol/acetaminophen by maternal consumption can interfere with male reproductive development. Moreover, recent biomonitoring data report widespread presence of paracetamol in German and Danish populations, suggesting exposure via secondary (nonpharmaceutical) sources, such as metabolic conversion from the ubiquitous industrial compound aniline. In this study, we investigated the extent to which paracetamol and aniline can interfere with female reproductive development. Intrauterine exposure to paracetamol by gavage of pregnant dams resulted in shortening of the anogenital distance in adult offspring, suggesting that fetal hormone signaling had been disturbed. Female offspring of paracetamol-exposed mothers had ovaries with diminished follicle reserve and reduced fertility. Fetal gonads of exposed animals had also reduced gonocyte numbers, suggesting that the reduced follicle count in adults could be due to early disruption of germ cell development. However, ex vivo cultures of ovaries from 12.5 days post coitum fetuses showed no decrease in proliferation or expression following exposure to paracetamol. This suggests that the effect of paracetamol occurs prior to this developmental stage. Accordingly, using embryonic stem cells as a proxy for primordial germ cells we show that paracetamol is an inhibitor of cellular proliferation, but without cytotoxic effects. Collectively, our data show that intrauterine exposure to paracetamol at levels commonly observed in pregnant women, as well as its precursor aniline, may block primordial germ cell proliferation, ultimately leading to reduced follicle reserves and compromised reproductive capacity later in life.

General information
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Organisations: National Food Institute, Research Group for Molecular Toxicology, University of Copenhagen, Université de Rennes, Ruhr-University Bochum, University of Queensland, University of Rennes
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Introducing the interdisciplinary journal Microbial Risk Analysis

General information
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Organisations: National Food Institute, Research Group for Risk-Benefit, Elsevier, University of Vermont Extension
Investigating Salmonella Eko from Various Sources in Nigeria by Whole Genome Sequencing to Identify the Source of Human Infections

Twenty-six Salmonella enterica serovar Eko isolated from various sources in Nigeria were investigated by whole genome sequencing to identify the source of human infections. Diversity among the isolates was observed and camel and cattle were identified as the primary reservoirs and the most likely source of the human infections.
Investigation of the effect of UV-LED exposure conditions on the production of vitamin D in pig skin

The dietary intake of vitamin D is currently below the recommended intake of 10-20 µg vitamin D/day. Foods with increased content of vitamin D or new products with enhanced vitamin D are warranted. Light-emitting diodes (LEDs) are a potential new resource in food production lines. In the present study the exposure conditions with ultraviolet (UV) LEDs were systematically investigated in the wavelength range 280-340 nm for achieving optimal vitamin D bio-fortification in pig skin. A wavelength of 296 nm was found to be optimal for vitamin D3 production. The maximum dose of 20 kJ/m2 produced 3.5-4 µg vitamin D3/cm2 pig skin. Vitamin D3 produced was independent on the combination of time and intensity of the LED source. The increased UV exposure by UV-LEDs may be readily implemented in existing food production facilities, without major modifications to the process or processing equipment, for bio-fortifying food products containing pork skin.

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Department of Photonics Engineering, Diode Lasers and LED Systems
Authors: Barnkob, L. L. (Intern), Argyraki, A. (Intern), Petersen, P. M. (Intern), Jakobsen, J. (Intern)
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Scopus rating (2017): SNIP 2.109 SJR 1.793
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 4.85 SJR 1.731 SNIP 2.095
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.582 SNIP 1.946 CiteScore 4.31
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.557 SNIP 2.01 CiteScore 3.92
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.554 SNIP 2.056 CiteScore 3.87
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.762 SNIP 2.342 CiteScore 3.98
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.911 SNIP 2.383 CiteScore 4.17
Investigation of the Interaction between Mucins and β-Lactoglobulin under Tribological Stress

The interaction characteristics between mucins and beta-lactoglobulin (BLG) under tribological stress were investigated by comparing the lubricity of mixed solutions of mucineBLG with that of neat protein solutions at compliant hydrophobic interfaces. Surface adsorption properties of the proteins as characterized by bicinchoninic acid (BCA) assay revealed that both bovine submaxillary mucin (BSM) and porcine gastric mucin (PGM) showed distinctly higher adsorbed masses compared to BLG onto polydimethylsiloxane (PDMS) or polystyrene (PS) surfaces. The adsorbed masses of the mixed protein solutions, namely BLGeBSM and BLGePGM, reduced significantly, and BLG appeared to dominate the surface adsorption event, presumably due to the reduced concentration of mucins and the Vroman effect. While pin-on-disk tribometry and mini-traction machine (MTM) were employed to provide the tribological contacts with varying contact pressure, speed range, and slide/roll ratio, the dominant lubrication mechanism of the protein solutions was boundary lubrication. BLGeBSM mixture showed the highest level of degradation in the lubricity of BSM at pH 5, although BLGeSyalva interaction is known to degrade the lubricity most rapidly at more acidic pH, such as at pH 3.5. More importantly, pH dependent lubricating properties of BLGeBSM mixed solutions appeared to be determined by competitive adsorption of the two proteins onto the substrates, which suggests that they do not form as strong aggregates as BLGeSyalva, especially under tribological stress.

General information

State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science, Department of Mechanical Engineering, Materials and Surface Engineering
Authors: Celebioglu, H. Y. (Intern), Guðjónsdóttir, M. (Intern), Chronakis, I. S. (Intern), Lee, S. (Intern)
Tribology, Beta-lactoglobulin, Bovine submaxillary mucin, Porcine gastric mucin, Ph
In vitro toxicity of cationic micelles and liposomes in cultured human hepatocyte (HepG2) and lung epithelial (A549) cell lines

The aim of this study was to compare the effects of cationic micelle and liposome drug delivery systems on liver and lung cells in a toxicological in vitro screening model, with observations on cytotoxicity and genotoxicity. A screening battery was established for assessment of a broad range of parameters related to adverse effects. Clear concentration response effects were observed related to impairment of mitochondrial function, membrane integrity and oxidative stress markers, but no effect was observed on genotoxicity. The adverse effects were highest for the liposomes. The High Content Screening seems optimal for initial screening of adverse effects, and combined with standard cytotoxicity measurements initial screening can be performed for predictive toxicological screening.

General information
State: Published
Organisations: Department of Micro- and Nanotechnology, Colloids and Biological Interfaces, National Food Institute, Office for Innovation & Sector Services, University of Copenhagen, H. Lundbeck A/S
Authors: Roursgaard, M. (Ekstern), Knudsen, K. B. (Ekstern), Northeved, H. (Ekstern), Persson, M. (Ekstern), Christensen, T. (Ekstern), Ek, P. K. (Intern), Permin, A. (Intern), Andresen, T. L. (Intern), Gjetting, T. (Intern), Lykkesfeldt, J. (Ekstern), Vesterdal, L. K. (Ekstern), Loft, S. (Ekstern), Møller, P. (Ekstern)
Number of pages: 8
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Scopus rating (2017): SNIP 0.981 SJR 0.931
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.15 SJR 1.025 SNIP 0.941
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.096 SNIP 1.132 CiteScore 3.38
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.949 SNIP 1.133 CiteScore 3.03
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.933 SNIP 1.245 CiteScore 3.32
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.924 SNIP 1.15 CiteScore 3.05
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.846 SNIP 1.03 CiteScore 2.8
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.836 SNIP 1.018
In vivo formation of natural HgSe nanoparticles in the liver and brain of pilot whales

To understand the biochemistry of methylmercury (MeHg) that leads to the formation of mercury-selenium (Hg-Se) clusters is a long outstanding challenge that promises to deepen our knowledge of MeHg detoxification and the role Se plays in this process. Here, we show that mercury selenide (HgSe) nanoparticles in the liver and brain of long-finned pilot whales are attached to Se-rich structures and possibly act as a nucleation point for the formation of large Se-Hg clusters, which can grow with age to over 5μm in size. The detoxification mechanism is fully developed from the early age of the animals, with particulate Hg found already in juvenile tissues. As a consequence of MeHg detoxification, Se-methionine, the selenium pool in the system is depleted in the efforts to maintain essential levels of Se-cysteine. This study provides evidence of so far unreported depletion of the bioavailable Se pool, a plausible driving mechanism of demonstrated neurotoxic effects of MeHg in the organism affected by its high dietary intake.

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Organisations: National Food Institute, Research Group for Nano-Bio Science, University of Aberdeen, U.S. Environmental Protection Agency, University of South Australia, University of Queensland, Agilent Technologies Ltd, SAC Wildlife Unit
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Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 4.63 SJR 1.692 SNIP 1.354
Web of Science (2016): Indexed yes
**Pseudomonas putida as a microbial cell factory**

The extensive use of fossil fuels has a severe influence on the environment. In order to reduce the dependency on these limited resources and to protect the environment substantial effort is being made to implement renewable resources. One part of this transition is to develop methods for sustainable production of chemicals, which can be achieved by microbial cell factories. The work presented in this PhD thesis elucidates the application of Pseudomonas putida as a microbial cell factory for production of the biosurfactant rhamnolipid. The rhamnolipid production was achieved by heterologous expression of the rhlAB operon from Pseudomonas aeruginosa using a synthetic promoter library in P. putida. Since rhamnolipid production is associated with difficulties in conventional bioreactors we have used biofilm encased P. putida to circumvent these problems. We show that biofilm can be used as a production platform for continuous production of rhamnolipids. A method for quantitative and qualitative analysis of the produced rhamnolipids was developed based on ultra performance liquid chromatography combined with high resolution mass spectrometry. This enabled detection of low levels of rhamnolipids. The applicability of glycerol as a substrate was also investigated. Since glycerol is a poor substrate adaptive evolution was made in order to improve the capabilities of P. putida to proliferate on glycerol. The evolved lineages all had significantly increased growth rate, enhanced cell density and reduced lag phase. The genomic alterations were identified by genome sequencing and revealed parallel evolution. Glycerol was also shown to be able to support biofilm growth and as a result of this it can be used as an alternative substrate for producing biochemicals in conventional and biofilm reactors. The use of biofilm as a production platform and the usage of glycerol as a feedstock show the potential of using microbial cell factories in the transition toward sustainable production of chemicals. Particularly, the applicability of biofilm as a production platform can emerge as a promising alternative for producing toxic biochemicals and for producing biochemicals which are difficult to cope in conventional bioreactors.
Is barley malt safe as a food ingredient?
Today’s increased focus on sustainability require increased focus on the safety of the products in use. Barley malt is used for beer and whisky production and the spent grain by-products from brewing makes up to 85 % of brewers total by-products. Spent grain has previously been used mainly for animal feed and recently the high nutritive value has made it feasible as bread flour supplement [1] and therefore human food. Process contamination such as the genotoxic acrylamide formed due to Maillard reactions between reducing sugars and amino acids at raised temperature could appear during drying of the malt. Previously, acrylamide has been detected among others in potato products, coffee and bread [2]. The use of smoked barley malt for enhanced flavours for certain beer and whisky types may increase the content of carcinogenic process contaminants in the by-products. Carcinogenic polycyclic aromatic hydrocarbons (PAH) are such process contaminants previously identified in e.g. smoked fish [3]. Germinated barley is smoke treated and for many whisky malt dried over peat-fuelled furnace for flavour addition probably with increased health risks for spent grain consumers as a result. To evaluate our concern we studied different barley malt types.

General information
State: Published
Organisations: National Food Institute, Research Group for Analytical Food Chemistry
Authors: Duedahl-Olesen, L. (Intern), Olesen, P. A. (Ekstern)
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Poster_malt_2016.pdf

Is the Evolution of Salmonella enterica subsp. enterica Linked to Restriction-Modification Systems?
Salmonella enterica subsp. enterica bacteria are highly diverse foodborne pathogens that are subdivided into more than 1,500 serovars. The diversity is believed to result from mutational evolution, as well as intra- and interspecies recombination that potentially could be influenced by restriction-modification (RM) systems. The aim of this study was to investigate whether RM systems were linked to the evolution of Salmonella enterica subsp. enterica. The study included 221 Salmonella enterica enterica genomes, of which 68 were de novo sequenced and 153 were public available genomes from ENA. The data set covered 97 different serovars of Salmonella enterica subsp. enterica and an additional five genomes from four other Salmonella subspecies as an outgroup for constructing the phylogenetic trees. The phylogenetic trees were constructed based on multiple alignment of core genes, as well as the presence or absence of pangenomes. The topology of the trees was compared to the presence of RM systems, antimicrobial resistance (AMR) genes, Salmonella pathogenicity islands (SPIs), and plasmid replicons. We did not observe any correlation between evolution and the RM systems in S. enterica subsp. enterica. However, sublineage correlations and serovar-specific patterns were observed. Additionally, we conclude that plasmid replicons, SPIs, and AMR were all better correlated to serovars than to RM systems. This study suggests a limited influence of RM systems on the evolution of Salmonella enterica subsp. enterica, which could be due to the conjugational mode of horizontal gene transfer in Salmonella. Thus, we conclude that other factors must be involved in shaping the evolution of bacteria.

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, Department of Systems Biology
Authors: Roer, L. (Intern), Hendrikse, R. S. (Intern), Leekitcharoenphon, P. (Intern), Lukjancenko, O. (Intern), Kaas, R. S. (Intern), Hasman, H. (Intern), Aarestrup, F. M. (Intern)
Number of pages: 15
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Main Research Area: Technical/natural sciences
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Journal: mSystems
Juvenile Male Rats Exposed to a Low-Dose Mixture of Twenty-Seven Environmental Chemicals Display Adverse Health Effects

Humans are exposed to a large number of environmental chemicals in their daily life, many of which are readily detectable in blood or urine. It remains uncertain if these chemicals can cause adverse health effects when present together at low doses. In this study we have tested whether a mixture of 27 chemicals administered orally to juvenile male rats for three months could leave a pathophysiological footprint. The mixture contained metals, perfluorinated compounds, PCB, dioxins, pesticides, heterocyclic amines, phthalate, PAHs and others, with a combined dose of 0.16 (Low dose), 0.47 (Mid dose) or 1.6 (High dose) mg/kg bw/day. The lowest dose was designed with the aim of obtaining plasma or urine concentrations in rats at levels approaching those observed in humans. Some single congeners were administered at doses representative of combined doses for chemical groups. With this baseline, we found effects on weight, histology and gene expression in the liver, as well as changes to the blood plasma metabolome in all exposure groups, including low-dose. Additional adverse effects were observed in the higher dosed groups, including enlarged kidneys and alterations to the metabolome. No significant effects on reproductive parameters were observed.

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Organisations: National Food Institute, Research Group for Molecular Toxicology, Research Group for Reproductive Toxicology, Research Group for Analytical Food Chemistry, University of Copenhagen
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Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.11 SJR 1.236 SNIP 1.101
Web of Science (2016): Indexed yes
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Scopus rating (2015): SJR 1.427 SNIP 1.136 CiteScore 3.32
Kantinemåltider 2014 - Ernæringsmæssig kvalitet

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Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Research Group for Bioactives – Analysis and Application
Authors: Lassen, A. D. (Intern), Hansen, K. S. (Ekstern), Molbo Rasmussen, S. (Ekstern), Bysted, A. (Intern), Knuthsen, P. (Intern)
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Publisher: DTU Fødevareinstituttet, Danmarks Tekniske Universitet
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Levels of pharmaceuticals and endocrine disruptors in commercially available seafood before and after cooking

General information
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Linear epitope mapping of peanut allergens demonstrates individualized and persistent antibody-binding patterns

General information
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Organisations: Department of Civil Engineering, Department of Micro- and Nanotechnology, Fluidic Array Systems and Technology, National Food Institute, Research Group for Gut Microbiology and Immunology, Technical University of Denmark, Roche NimbleGen, Medical University of Vienna, Medical University of Vienna, Universidad Nacional de San Martin
Authors: Hansen, C. S. (Intern), Dufva, M. (Intern), Bøgh, K. L. (Intern), Sullivan, E. (Ekstern), Patel, J. (Ekstern), Eiwegger, T. (Ekstern), Szépfalusi, Z. (Ekstern), Nielsen, M. (Ekstern), Christiansen, A. (Intern)
Pages: 1728-1730
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Lipase from Fusarium heterosporum expressed in Ogataea polymorpha

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Organisations: National Food Institute, Division of Risk Assessment and Nutrition, U.S. Food and Drug Administration, General Chemical State Laboratory, Food Standards Australia New Zealand
Authors: Zang, Y. (Ekstern), Andersen, J. H. (Intern), Dessipri, E. (Ekstern), DiNovi, M. (Ekstern), Meyland, I. (Intern), Mueller, U. (Ekstern)
Pages: 27-36
Low-dose developmental exposure to bisphenol A alters the femoral bone geometry in wistar rats

Background: Bisphenol A (BPA) is a chemical produced in large volumes for use in manufacturing of consumer products and industrial applications, and an endocrine disruptor known to affect several hormonal systems. Bone produces hormones and is additionally a sensitive hormone target tissue, and is thus potentially sensitive to low doses of endocrine disruptors such as BPA, especially during development.

Methods: 110 pregnant Wistar rats were gavaged with 0; 25 μg; 250 μg; 5000 μg or 50,000 μg BPA/kg bodyweight (bw)/day from gestational day 7 until weaning at postnatal day 22. The three-month-old offspring were sacrificed and right femurs collected for length measurements, geometrical measurements by peripheral quantitative computed tomography (pQCT), as well as for analyses of biomechanical properties using the three-point-bending method.

Results: The femur was elongated in female offspring of dams exposed to 25 or 5000 μg BPA/kg bw/day (1.8% and 2.1%, respectively), and increased cortical thickness (4.7%) was observed in male offspring of dams exposed to 25 μg BPA/kg bw/day, compared to controls (p <0.005). The biomechanical properties of the bone were not significantly altered.

Conclusions: In utero and lactational exposure to the lowest BPA dose used in this study altered femoral geometry in both male and female offspring. This was observed at 25 μg BPA/kg bw/day, a dose lower than the Human Equivalent Dose (HED) applied by EFSA to set a temporary TDI (609 μg BPA/kg bw/day), and far lower than the No-Observed-Adverse-Effect-Level (NOAEL) (5000 μg BPA/kg bw/day) on which the US FDA TDI is based. (C) 2016 Elsevier Ltd. All rights reserved.
Low-dose effect of developmental bisphenol A exposure on sperm count and behaviour in rats

Bisphenol A is widely used in food contact materials and other products and is detected in human urine and blood. Bisphenol A may affect reproductive and neurological development; however, opinion of the European Food Safety Authority (EFSA) on bisphenol A (EFSA J, 13, 2015 and 3978) concluded that none of the available studies were robust enough to provide a point of departure for setting a tolerable daily intake for bisphenol A. In the present study, pregnant Wistar rats (n = 17–21) were gavaged from gestation day 7 to pup day 22 with bisphenol A doses of 0, 25 μg, 250 μg, 5 mg or 50 mg/kg bw/day. In the offspring, growth, sexual maturation, weights and histopathology of reproductive organs,
Oestrus cyclicity and sperm counts were assessed. Neurobehavioural development was investigated using a behavioural testing battery including tests for motor activity, sweet preference, anxiety and spatial learning. Decreased sperm count was found at the lowest bisphenol A dose, that is 25 μg/kg/day, but not at the higher doses. Reproductive organ weight and histology were not affected and no behavioural effects were seen in male offspring. In the female offspring, exposure to 25 μg/kg bw/day bisphenol A dose resulted in increased body weight late in life and altered spatial learning in a Morris water maze, indicating masculinization of the brain. Decreased intake of sweetened water was seen in females from the highest bisphenol A dose group, also a possible sign of masculinization. The other investigated endpoints were not significantly affected. In conclusion, the present study using a robust experimental study design, has shown that developmental exposure to 25 μg/kg bw/day bisphenol A can cause adverse effects on fertility (decreased sperm count), neurodevelopment (masculinization of spatial learning in females) and lead to increased female body weight late in life. These results suggest that the new EFSA temporary tolerable daily intake of 4 μg/kg bw/day is not sufficiently protective with regard to endocrine disrupting effects of bisphenol A in humans.
Low-dose effects of bisphenol A on mammary gland development in rats

Bisphenol A (BPA) is widely used in food contact materials, toys, and other products. Several studies have indicated that effects observed at doses near human exposure levels may not be observed at higher doses. Many studies have shown effects on mammary glands at low doses of BPA, however, because of small number of animals or few doses investigated these data have not been used by EFSA as point of departure for the newly assessed tolerable daily intake (TDI). We performed a study with perinatal exposure to BPA (0, 0.025, 0.25, 5, and 50 mg/kg bw/day) in rats (n = 22 mated/group). One of the aims was to perform a study robust enough to contribute to the risk assessment of BPA and to elucidate possible biphasic dose–response relationships. We investigated mammary gland effects in the offspring at 22, 100, and 400 days of age. Male offspring showed increased mammary outgrowth on pup day (PD) 22 at 0.025 mg/kg BPA, indicating an increased mammary development at this low dose only. Increased prevalence of intraductal hyperplasia was observed in BPA females exposed to 0.25 mg/kg at PD 400, but not at PD 100, and not at higher or lower doses. The present findings support data from the published literature showing that perinatal exposure to BPA can induce increased mammary growth and proliferative lesions in rodents. Our results indicate that low-dose exposure to BPA can affect mammary gland development in male and female rats, although higher doses show a different pattern of effects. The observed intraductal hyperplasia in female rats could be associated with an increased risk for developing hyperplastic lesions, which are parallels to early signs of breast neoplasia in women. Collectively, current knowledge on effects of BPA on mammary gland at low doses indicates that highly exposed humans may not be sufficiently protected.

General information
State: Published
Organisations: National Food Institute, Research Group for Reproductive Toxicology
Authors: Egebjerg, K. M. (Intern), Boberg, J. (Intern), Isling, L. K. (Intern), Christiansen, S. (Intern), Hass, U. (Intern)
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BFI (2016): BFI-level 1
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.215 SNIP 1.661
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.211 SNIP 1.598
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.09 SNIP 1.665
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.02 SNIP 1.284
Macronutrient composition determines accumulation of persistent organic pollutants from dietary exposure in adipose tissue of mice

Accumulation of persistent organic pollutants (POPs) has been linked to adipose tissue expansion. As different nutrients modulate adipose tissue development, we investigated the influence of dietary composition on POP accumulation, obesity development and related disorders. Lifespan was determined in mice fed fish-oil-based high fat diets during a long-term feeding trial and accumulation of POPs was measured after 3, 6 and 18 months of feeding. Further, we performed dose-response experiments using four abundant POPs found in marine sources, PCB-153, PCB-138, PCB-118 and pp'-DDE as single congeners or as mixtures in combination with different diets: one low fat diet and two high fat diets with different protein:sucrose ratios. We measured accumulation of POPs in adipose tissue and liver and determined obesity development, glucose tolerance, insulin sensitivity and hepatic expression of genes involved in metabolism of xenobiotics. Compared with mice fed diets with a low protein:sucrose ratio, mice fed diets with a high protein:sucrose ratio had significantly lower total burden of POPs in adipose tissue, were protected from obesity development and exhibited enhanced hepatic expression of genes involved in metabolism and elimination of xenobiotics. Exposure to POPs, either as single compounds or mixtures, had no effect on obesity development, glucose tolerance or insulin sensitivity. In conclusion, this study demonstrates that the dietary composition of macronutrients profoundly modulates POP accumulation in adipose tissues adding an additional parameter to be included in future studies. Our results indicate that alterations in macronutrient composition might be an additional route for reducing total body burden of POPs.

General information
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Organisations: National Food Institute, Division of Risk Assessment and Nutrition , University of Copenhagen, National Institute for Nutrition and Seafood Research
Authors: Myrmel, L. S. (Ekstern), Fjære, E. (Ekstern), Midtbø, L. K. (Ekstern), Bernhard, A. (Ekstern), Petersen, R. K. (Ekstern), Sonne, S. B. (Ekstern), Mortensen, A. (Intern), Hao, Q. (Ekstern), Brattelid, T. (Ekstern), Liaset, B. (Ekstern), Kristiansen, K. (Ekstern), Madsen, L. (Ekstern)
Pages: 307-316
Mad til små - fra mælk til familiens mad

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Sundhedsstyrelsen, Fødevarestyrelsen
Authors: Poulsen, A. (Ekstern), Hansen, H. H. (Ekstern), Trolle, E. (Intern)
Number of pages: 112
Publication date: 2016

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Publisher: Sundhedsstyrelsen, Fødevarestyrelsen og Komiteen for Sundhedsoplysning
Edition: 2
ISBN (Print): 978-87-93213-49-4
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Original language: Danish
Main Research Area: Technical/natural sciences
Electronic versions:
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Links:
http://sundhedsstyrelsen.dk/da/udgivelser/2016/~/media/E382EA4F4DD7410B8A71243B7F97E70B.ashx
Publication: Commissioned - peer-review › Report – Annual report year: 2016

Magnesium stearate

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Food Standards Australia New Zealand, Guangdong Provincial Center for Disease Control and Prevention, Department of the President's Affairs, University of Belgrade, U.S. Food and Drug Administration
Authors: Mueller, U. (Ekstern), Yang, X. (Ekstern), Andersen, J. H. (Intern), DiNovi, M. (Ekstern), Veerabhadra Rao, M. (Ekstern), Schlatter, J. (Ekstern), Stankovic, I. (Ekstern)
Pages: 38-49
Publication date: 2016

Host publication information
Title of host publication: Safety evaluation of certain food additives and contaminants
Publisher: World Health Organization
ISBN (Print): 9789241660716
ISBN (Electronic): 9789240694897
Series: WHO FOOD ADDITIVES SERIES
Number: 71
ISSN: 0300-0923
Main Research Area: Technical/natural sciences
Electronic versions:
9789240694897_eng.pdf
Publication: Research - peer-review › Report chapter – Annual report year: 2016
Magnetosome production and functionalization

Magnetotactic bacteria produce magnetic particles, which enable them to migrate along the magnetic field lines in the environment they live in. The magnetic particles called magnetosomes are nanometer sized lipid bilayer encased uniform crystals of magnetite (Fe₃O₄) or greigite (Fe₃S₄). Their magnetic properties make them potentially useful in many biomedical and technological applications, such as drug delivery, magnetic resonance imaging, immunoassay and magnetic markers. Making them an alternative to chemically synthesized magnetic nanoparticles. *Magnetospirillum gryphiswaldense* MSR-1 as a model organism used to produce magnetosomes and is known to require a low dissolved oxygen (DO) concentration and iron during cultivation for magnetosome production. However, the relationship between these parameters and fermentation behavior is not well understood.

We will present a study where we investigate how the addition of iron impacts the physiology of the MSR-1 cells and the expression of key genes involved in the production of mangetosomes.

Furthermore, utilization of magnetosomes for applications as immunoassays requires the functionalization of the magnetosomes. Functionalization of the magnetosomes is achieved by attaching functional moieties to the magnetosome. We will present the work of functionalizing the magnetosomes for immunoassay by expressing IgG binding domains on the surface of magnetosomes.

**General information**

**State:** Published  
**Organisations:** National Food Institute, Department of Systems Biology, Eukaryotic Molecular Cell Biology, Research Group for Microbial Biotechnology and Biorefining  
**Authors:** Anyaogu, D. C. (Intern), Zhuang, S. (Intern), Mortensen, U. H. (Intern), Hobley, T. J. (Intern)  
**Number of pages:** 1  
**Publication date:** 2016  
**Event:** Abstract from Sustain-ATV Conference 2016, Kgs. Lyngby, Denmark.  
**Main Research Area:** Technical/natural sciences  
**Links:** http://www.sustain.dtu.dk/

**Bibliographical note**

Sustain Abstract B-9  
**Publication:** Research - peer-review › Conference abstract for conference – Annual report year: 2016

Maltotetraohydrolase from Pseudomonas stutzeri expressed in Bacillus licheniformis

**General information**

**State:** Published  
**Organisations:** National Food Institute, Division of Risk Assessment and Nutrition, U.S. Food and Drug Administration, Food Standards Australia New Zealand  
**Authors:** Zang, Y. (Ekstern), Andersen, J. H. (Intern), DiNovi, M. (Ekstern), Meyland, I. (Intern), Mueller, U. (Ekstern), Srinivasan, J. R. (Ekstern)  
**Pages:** 51-60  
**Publication date:** 2016

**Host publication information**

**Title of host publication:** Safety evaluation of certain food additives and contaminants  
**Publisher:** World Health Organization  
**ISBN (Print):** 9789241660716  
**ISBN (Electronic):** 9789240694897

**Series:** WHO FOOD ADDITIVES SERIES  
**Number:** 71  
**ISSN:** 0300-0923  
**Main Research Area:** Technical/natural sciences  
**Electronic versions:** 9789240694897_eng.pdf  
**Publication:** Research - peer-review › Report chapter – Annual report year: 2016

Mårhundens (Nyctereutes procyonoides) føde og fødeoverlap med hjemmehørende rovdyr i Danmark

The raccoon dog (Nyctereutes procyonoides) is an omnivorous carnivore from East Asia, which has been introduced in Europe. It has recently established a free-ranging population in Denmark. The dietary habits of this non-native species were examined and compared to the diet of native badger (Meles meles) and red fox (Vulpes vulpes). The raccoon dog diet was determined from undigested remains in the stomach. The examined raccoon dogs primarily originated from road
kills, hunting and culling. Individuals that were caught in baited traps were excluded from the analysis. A total of 244 free-ranging raccoon dogs were collected in 2008-2014. Only 129 of these were included in the analysis based on the cause of death. The diet of raccoon dogs comprised small mammals (56% frequency of occurrence (FO)) and carcasses/unidentified materials (57% FO); invertebrates (86% FO); birds (46% FO); fruits/berries (34% FO) and amphibians (44% FO). The importance of amphibians and fruits/berries varied according to seasonal availability, peaking during spring-summer and summer-autumn, respectively. The raccoon dogs’ food niche was wider than the food niche of badgers and red fox (Levin’s standard index: 0.68, 0.37 and 0.30, respectively). Percentage food overlap between raccoon dog and badger was higher (70%) than food overlap with red fox (45%). The study suggests that birds’ eggs and nestlings is a rare food for raccoon dogs as also observed in most other European dietary studies of raccoon dogs. To determine whether the impact of raccoon dog is a threat to populations of birds, amphibians and other prey, studies on the prey populations in relation to the predation pressure of other non-native, native mammalian and avian predators are needed.
Measuring the impact of classmates on children’s liking of school meals

In this paper we investigate how children respond to a new type of school meal and ask whether classmates affect meal evaluations. The study is part of a school meal intervention which tested health effects of the New Nordic Diet. Over two separate three-month periods 834 pupils (age 8–11) from 9 schools (46 classes) were given either meals based on the Nordic diet or their usual packed lunch. The children rated their regular lunch packs and the Nordic meals on a five-point smiley scale when they reported their lunch intake. Ratings were done at home by the child, alone or with the help of a parent. The results show that the classmates influenced children’s ranking of a new type of school meal but did not influence rankings of familiar lunch packs. These results are important not only because they add to our knowledge of the social dimension of liking, but also because they show that we should attend to social mechanisms when implementing new health-promoting food initiatives among children in schools.

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition, University of Copenhagen
Authors: Andersen, S. S. (Ekstern), Vassard, D. (Ekstern), Havn, L. N. (Ekstern), Damsgaard, C. T. (Ekstern), Biltoft-Jensen, A. P. (Intern), Holm, L. (Ekstern)
Pages: 87-95
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Food Quality and Preference
Volume: 52
ISSN (Print): 0950-3293
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 1.546 SJR 1.237
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 4.21 SJR 1.17 SNIP 1.681
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.051 SNIP 1.855 CiteScore 3.92
Mechanisms behind cancer risks associated with consumption of red and processed meat

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Copenhagen Center for Health Technology, Research Group for Gut Microbiology and Immunology
Number of pages: 73
Publication date: 2016

Publication information
Meta-analysis of proportion estimates of Extended-Spectrum-Beta-Lactamase-producing Enterobacteriaceae in East Africa hospitals

Background: A high proportion of Extended-Spectrum-Beta-Lactamase (ESBL) producing Enterobacteriaceae is causing common infections in all regions of the world. The burden of antibiotic resistance due to ESBL in East Africa is large but information is scarce and thus it is unclear how big the problem really is. To gain insight into the magnitude and molecular epidemiology of ESBL-producing Enterobacteriaceae in East Africa a literature search was performed in PubMed on 31 July 2015 to retrieve articles with relevant information on ESBL. Methods and results: Meta-analysis was performed to determine overall proportion estimate of ESBL-producing Enterobacteriaceae. A total of 4076 bacterial isolates were included in the analysis. The overall pooled proportion of ESBL-producing Enterobacteriaceae among included surveys done in East African hospitals was found to be 0.42 (95 % CI: 0.34-0.50). Heterogeneity (I-2) between countries’ proportions in ESBL was significantly high (96.95 % and p <0.001). The frequently detected genes encoding ESBL were CTX-M, TEM, SHV and OXA while the most infrequent reported genes were KPC and NDM. Conclusion: The available studies show a very wide variation in resistance due to ESBL between countries. This highlights a need for active surveillance systems which can help understand the actual epidemiology of ESBL, aid in formulating national or regional guidelines for proper screening of ESBL, and support developing standardized approaches for managing patients colonized with ESBL.

General information

State: Published
Organisations: Department of Systems Biology, Center for Biological Sequence Analysis, National Food Institute, Research Group for Genomic Epidemiology, Kilimanjaro Christian Medical Centre, University of Copenhagen, KCRI Kilimanjaro Clinical Research Institute
Authors: Sonda, T. (Ekstern), Kumburu, H. (Ekstern), van Zwetselaar, M. (Ekstern), Alifrangis, M. (Ekstern), Lund, O. (Intern), Kibiki, G. (Ekstern), Aarestrup, F. M. (Intern)
Number of pages: 9
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Antimicrobial Resistance and Infection Control
Volume: 5
Article number: 18
ISSN (Print): 2047-2994
Web of Science (2018): Indexed yes
Scopus rating (2017): SNIP 1.588 SJR 1.573
Web of Science (2017): Indexed Yes
Scopus rating (2016): SJR 1.182 SNIP 1.132 CiteScore 2.62
Web of Science (2016): Indexed yes
Scopus rating (2015): SJR 1.093 SNIP 1.092 CiteScore 2.62
Scopus rating (2014): SJR 1.178 SNIP 1.585 CiteScore 3.22
Scopus rating (2013): SJR 0.601 SNIP 0.984 CiteScore 2.2
Original language: English
Antibiotic resistance, Extended-Spectrum-Beta-Lactamase, ESBL, Enterobacteriaceae, East Africa
Electronic versions:
Meta_analysis_of_proportion_estimates_of_Extended_Spectrum_Beta_Lactamase-producing_Enterobacteriaceae_in_East_Africa_hospitals.pdf

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Bibliographical note
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Methods and processes of developing the Strengthening the Reporting of Observational Studies in Epidemiology - Veterinary (STROBE-Vet) statement

Background: Reporting of observational studies in veterinary research presents challenges that often are not addressed in published reporting guidelines. Objective: To develop an extension of the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) statement that addresses unique reporting requirements for observational studies in veterinary medicine related to health, production, welfare, and food safety. Design: Consensus meeting of experts. Setting: Mississauga, Canada. Participants: Seventeen experts from North America, Europe, and Australia. Methods: Experts completed a pre-meeting survey about whether items in the STROBE statement should be added to or modified to address unique issues related to observational studies in animal species with health, production, welfare, or food safety outcomes. During the meeting, each STROBE item was discussed to determine whether or not wording was recommended and whether additions were warranted. Anonymous voting was used to determine consensus. Results: Six items required no modifications or additions. Modifications or additions were made to the STROBE items 1 (title and abstract), 3 (objectives), 5 (setting), 6 (participants), 7 (variables), 8 (data sources-measurement), 9 (bias), 10 (study size), 12 (statistical methods), 13 (participants), 14 (descriptive data), 15 (outcome data), 16 (main results), 17 (other analyses), 19 (limitations), and 22 (funding). Conclusion: The methods and processes used were similar to those used for other extensions of the STROBE statement. The use of this STROBE statement extension should improve reporting of observational studies in veterinary research by recognizing unique features of observational studies involving food-producing and companion animals, products of animal origin, aquaculture, and wildlife.

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology
Number of pages: 11
Pages: 315-325
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Swine Health and Production
Volume: 24
Issue number: 6
ISSN (Print): 1537-209X
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.681 SJR 0.341
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): SJR 0.515 SNIP 0.807 CiteScore 0.57
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.453 SNIP 0.636 CiteScore 0.43
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.457 SNIP 1.006 CiteScore 0.46
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.366 SNIP 0.714 CiteScore 0.44
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.263 SNIP 0.588 CiteScore 0.27
ISI indexed (2012): ISI indexed yes
Methods and processes of developing the Strengthening the Reporting of Observational Studies in Epidemiology - Veterinary (STROBE-Vet) statement

Background: The reporting of observational studies in veterinary research presents many challenges that are not adequately addressed in published reporting guidelines. Objective: To develop an extension of the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) statement that addresses unique reporting requirements for observational studies in veterinary medicine related to health, production, welfare, and food safety.

Design: A consensus meeting of experts was organized to develop an extension of the STROBE statement to address observational studies in veterinary medicine with respect to animal health, animal production, animal welfare, and food safety outcomes. Setting: Consensus meeting May 11–13, 2014 in Mississauga, Ontario, Canada.

Participants: Seventeen experts from North America, Europe, and Australia attended the meeting. The experts were epidemiologists and biostatisticians, many of whom hold or have held editorial positions with relevant journals.

Methods: Prior to the meeting, 19 experts completed a survey about whether they felt any of the 22 items of the STROBE statement should be modified and if items should be added to address unique issues related to observational studies in animal species with health, production, welfare, or food safety outcomes. At the meeting, the participants were provided with the survey responses and relevant literature concerning the reporting of veterinary observational studies. During the meeting, each STROBE item was discussed to determine whether or not re-wording was recommended, and whether additions were warranted. Anonymous voting was used to determine whether there was consensus for each item change or addition.

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology
Number of pages: 9
Pages: 188–196
Publication date: 2016
Main Research Area: Technical/natural sciences
Methods and Processes of Developing the Strengthening the Reporting of Observational Studies in Epidemiology - Veterinary (STROBE-Vet) Statement

Background: The reporting of observational studies in veterinary research presents many challenges that often are not adequately addressed in published reporting guidelines. Objective: To develop an extension of the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) statement that addresses unique reporting requirements for observational studies in veterinary medicine related to health, production, welfare, and food safety.

Design: A consensus meeting of experts was organized to develop an extension of the STROBE statement to address observational studies in veterinary medicine with respect to animal health, animal production, animal welfare, and food safety outcomes. Setting: Consensus meeting May 11–13, 2014 in Mississauga, Ontario, Canada. Participants: Seventeen experts from North America, Europe, and Australia attended the meeting. The experts were epidemiologists and biostatisticians, many of whom hold or have held editorial positions with relevant journals. Methods: Prior to the meeting, 19 experts completed a survey about whether they felt any of the 22 items of the STROBE statement should be modified and if items should be added to address unique issues related to observational studies in animal species with health, production, welfare, or food safety outcomes. At the meeting, the participants were provided with the survey responses and relevant literature concerning the reporting of veterinary observational studies. During the meeting, each STROBE item was discussed to determine whether or not re-wording was recommended, and whether additions were warranted. Anonymous voting was used to determine whether there was consensus for each item change or addition. Results: The consensus was that six items needed no modifications or additions. Modifications or additions were made to the STROBE items numbered: 1 (title and abstract), 3 (objectives), 5 (setting), 6 (participants), 7 (variables), 8 (data sources/measurement), 9 (bias), 10 (study size), 12 (statistical methods), 13 (participants), 14 (descriptive data), 15 (outcome data), 16 (main results), 17 (other analyses), 19 (limitations), and 22 (funding). Limitation: Published literature was not always available to support modification to, or inclusion of, an item. Conclusion: The methods and processes used in the development of this statement were similar to those used for other extensions of the STROBE statement. The use of this extension to the STROBE statement should improve the reporting of observational studies in veterinary research related to animal health, production, welfare, or food safety outcomes by recognizing the unique features of observational studies involving food-producing and companion animals, products of animal origin, aquaculture, and wildlife.

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, Ontario Veterinary College, Iowa State University, University of Prince Edward Island, Cornell University, University of Bern, University of Southern Denmark, University of Copenhagen, Royal Veterinary College, Center for Food Safety and Applied Nutrition, University of Saskatchewan, University of Sydney
Number of pages: 9
Pages: 1887-1895
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Veterinary Internal Medicine
Volume: 30
Issue number: 6
ISSN (Print): 0891-6640
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed Yes
BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 1.787 SJR 1.481
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 2
Methods and Processes of Developing the Strengthening the Reporting of Observational Studies in Epidemiology - Veterinary (STROBE-Vet) Statement

The reporting of observational studies in veterinary research presents many challenges that often are not adequately addressed in published reporting guidelines. A consensus meeting of experts was organized to develop an extension of...
the STROBE statement to address observational studies in veterinary medicine with respect to animal health, animal production, animal welfare and food safety outcomes. The consensus meeting was held 11-13 May 2014 in Mississauga, Ontario, Canada. Seventeen experts from North America, Europe and Australia attended the meeting. The experts were epidemiologists and biostatisticians, many of whom hold or have held editorial positions with relevant journals. Prior to the meeting, 19 experts completed a survey about whether they felt any of the 22 items of the STROBE statement should be modified and whether items should be added to address unique issues related to observational studies in animal species with health, production, welfare or food safety outcomes. At the meeting, the participants were provided with the survey responses and relevant literature concerning the reporting of veterinary observational studies. During the meeting, each STROBE item was discussed to determine whether or not re-wording was recommended, and whether additions were warranted. Anonymous voting was used to determine whether there was consensus for each item change or addition. The consensus was that six items needed no modifications or additions. Modifications or additions were made to the STROBE items numbered as follows: 1 (title and abstract), 3 (objectives), 5 (setting), 6 (participants), 7 (variables), 8 (data sources/measurement), 9 (bias), 10 (study size), 12 (statistical methods), 13 (participants), 14 (descriptive data), 15 (outcome data), 16 (main results), 17 (other analyses), 19 (limitations) and 22 (funding). Published literature was not always available to support modification to, or inclusion of, an item. The methods and processes used in the development of this statement were similar to those used for other extensions of the STROBE statement. The use of this extension to the STROBE statement should improve the reporting of observational studies in veterinary research related to animal health, production, welfare or food safety outcomes by recognizing the unique features of observational studies involving food-producing and companion animals, products of animal origin, aquaculture and wildlife.

General information
State: Published
Organisations: National Veterinary Institute, National Food Institute, Research Group for Genomic Epidemiology, University of Guelph, Iowa State University, University of Prince Edward Island, Cornell University, University of Bern, University of Southern Denmark, Ontario Veterinary College, Royal Veterinary College, Center for Food Safety and Applied Nutrition, University of Saskatchewan, University of Sydney, University of Copenhagen
Number of pages: 11
Pages: 651–661
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Zoonoses and Public Health
Volume: 63
Issue number: 8
ISSN (Print): 1863-1959
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 1.074 SJR 1.248
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 2.3 SJR 1.119 SNIP 0.988
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.263 SNIP 1.095 CiteScore 2.27
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.036 SNIP 0.955 CiteScore 1.97
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 0.948 SNIP 1.041 CiteScore 2.24
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.052 SNIP 1.223 CiteScore 2.35
ISI indexed (2012): ISI indexed yes
Methods and Processes of Developing the Strengthening the Reporting of Observational Studies in Epidemiology—Veterinary (STROBE-Vet) Statement

Reporting of observational studies in veterinary research presents challenges that often are not addressed in published reporting guidelines. Our objective was to develop an extension of the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) statement that addresses unique reporting requirements for observational studies in veterinary medicine related to health, production, welfare, and food safety. We conducted a consensus meeting with 17 experts in Mississauga, Canada. Experts completed a premeeting survey about whether items in the STROBE statement should be modified or added to address unique issues related to observational studies in animal species with health, production, welfare, or food safety outcomes. During the meeting, each STROBE item was discussed to determine whether or not rewording was recommended, and whether additions were warranted. Anonymous voting was used to determine consensus. Six items required no modifications or additions. Modifications or additions were made to the STROBE items 1 (title and abstract), 3 (objectives), 5 (setting), 6 (participants), 7 (variables), 8 (data sources and measurement), 9 (bias), 10 (study size), 12 (statistical methods), 13 (participants), 14 (descriptive data), 15 (outcome data), 16 (main results), 17 (other analyses), 19 (limitations), and 22 (funding). The methods and processes used were similar to those used for other extensions of the STROBE statement. The use of this STROBE statement extension should improve reporting of observational studies in veterinary research by recognizing unique features of observational studies involving food-producing and companion animals, products of animal origin, aquaculture, and wildlife.

General information
State: Published
Organisations: National Veterinary Institute, National Food Institute, Research Group for Genomic Epidemiology, University of Guelph, Iowa State University, University of Prince Edward Island, Cornell University, University of Bern, University of Southern Denmark, University of Copenhagen, University of London, U.S. Food and Drug Administration, University of Saskatchewan, University of Sydney
Microbial population heterogeneity versus bioreactor heterogeneity: evaluation of Redox Sensor Green as an exogenous metabolic biosensor

Microbial heterogeneity in metabolic performances has attracted a lot of attention, considering its potential impact on industrial bioprocesses. However, little is known about the impact of extracellular perturbations (i.e. bioreactor heterogeneity) on cell-to-cell variability in metabolic performances (i.e. microbial population heterogeneity). In this work, we have evaluated the relevance of Redox Sensor Green (RSG) as an exogenous biosensor of metabolic activity at the single cell level. RSG signal is proportional to the activity of the electron transport chain and its signal is strongly affected by metabolic burden, availability of electron final acceptor and side metabolisms (i.e. overflow and mixed acid fermentation). RSG can also be used for the estimation of the impact of scale-down conditions on microbial metabolic robustness. The relationship linking averaged RSG activity and its cell-to-cell variability (noise) has been highlighted but seems unaffected by environmental perturbations.
Mitigation of the processing contaminant acrylamide in bread by reducing asparagine in the bread dough

Over the past few years there has been an increasing awareness regarding acrylamide (AAM) content of various foods. Although there are several relevant articles on AAM mitigation in industrially prepared products, the literature regarding homemade preparations is rather scarce. The objective of this study is to mitigate the AAM formation in baked buns made with 1:1 sifted wheat/wholegrain flour through the depletion of asparagine (ASN) in the bread dough. Using a full-factorial design, the effect of four factors (yeast amount, fermentation time, fermentation temperature and yeast types) was tested. Liquid chromatography-tandem mass spectrometry (LC-MS/MS) was used for AAM and its main precursor, ASN, determination. The resulting ASN depletion in the dough (68–89%) is significantly affected by fermentation time and yeast type, while AAM mitigation levels in the baked buns are significantly influenced by yeast amount, fermentation time and yeast type. The mean concentrations for each combination range between 5 and 15 µg kg⁻¹.

General information
State: Published
Organisations: Research Group for Food Production Engineering, National Food Institute, Technical University of Denmark
Authors: Katsaiti, T. (Ekstern), Granby, K. (Intern)
Number of pages: 9
Pages: 1402-1410
Publication date: 2016
Main Research Area: Technical/natural sciences

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Volume: 33
Issue number: 9
ISSN (Print): 1944-0049
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.894 SJR 0.74
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.12 SJR 0.796 SNIP 0.95
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.778 SNIP 0.878 CiteScore 2.11
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.764 SNIP 0.978 CiteScore 2.07
Web of Science (2014): Indexed yes
Mixed β-glucanase and xylanase from Disporotrichum dimorphosporum

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition , U.S. Food and Drug Administration, National Institute for Public Health and the Environment
Authors: Jeurissen, S. M. F. (Ekstern), Andersen, J. H. (Intern), DiNovi, M. (Ekstern), Mattia, A. (Ekstern), Meyland, I. (Intern), Srinivasan, J. R. (Ekstern)
Pages: 75-85
Publication date: 2016

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Title of host publication: Safety evaluation of certain food additives and contaminants
Publisher: World Health Organization
ISBN (Print): 9789241660716
ISBN (Electronic): 9789240694897
Series: WHO FOOD ADDITIVES SERIES
Number: 71
ISSN: 0300-0923
Main Research Area: Technical/natural sciences
Electronic versions: 9789240694897_eng.pdf
Publication: Research - peer-review › Report chapter – Annual report year: 2016

Mixed β-glucanase, cellulase and xylanase from Rasamsonia emersonii

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition , National Institute for Public Health and the Environment, U.S. Food and Drug Administration
Authors: Jeurissen, S. M. F. (Ekstern), Andersen, J. H. (Intern), DiNovi, M. (Ekstern), Mattia, A. (Ekstern), Meyland, I. (Intern), Srinivasan, J. R. (Ekstern)
Pages: 63-72
Publication date: 2016

Host publication information
Title of host publication: Safety evaluation of certain food additives and contaminants
Modeling of pancake frying with non-uniform heating source applied to domestic cookers

The design of domestic cooking stoves is usually optimized by performing time-consuming cooking experiments, often using frying of pancakes as a standard. Simulation of cooking processes may reduce the number of experiments used in the development of the cooking stoves, saving time and resources. In this work we propose a model of contact frying of pancakes in domestic cookers, particularly in induction hobs and radiant cookers, in which the heating of the cooking vessels can be non-uniform. This non-uniformity is unavoidable in practice, but it can be reduced by optimizing the design of the cooker. The proposed model combines heat and mass transfer phenomena, and also includes the correlation between the browning development and the temperature distribution, the local water content and the cooking time. The model has been also validated through experiments using a commercial induction hob and a radiation stove. With this model the color of the cooked pancakes can be predicted, taking into account also uneven heating, and through simulations the design of the cooker can be improved.

General information
State: Published
Organisations: National Food Institute, Research Group for Food Production Engineering, BSH Home Appliances Group, Universidad de Zaragoza
Authors: Sanz-Serrano, F. (Ekstern), Sagues, C. (Ekstern), Feyissa, A. H. (Intern), Adler-Nissen, J. (Intern), Llorente, S. (Ekstern)
Pages: 114-127
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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SJR 1.279 SNIP 1.671
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.71 SJR 1.476 SNIP 1.837
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.475 SNIP 1.858 CiteScore 3.58
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.496 SNIP 1.96 CiteScore 3.44
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.348 SNIP 1.891 CiteScore 3.1
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.36 SNIP 1.978 CiteScore 2.84
ISI indexed (2012): ISI indexed yes
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Modeling of Silver Migration from Polyethylene Nanocomposite Packaging into a Food Model System Using Response Surface Methodology

General information
State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science, Islamic Azad University
Authors: Jokar, M. (Intern), Löschner, K. (Intern), Mohammadi Nafch, A. (Ekstern)
Pages: 96-102
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: International Journal of Food Engineering
Volume: 2
Issue number: 2
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Original language: English
Source: PublicationPreSubmission
Source-ID: 127844591
Publication: Research - peer-review › Journal article – Annual report year: 2016

Modelling and predicting growth of psychrotolerant pseudomonads in milk and cottage cheese
Mathematical models were developed and evaluated for growth of psychrotolerant pseudomonads in chilled milk and in cottage cheese with cultured cream dressing. The mathematical models include the effect of temperature, pH, NaCl, lactic acid and sorbic acid. A simplified cardinal parameter growth rate model was developed based on growth in broth. Subsequently, the reference growth rate parameter $\mu_{ref25^\circ C}$-broth of 1.031/h was calibrated by fitting the model to a total of 35 growth rates from cottage cheese with cultured cream dressing. This resulted in a $\mu_{ref25^\circ C}$-cottage cheese value of 0.621/h. Predictions from both growth rate models were evaluated by comparison with literature and experimental data. Growth of psychrotolerant pseudomonads in heat-treated milk (n=33) resulted in a bias factor (BF) of 1.08 and an accuracy
factor (Af) of 1.32 (μref25°C-broth), whereas growth in cottage cheese with cultured cream dressing and in non-heated milk (n=26) resulted in Bf of 1.08 and Af of 1.43 (μref25°C-cottage cheese). Lag phase models were developed by using relative lag times and data from both the present study and from literature. The acceptable simulation zone method showed the developed models to successfully predict growth of psychrotolerant pseudomonads in milk and cottage cheese at both constant and dynamic temperature storage conditions. The developed models can be used to predict growth of psychrotolerant pseudomonads and shelf life of chilled cottage cheese and milk at constant and dynamic storage temperatures. The applied methodology and the developed models seem likely to be applicable for shelf life assessment of other types of products where psychrotolerant pseudomonads are important for spoilage.

**General information**
State: Published
Organisations: National Food Institute, Research Group for Microbial Food Safety and Quality, Division of Industrial Food Research, Arla Foods
Authors: Martinez Rios, V. (Intern), Østergaard, N. B. (Intern), Gkogka, E. (Ekstern), Rosshaug, P. S. (Intern), Dalgaard, P. (Intern)
Pages: 110-120
Publication date: 2016
Main Research Area: Technical/natural sciences

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Volume: 216
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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SJR 1.366 SNIP 1.436
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.97 SJR 1.481 SNIP 1.553
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.614 SNIP 1.683 CiteScore 4.02
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.493 SNIP 1.695 CiteScore 3.62
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.612 SNIP 1.841 CiteScore 3.8
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.603 SNIP 1.705 CiteScore 3.7
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.607 SNIP 1.713 CiteScore 3.63
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 1.61 SNIP 1.666
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 1.475 SNIP 1.539
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 1.442 SNIP 1.509
Modelling of coupled heat and electric field distribution during ohmic heating of solid foods with varying sizes

Heat treatment is an important process in the manufacturing of a wide range of solid foods. When food products of different sizes (e.g. cooking of shrimps) are processed with the conventional thermal processes, the products are heated unevenly where the small bodies are overcooked and the large bodies are undercooked. Ohmic heating (OH) is one of the novel technologies potentially solving this problem. However, the ability to predict and optimize the resulting temperature profile in solid foods processed by OH rests on a better understanding of the fundamental aspects of OH and of the physical factors leading to variations and uncertainties in prediction of the right process parameters. The current work is focused on modelling of OH of solid food pieces of varying sizes cooked in one batch. A 3D mathematical model of coupled heat transfer and electric field during OH of shrimps has been developed. The mathematical model has been formulated from mechanistic understanding of the process. The resulting coupled model equations were solved using the Finite Element Method (COMSOL Multiphysics® version 4.3b). Experiments were carried out using a newly developed laboratory-scale ohmic heater where the product (shrimps of different sizes) was immersed in the water with (1-2% salt solution). Temperature profiles and current were measured during the experiment and the model has been validated using the experimental data. Good agreement has been achieved between model predictions and the experimental values. The temperature distributions including the cold and hot spots have been predicted inside unpeeled shrimp (that consist of head, meat and other parts). Furthermore the effect of the voltage and salt concentration on the temperature distribution were also investigated. Through the development of this model a better understanding of OH has been obtained. The model can be used for the optimization, upscaling and design of OH of shrimps.
More Nordic adults with an unhealthy diet: 2011 to 2014: Monitoring of diet, physical activity and overweight in the Nordic countries

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition, National Food Agency, University of Oslo, National Institute for Health and Welfare
Authors: Fagt, S. (Intern), Thorgeirsdottir, H. (Ekstern), Barbieri, H. E. (Ekstern), Trolle, E. (Intern), Andersen, L. F. (Ekstern), Borodulin, K. (Ekstern), Matthiessen, J. (Intern)
Number of pages: 1
Publication date: 2016
Main Research Area: Technical/natural sciences
Electronic versions: poster_NNC16_normon_10_juni.pdf
Publication: Research - peer-review › Poster – Annual report year: 2016

Multilevel population genetic analysis of vanA and vanB Enterococcus faecium causing nosocomial outbreaks in 27 countries (1986-2012)

Vancomycin-resistant Enterococcus faecium (VREfm) have been increasingly reported since the 1980s. Despite the high number of published studies about VRE epidemiology, the dynamics and evolvability of these microorganisms are still not fully understood. A multilevel population genetic analysis of VREfm outbreak strains since 1986, representing the first comprehensive characterization of plasmid content in E. faecium, was performed to provide a detailed view of potential transmissible units. From a comprehensive MeSH search, we identified VREfm strains causing hospital outbreaks (1986-2012). In total, 53 VanA and 18 VanB isolates (27 countries, 5 continents) were analysed and 82 vancomycin-susceptible E. faecium (VSEfm) were included for comparison. Clonal relatedness was established by PFGE and MLST (goeBURST/Bayesian Analysis of Population Structure, BAPS). Characterization of van transposons (PCR mapping, RFLP, sequencing), plasmids (transfer, ClaI-RFLP, PCR typing of relaxases, replication-initiation proteins and toxin-antitoxin systems, hybridization, sequencing), bacteriocins and virulence determinants (PCR, hybridization, sequencing) was performed. VREfm were mainly associated with major human lineages ST17, ST18 and ST78. VREfm and VSEfm harboured plasmids of different families [RCR, small theta plasmids, RepA_N (pRUM/pLG1) and Inc18] able to yield mosaic elements. Tn1546-vanA was mainly located on pRUM/Axe-Txe (USA) and Inc18-pIP186 (Europe) plasmids. The VanB2 type (Tn1546-vanA) was predominant among VanB strains (chromosome and plasmids). Both strains and plasmids contributed to the spread and persistence of vancomycin resistance among E. faecium. Horizontal gene transfer events among genetic elements from different clonal lineages (same or different species) result in chimeras with different stability and host range, complicating the surveillance of epidemic plasmids.

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Food Safety
Authors: Freitas, A. R. (Ekstern), Tedim, A. P. (Ekstern), Francia, M. V. (Ekstern), Jensen, L. B. (Intern), Novais, C. (Ekstern), Peixe, L. (Ekstern), Sánchez-Valenzuela, A. (Ekstern), Sundsfjord, A. (Ekstern), Hegstad, K. (Ekstern), Werner, G. (Ekstern), Sadowy, E. (Ekstern), Hammerum, A. M. (Ekstern), Migura, L. G. (Ekstern), Willems, R. J. (Ekstern), Baquero, F. (Ekstern), Coque, T. M. (Ekstern)
Number of pages: 16
Multiple endocrine disrupting effects in rats perinatally exposed to butylparaben

Parabens comprise a group of preservatives commonly added to cosmetics, lotions and other consumer products. Butylparaben has estrogenic and anti-androgenic properties and is known to reduce sperm counts in rats following perinatal exposure. Whether butylparaben exposure can affect other endocrine sensitive endpoints, however, remains largely unknown. In this study, time-mated Wistar rats (n=18) were orally exposed to 0, 10, 100 or 500 mg/kg bw/day of butylparaben from gestation day 7 to pup day 22. Several endocrine-sensitive endpoints were adversely affected. In the two highest dose groups, the anogenital distance of newborn male and female offspring was significantly reduced, and in prepubertal females, ovary weights were reduced and mammary gland outgrowth was increased. In male offspring, sperm count was significantly reduced at all doses from 10 mg/kg bw/day. Testicular CYP19a1 (aromatase) expression was reduced in prepubertal, but not adult animals exposed to butylparaben. In adult testes, Nr5a1 expression was reduced at all doses, indicating persistent disruption of steroidogenesis. Prostate histology was altered at prepuberty and adult prostate weights were reduced in the high dose group. Thus, butylparaben exerted endocrine disrupting effects on both male and female offspring. The observed adverse developmental effect on sperm count at the lowest dose is highly relevant to risk assessment, as this is the lowest observed adverse effect level in a study on perinatal exposure to butylparaben.

General information
State: Published
Organisations: National Food Institute, Research Group for Reproductive Toxicology, Research Group for Molecular Toxicology, Copenhagen Center for Health Technology
Authors: Boberg, J. (Intern), Petersen, M. A. (Intern), Svingen, T. (Intern), Egebjerg, K. M. (Intern), Christiansen, S. (Intern), Vinggaard, A. M. (Intern), Hass, U. (Intern)
Pages: 244-256
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BFI (2017): BFI-level 2
Scopus rating (2017): SJR 1.538 SNIP 1.16
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.88 SJR 1.629 SNIP 1.159
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.681 SNIP 1.224 CiteScore 4.06
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.813 SNIP 1.35 CiteScore 4.24
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
New free Danish online (Q)SAR predictions database with >600,000 substances

Since 2005 the Danish (Q)SAR Database has been freely available on the Internet. It is a tool that allows single chemical substance profiling and screenings based on predicted hazard information. The database is also included in the OECD (Q)SAR Application Toolbox which is used worldwide by regulators and industry. A lot of progress in (Q)SAR model development, application and documentation has been made since the publication in 2005. A new and completely rebuild online (Q)SAR predictions database was therefore published in November 2015 at http://qsar.food.dtu.dk. The number of chemicals in the database has been expanded from 185,000 to >600,000. As far as possible all organic single constituent substances that were pre-registered under REACH have been included in the new structure set. The new Danish (Q)SAR Database includes estimates from more than 200 (Q)SARs covering a wide range of hazardous properties relevant for human health and the environment such as acute toxicity to rat, mouse, fish, daphnia and algae, as well as many physical-chemical and environmental fate properties, skin irritation, sensitization, genotoxicity, cancer, endocrine activity and reproductive toxicity. In agreement with software vendors, (Q)SAR predictions for 600,000 substances from commercial and free software (CASE Ultra, Leadscope PDM, SciQSAR, ACD/Tox Suite and EPI Suite) are included in the database. The database is one of the most comprehensive freely available (Q)SAR tools for substance evaluations and large-scale screenings. The online interface to the database allows for advanced combination of searches as well as sorting functions on chemical similarity. Negotiations are underway with the OECD to integrate the new database with the OECD (Q)SAR Application Toolbox. The database was developed by the DTU National Food Institute in cooperation and with financial support from the Danish Environmental Protection Agency, the Nordic Council of Ministers and the European Chemicals
Non-invasive volume estimation of fish fillets/cutlets using structured light

Non-plastic food contact materials: classification of chemicals using predictive models

Non-targeted screening for contaminants in paper and board food-contact materials using effect-directed analysis and accurate mass spectrometry
be used in P&B packaging for UHPLC-QTOF analysis. Of 75 tentatively identified substances, 15 were initially selected for further testing in vitro; however, only seven were commercially available and subsequently tested in vitro and quantified. Of these seven, the identities of three pigments found in printing inks were confirmed by UHPLC tandem mass spectrometry (QqQ MS/MS). Two pigments had entries in the database, meaning that a material relevant accurate mass database can provide a fast tentative identification. Pure standards of the seven tentatively identified substances were tested in vitro but could not explain a significant proportion of the AhR-response in the extract. Targeted analyses of dioxins and PCBs, both well-known AhR agonists, was performed. However, the dioxins could explain approximately 3% of the activity observed in the pizza box extract indicating that some very AhR active substance(s) still remain to be identified in recycled low quality P&B.

**General information**

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Organisations: National Food Institute, Research Group for Analytical Food Chemistry, Research Group for Food Production Engineering, Research Group for Molecular Toxicology, Fera Science Ltd.
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Scopus rating (2017): SNIP 0.894 SJR 0.74
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.12 SJR 0.796 SNIP 0.95
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.778 SNIP 0.878 CiteScore 2.11
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.764 SNIP 0.978 CiteScore 2.07
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.041 SNIP 1.168 CiteScore 2.55
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
Scopus rating (2012): SJR 0.906 SNIP 1.123 CiteScore 2.12
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
Scopus rating (2011): SJR 0.912 SNIP 1.099 CiteScore 2.06
ISI indexed (2011): ISI indexed no
Scopus rating (2010): SJR 0.816 SNIP 1.029
Web of Science (2010): Indexed yes
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Food Science, Health, Toxicology and Mutagenesis, Public Health, Environmental and Occupational Health, Toxicology, Chemistry (all), aryl hydrocarbon receptor activity, effect-directed analysis, Food packaging, high-resolution mass spectrometry, non-target analysis, paper and board

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Normal weight children have higher cognitive performance – independent of physical activity, sleep, and diet

Background/objectives Aside from the health consequences, observational studies indicate that being overweight may also negatively affect cognitive function. However, existing evidence has to a large extent not controlled for the possible confounding effect of having different lifestyles. Therefore, the objective was to examine the independent associations between weight status and lifestyle indicators with cognitive performance in 8–11 year old Danish children.

Subjects/methods The analyses included 828 children (measured in 2011–2012) each having one to three measurement occasions separated by approximately 100 days. Dietary intake, physical activity, sedentary time, and sleep duration were measured using dietary records and accelerometers. The Children's Sleep Habits Questionnaire was used to assess sleep problems and the Andersen test was carried out to estimate cardio-respiratory fitness (CRF). Weight status (underweight, normal weight, and overweight/obese) was defined according to body mass index and cognitive performance was assessed using the d2-test of attention, a reading test, and a math test. A linear mixed model including a number of fixed and random effects was used to test associations between lifestyle indicators as well as BMI category and cognitive performance. Results After adjustment for demographics, socioeconomics, and multiple lifestyle indicators, normal weight children had higher cognitive test scores than overweight/obese and underweight children of up to 89% and 48% of expected learning within one school year (P < 0.05). Daily breakfast consumption, fewer sleep problems, higher CRF, less total physical activity, more sedentary time, and less light physical activity were associated with higher cognitive performance independently of each other in at least one of the three cognitive tests (P < 0.05). Conclusions Normal weight children had higher cognitive performance compared to overweight/obese as well as underweight children, independent of multiple lifestyle indicators.

General information
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Organisations: National Food Institute, Research Group for Risk-Benefit, University of Copenhagen, Aarhus University
Authors: Hjorth, M. F. (Ekstern), Sørensen, L. B. (Ekstern), Andersen, R. (Intern), Dyssegaard, C. B. (Ekstern), Ritz, C. (Ekstern), Tetens, I. (Intern), Michaelsen, K. F. (Ekstern), Astrup, A. (Ekstern), Egelund, N. (Ekstern), Sjödin, A. (Ekstern)
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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.921 SJR 1.088
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.53 SJR 1.069 SNIP 0.852
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.281 SNIP 0.986 CiteScore 2.92
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.494 SNIP 1.078 CiteScore 3.17
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.486 SNIP 1.102 CiteScore 3.29
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.307 SNIP 1.046 CiteScore 3.25
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.243 SNIP 1.039 CiteScore 3.23
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.289 SNIP 1.048
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.419 SNIP 1.182
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 1.303 SNIP 1.045
Scopus rating (2007): SJR 1.173 SNIP 1.029
Scopus rating (2006): SJR 1.105 SNIP 1.055
Scopus rating (2005): SJR 1.064 SNIP 0.919
Scopus rating (2004): SJR 1.087 SNIP 0.998
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 0.907 SNIP 0.831
Scopus rating (2002): SJR 0.671 SNIP 0.745
Scopus rating (2001): SJR 0.567 SNIP 0.756
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 0.8 SNIP 0.766
Scopus rating (1999): SJR 0.692 SNIP 0.769
Original language: English
Experimental and Cognitive Psychology, Philosophy, Behavioral Neuroscience, Behavior, Cognitive performance, Diet, Overweight, Physical activity, Sleep
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NOTAT: Anvendelse af Monte Carlo simulering til bestemmelse af effekt kriterium for Bacillus cereus for lun opbevaring af varmebehandlede færdigretter

General information
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Organisations: National Food Institute, Research Group for Microbial Food Safety
Authors: Hansen, T. B. (Intern), Møller, C. O. D. A. (Intern)
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NOTAT: Anvendelse af Monte Carlo simulering til bestemmelse af effekt kriterium for Clostridium perfringens for lun opbevaring af varmebehandlede færdigretter

General information
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Organisations: National Food Institute, Research Group for Microbial Food Safety
Authors: Hansen, T. B. (Intern), Møller, C. O. D. A. (Intern)
Number of pages: 4
Publication date: 2016
Nutrient compensation as management tool—Sugar kelp production in sustainable aquaculture

Integrated multi-trophic aquaculture (IMTA) is theoretically a sustainable production form, which minimizes waste products from e.g. fish farms, by the co-production of bivalves or/and seaweed. For the Danish fish farmers the extractive organisms could be the solution for increasing fish production, but do the principles of IMTA fully mitigate the nutrient impact from open net-pen fish production at realistic production scales?

In this project, commercial scale cultivation of sugar kelp (Saccharina latissima) was investigated with regard to operation, yield, biofilter capacity and mapping the biomass composition for one year incl. protein content, amino acid profiles, lipids and fatty acid composition, minerals and vitamins. Results were obtained from an IMTA site and compared to a reference site with no impact from the fish (175 t year−1) and mussel farm, both located just outside Horsens Fjord, Denmark. The nitrogen content in sugar kelp varied between 0.5-3.7% of dw with the highest concentration in September 2013 with an estimated maximum yield of 5.1-7.1 tons ww ha-1 year-1. Potentially, a cultivation area of 204-340 ha would be needed to achieve 100% N recovery, based on the tonnage of the specific fish farm. The harvest contained protein (10%), lipids (3%) and vitamin A (34 mg/kg per dw), however with large seasonal variations. Sugar kelp increased the biodiversity by functioning as hanging reefs, but did not significantly affect the sediment by shading (5% in a scenario of 5 kg/meter dropper rope). During the project a number of improvements of the existing techniques for producing seaweed on suspended line systems were developed, however, further optimization of techniques for deployment, production as well as harvest is needed. This would also allow sugar kelp production as a viable and robust mitigation tool for nitrogen removal and hopefully allow for future expansion of sustainable marine fish production in Denmark.

Obesity Prevention in the Nordic Countries

Previous studies have shown that mean BMI and prevalences of overweight/obesity and obesity have increased over the last decades in the Nordic countries, despite highly regulated societies with a focus on obesity prevention. We review recent overweight/obesity and obesity prevention initiatives within four of the five Nordic countries: Sweden, Denmark, Finland, and Iceland. Moreover, we analyze the current situation based on monitoring data on BMI collected in 2011 and 2014, and obtain overall estimates of overweight/obesity and obesity prevalences for the Nordic Region. Data analysis shows that obesity in adults has increased from 2011 to 2014, while no significant changes were found for children. No significant increases were found for mean BMI and overweight/obesity prevalence. Obesity prevention initiatives among the Nordic countries are highly similar although minor differences are present, which is rooted in transnational Nordic cooperation and comparable societal structures.
On the need for integrating LCA into decision making

The need for sustainable solutions has gained attention both in academia and industry research due to increasing demands of human beings, which are incompatible with limitations in resources availability. Several methods, such as Life Cycle Assessment (LCA), were developed in the past decades to assess the environmental profile of products and services. However, when decision makers have several alternatives at hand to solve a problem, environmental performance is not the only criterion for choosing the best alternative. Other criteria such as risks and economical costs and benefits that are associated with the alternatives will also influence the final choice. Sometimes the most
environmentally sustainable alternative may not be the safest or cheapest one. How to make a balanced decision considering environmental performance together with other criteria is not straightforward.

Decision analysis is broadly used to help decision makers identify the best solution among alternatives. The decision is based on expected utility generation, which incorporates consequences (or impacts) associated with each alternative. Depending on the research field and goal of the study, the included consequences can be e.g. environmental impacts, property damages from natural hazards and/or human health impacts. We examined the current decision analysis practice as it is applied in different research fields. The review shows that generally environmental impacts are considered less often than the other consequences. Meanwhile, LCA has been applied in many research fields to assess a wide range of environmental impacts associated with products or services. There is a huge potential for integrating LCA into other decisions analysis tools to include assessments of the environmental profile of alternatives. This will provide the possibility of systematical inclusion of environmental considerations in the decision making process, thus facilitating a more holistic decision. However, due to different scopes and purposes of LCA and other decision analysis tools, the integration is not straightforward. The lack of consistency in e.g. system boundaries and handling of uncertainty needs to be carefully managed.

General information
State: Published
Organisations: Department of Management Engineering, Quantitative Sustainability Assessment, Department of Civil Engineering, Section for Structural Engineering, Transport DTU, Transport Modelling, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, Department of Environmental Engineering, Urban Water Systems, National Food Institute, Research Group for Genomic Epidemiology
Authors: Dong, Y. (Intern), Miraglia, S. (Intern), Manzo, S. (Intern), Georgiadis, S. (Intern), Sørup, H. J. D. (Intern), Boriani, E. (Intern), Thøns, S. (Intern), Hauschild, M. Z. (Intern)
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http://www.sustain.dtu.dk/

Bibliographical note
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Open Data: maximizing the societal value of research

General information
State: Published
Organisations: National Food Institute, Rector’s office
Authors: Wegener, H. C. (Intern)
Number of pages: 1
Publication date: 2016
Main Research Area: Technical/natural sciences
Electronic versions:
Open_Data_Maximizing_the_societal_value_of_research.PNG

Relations
Activities:
Open Data: Maximizing the societal value of research
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2017

Optical sensors from electrohydrodynamic jetted polymer fiber resonators
Electrohydrodynamic jetting is used to manufacture dye-doped polymer fiber resonators. We present comb-like laser emission from different polymer/dye combinations and report the use of these structures as sensitive detection of ethanol and methanol.

General information
State: Published
Organisations: Department of Micro- and Nanotechnology, Optofluidics, National Food Institute, Research Group for Nano-Bio Science, Center for Nanostructured Graphene, Karlsruhe Institute of Technology KIT
Authors: Laye, F. (Ekstern), Kraemmer, S. (Ekstern), Castillo, A. (Ekstern), Friedrich, F. (Ekstern), Vannahme, C. (Intern), Smith, C. (Intern), Mendes, A. C. L. (Intern), Chronakis, I. S. (Intern), Kristensen, A. (Intern), Lahann, J. (Ekstern), Kalt, H.
Optimistic self-assessments of unhealthy diets are associated with positive indicators of health and health behaviours in Danish adults.

Organic food conversion in Danish public kitchens: The effects of the Danish Organic Action Plan 2020 on organic public procurement and wellbeing at work

Oxidative Stability and Shelf Life of Food Emulsions
Lipid oxidation and antioxidant effects in food emulsions are influenced by many different factors, such as the composition of the aqueous phase and interface, the partitioning of the antioxidants between the different phases of the emulsion
system, the antioxidant properties, and others. This chapter will give an overview of the most important factors influencing lipid oxidation in such systems. This will be followed by a summary of the effects of some of these factors including antioxidant addition in real food emulsions such as mayonnaise, dressing, dairy products, margarine, and spreads.

**General information**

State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application
Authors: Jacobsen, C. (Intern)
Number of pages: 26
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**Host publication information**

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Chapter: 8
Main Research Area: Technical/natural sciences
Chemistry (all), Antioxidants, Dairy emulsions, Dressing, Mayonnaise, Oil-in-water emulsions, Oil-water interface, Partitioning, Spreads, Water-in-oil emulsions
DOIs:
10.1016/B978-1-63067-056-6.00008-2
Source: FindIt
Source-ID: 2304809094
Publication: Research - peer-review › Book chapter – Annual report year: 2016

**Oxidative Stability and Shelf Life of Foods Containing Oils and Fats**

Oxidative Stability and Shelf Life of Foods Containing Oils and Fats focuses on food stability and shelf life, both important factors in the improvement and development of food products. This book, relevant for professionals in the food and pet food industries, presents an evaluation of methods for studies on the oxidative stability and shelf life of bulk oils/fats, fried oils and foods, food emulsions, dried foods, meat and meat products, and seafood in food and pet food. Focuses on the application of various evaluation methods to studies of oxidative stability and shelf life in oils and fats and oils and fats-containing foods in the food and pet food industries. Discusses oxidative stability and shelf life of low-moisture (dry) food, including dry pet food. Discusses lipid co-oxidation with protein because a number of food products contain both lipids and proteins. Directed mainly toward readers working in the food and pet food industries.

**General information**

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Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, DuPont Nutrition and Health
Number of pages: 542
Publication date: 2016

**Publication information**

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ISBN (Print): 9781830670566
Original language: English
Main Research Area: Technical/natural sciences
Source: FindIt
Source-ID: 2304811884
Publication: Research - peer-review › Book – Annual report year: 2016

**Oxidative stability during storage of fish oil from filleting by-products of rainbow trout (Oncorhynchus mykiss) is largely independent of the processing and production temperature**

Rainbow trout (Oncorhynchus mykiss) is the main fish species produced in Danish fresh water farming. Large amounts of filleting by-products like heads, bones, tails (HBT), and intestines are produced when rainbow trout is processed to smoked rainbow trout filets. The filleting by-products can be used to produce high quality fish oil. In this study, the oxidative stability of fish oil produced from filleting by-products was evaluated. The oil was produced from conventional or organic fish (low and high omega-3 fatty acid content) at different temperatures (70 and 90°C). The oxidative stability of the oil was tested during storage at two different temperatures (20 and 40°C). Results showed that omega-3 content of the fish oil influenced the oxidative stability, whereas the processing temperature during oil production played a minor role.

**General information**

State: Published
Oxidative Stability of Granola Bars Enriched with Multilayered Fish Oil Emulsion in the Presence of Novel Brown Seaweed Based Antioxidants

Fucus vesiculosus extracts that have both radical scavenging activity and metal chelating ability in vitro were used as natural antioxidant in granola bars enriched with fish oil emulsion by using primary and secondary emulsion systems stabilized by sodium caseinate alone and sodium caseinate-chitosan. The bars were stored at 20 °C and evaluated over a period of 10 weeks by measuring the development of primary and secondary oxidation products. The samples prepared with secondary emulsion system developed less oxidation products probably due to increased interfacial layer thickness that would act as a barrier to the penetration and diffusion of molecular species that promote oxidation. The positive charge of oil droplets in the secondary emulsion may also inhibit iron-lipid interaction through electrostatic repulsion. Additional protection against lipid oxidation was obtained when fish oil emulsions were added to the granola bars especially in combination with acetone and ethanol extracts of Fucus vesiculosus.

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, TÜBİTAK Marmara Research Center, Arla Foods, Matís ltd.
Number of pages: 10
Pages: 8359-8368
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Agricultural and Food Chemistry
Volume: 64
Issue number: 44
ISSN (Print): 0021-8561
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Web of Science (2018): Indexed yes
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Scopus rating (2017): SNIP 1.343 SJR 1.269
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.45 SJR 1.305 SNIP 1.343
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.224 SNIP 1.245 CiteScore 3.23
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.267 SNIP 1.413 CiteScore 3.25
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.43 SNIP 1.47 CiteScore 3.44
Oxidative Stability of Nano-Microstructures containing fish oil

Electrohydrodynamic processing is a straightforward and versatile encapsulation technique suitable for the production of nano-microstructures (NMS) (e.g. fibers and capsules) containing bioactive compounds. The process is very gentle and does not require the use of heat, avoiding deterioration of thermolabile active compounds such as fish oil. Moreover, encapsulates produced present a decreased size, which allows their incorporation into food systems without affecting product sensory qualities.

In this work, electrohydrodynamic processing and oxidative stability of NMS containing fish oil were investigated. For that purpose, three different biopolymers namely pullulan, dextran and whey protein concentrate (WPC) were evaluated as encapsulating materials. First, the influence of biopolymer concentration on the physical properties (e.g. viscosity,
conductivity and surface tension) of the biopolymer solutions and on the morphology of NMS was assayed. Secondly, the oxidative stability of the biopolymer solutions containing emulsified fish oil during storage (14 days at 40 °C) and of NMS loaded with fish oil (e.g. pullulan fibers and dextran and WPC capsules) was determined. Finally, to improve the oxidative status of the NMS, pullulan fibers, dextran capsules and WPC capsules were produced by adding neat fish oil instead of emulsified fish oil to the biopolymer solutions. These latter NMS presented a higher oxidative stability, which may be due to a better entrapment of the fish oil into biopolymer encapsulates.

**General information**

State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Center for Electron Nanoscopy, Research Group for Nano-Bio Science, Ankara University, IATA-CSIC
Authors: García Moreno, P. J. (Intern), Özdemir, N. (Ekstern), Boutrup Stephansen, K. (Intern), Mateiu, R. V. (Intern), Echegoyen, Y. (Ekstern), M. Lagaron, J. (Ekstern), Chronakis, I. S. (Intern), Jacobsen, C. (Intern)
Number of pages: 1
Publication date: 2016
Event: Abstract from 1st International Symposium on Lipid Oxidation and Antioxidants, Porto, Portugal.
Main Research Area: Technical/natural sciences
Electronic versions:
Abstract.pdf

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Projects:
Oxidative Stability of Nano-Microstructures containing fish oil
Source: PublicationPreSubmission
Source-ID: 124170521
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2016

**Oxidative stability of pullulan nanofibers loaded with fish oil: effect of oil content and antioxidants addition**

Electrospinning processing is a promising technique for the encapsulation of thermolabile bioactive compounds (e.g. fish oil) since it does not require the use of heat. Furthermore, the nano-microfibers (NMF) obtained present a reduced size, which makes them easier to disperse in food matrices compared to traditional encapsulates (e.g. microcapsules produced by spray-drying). Biopolymers such as proteins and polysaccharides are required for the production of food-grade NMF. In this sense, pullulan, which is a food-approved polysaccharide, is an interesting encapsulating material due to its high electrospinnability and low oxygen permeability.

In light of the above, the aim of this work was to investigate the oxidative stability of omega-3 enriched pullulan NMF. First, the influence of fish oil content (10-20-30 %) on the properties of the electrospinning solutions (e.g. viscosity, conductivity and surface tension) as well as on the morphology of NFM and oxidative stability of NMF during storage (20 days at 20 °C and relative humidity of 33%) was studied. Secondly, the effect on the oxidative stability of the NMS of incorporating hydrophilic antioxidants (e.g. EDTA) to pullulan solutions and/or lipophilic antioxidants (e.g. tocopherols) to fish oil was evaluated. Preliminary results show that neat fish oil can be incorporated into pullulan NMS by adding 30% Tween20 (by weight to respect to fish oil content), leading to NMS not containing antioxidants with a peroxide value lower that 20 meq O2/kg oil at day 0.

**General information**

State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Research Group for Nano-Bio Science
Authors: García Moreno, P. J. (Intern), Damberg, C. (Ekstern), Stephansen, K. (Ekstern), Chronakis, I. S. (Intern), Jacobsen, C. (Intern)
Number of pages: 1
Publication date: 2016
Main Research Area: Technical/natural sciences
Electronic versions:
Abstract_3.pdf

**Relations**
Projects:
Oxidative stability of pullulan nanofibers loaded with fish oil: effect of oil content and antioxidants addition
Source: PublicationPreSubmission
Source-ID: 126531506
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2016
Parity and 11-Year Serum Thyrotropin and Thyroid Autoantibody Change: A Longitudinal Population-Based Study: A longitudinal population-based study

A role for female reproductive factors in the pathogenesis of thyroid autoimmunity has been suggested. This study investigated the prospective association between parity, abortion, use of oral contraceptive pill (OCP), and use of hormone replacement therapy (HRT), and 11-year change in serum thyrotropin (TSH), as well as change in thyroid peroxidase autoantibody (TPOAb) status. A random sample of 4649 people aged 18-65 years participated in a population-based study in the period 1997-1998. In the study presented here, 1749 non-pregnant women with no history of thyroid disease were included who participated in the 11-year follow-up examination in the period 2008-2010. Gynecological exposures were reported in a self-administered questionnaire at baseline and follow-up. TSH and TPOAb were measured at baseline and follow-up. Increased TPOAb status during follow-up was defined as a TPOAb below the assay cutoff (}
Scopus rating (2006): SJR 0.728 SNIP 0.959
Scopus rating (2005): SJR 0.814 SNIP 1.179
Scopus rating (2004): SJR 0.872 SNIP 1.148
Scopus rating (2003): SJR 0.762 SNIP 1.142
Scopus rating (2002): SJR 0.681 SNIP 1.097
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 0.75 SNIP 1.189
Scopus rating (2000): SJR 0.494 SNIP 0.948
Scopus rating (1999): SJR 0.595 SNIP 0.927
Original language: English
DOIs:
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Source: FindIt
Source-ID: 2290052563
Publication: Research - peer-review › Journal article – Annual report year: 2016

Peelability and quality changes during ice maturation of shrimp (Pandalus borealis)

General information
State: Published
Organisations: National Food Institute, Research Group for Food Production Engineering, University of Copenhagen, Royal Greenland A/S, Launis A/S
Authors: Gringer, N. (Intern), Skytte, J. L. (Intern), Dang, T. T. (Ekstern), Olsen, K. (Ekstern), Bøknæs, N. (Ekstern), Schlippe-Steffensen, K. (Ekstern), Orlien, V. (Ekstern), Jessen, F. (Intern)
Number of pages: 1
Publication date: 2016
Event: Poster session presented at 46th conference of the West European Fish Technologists' Association (46th WEFTA), Split, Croatia.
Main Research Area: Technical/natural sciences
Electronic versions:
Poster_til_WEFTA_2016_nina.pdf
Source: PublicationPreSubmission
Source-ID: 127391882
Publication: Research - peer-review › Poster – Annual report year: 2016

Perfluorononanoic acid in combination with 14 chemicals exerts low-dose mixture effects in rats
Humans are simultaneously exposed to several chemicals that act jointly to induce mixture effects. At doses close to or higher than no-observed adverse effect levels, chemicals usually act additively in experimental studies. However, we are lacking knowledge on the importance of exposure to complex real-world mixtures at more relevant human exposure levels.
We hypothesised that adverse mixture effects occur at doses approaching high-end human exposure levels. A mixture (Mix) of 14 chemicals at a combined dose of 2.5 mg/kg bw/day was tested in combination with perfluorononanoic acid (PFNA) at doses of 0.0125 (Low PFNA), 0.25 (Mid PFNA) and 5 (High PFNA) mg/kg bw/day by oral administration for 14 days in juvenile male rats. Indication of a toxicokinetic interaction was found, as simultaneous exposure to PFNA and the Mix caused a 2.8-fold increase in plasma PFNA concentrations at Low PFNA. An increase in testosterone and dihydrotestosterone plasma concentrations was observed for Low PFNA + Mix. This effect was considered non-monotonic, as higher doses did not cause this effect. Reduced LH plasma concentrations together with increased androgen concentrations indicate a disturbed pituitary-testis axis caused by the 15-chemical mixture. Low PFNA by itself increased the corticosterone plasma concentration, an effect which was normalised after simultaneous exposure to Mix. This combined with affected ACTH plasma concentrations and down-regulation of 11β HSD mRNA in livers indicates a disturbed pituitary-adrenal axis. In conclusion, our data suggest that mixtures of environmental chemicals at doses approaching high-end human exposure levels can cause a hormonal imbalance and disturb steroid hormones and their regulation. These effects may be non-monotonic and were observed at low doses. Whether this reflects a more general phenomenon that should be taken into consideration when predicting human mixture effects or represents a rarer phenomenon remains to be shown.

General information
State: Published
Organisations: National Food Institute, Division of Toxicology and Risk Assessment, Division of Food Chemistry
Pages: 661-675
Perinatal exposure to mixtures of endocrine disrupting chemicals reduces female rat follicle reserves and accelerates reproductive aging

Exposure to endocrine disrupting chemicals (EDCs) during development can have negative consequences later in life. In this study we investigated the effect of perinatal exposure to mixtures of human relevant EDCs on the female reproductive system. Rat dams were exposed to a mixture of phthalates, pesticides, UV-filters, bisphenol A, butyl-paraben, as well as paracetamol. The compounds were tested together (Totalmix) or in subgroups with anti-androgenic (AAmix) or estrogenic (Emix) potentials. Paracetamol was tested separately. In pre-pubertal rats, a significant reduction in primordial follicle numbers was seen in AAmix and PM groups, and reduced plasma levels of prolactin was seen in AAmix. In one-year-old animals, the incidence of irregular estrous cycles was higher after Totalmix-exposure and reduced ovary weights were seen in Totalmix, AAmix, and PM groups. These findings resemble premature ovarian insufficiency in humans, and raises concern regarding potential effects of mixtures of EDCs on female reproductive function.

General information
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Organisations: National Food Institute, Research Group for Molecular Toxicology, Research Group for Reproductive Toxicology
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Main Research Area: Technical/natural sciences

Publication information
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BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 0.761 SJR 0.846
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 2.92 SJR 1.078 SNIP 1.001
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.229 SNIP 1.102 CiteScore 3.36
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.274 SNIP 1.101 CiteScore 3.28
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.036 SNIP 1.061 CiteScore 2.91
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.198 SNIP 1.088 CiteScore 3.28
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.138 SNIP 1.231 CiteScore 3.15
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Perturbation of neonatal microbial gut community by peripartum antibiotics in wistar rats lead to decreased weight gain

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology, Technical University of Denmark
Authors: Tulstrup, M. V. (Intern), Bahl, M. I. (Intern), Roager, H. M. (Intern), Licht, T. R. (Intern), Clement Thaarup, I. (Ekstern)
Pages: 39-39
Publication date: 2016

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Article number: P12
Main Research Area: Technical/natural sciences
Conference: Danish Microbiological Society Annual Congress 2016, Copenhagen, Denmark, 14/11/2016 - 14/11/2016
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Programme & Abstracts book
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2016

Perturbation of Neonatal Microbial Gut Community by Peripartum Antibiotics in Wistar Rats Lead to Decreased Weight Gain

Cross talk between a mammalian host and its intestinal microbiota plays a role in immune mediated diseases such as allergies, asthma, type 1 diabetes, as well as in obesity and auto immune diseases. Over the past decades, a significant increase of these diseases in young children in the developed world has been documented. In Western countries the pattern of initial colonization of the gut during the first days of life has changed dramatically. Among factors potentially modulating initial colonization, the use of antibiotics is particularly important. Antibiotics are frequently administered orally to either mothers or young children to treat or prevent bacterial infections not necessarily related to the gastrointestinal system. This has adverse effects on the commensal gut microbial community, as it disrupts the intricate balance between
specific bacterial groups within this ecosystem, potentially leading to dysbiosis.

We hypothesized that modulation of community composition and function induced by peripartum antibiotics affects intestinal microbial composition and general health of the offspring. To address this, 33 pregnant Wistar rats were dosed by oral gavage with either amoxicillin (AMX), vancomycin (VAN) or water (CON) daily from 8 days before delivery until weaning of the offspring. Significant lower weight gain of the offspring of antibiotic treated dams compared to the control were observed. The antibiotic treated dams had significantly larger caecum size and higher caecal pH as well as spleen size than control animals. Offspring were dissected at different time points and significant changes in liver, spleen and epididymal fat were measured between groups. Composition of the gut microbiota, alpha diversity, caecum short chain fatty acid levels, caloric contents of faeces, bile salt levels, acute phase protein haptoglobin in blood, social and locomotive behavior as well as gene expression of tight junction proteins are currently being analyzed.
Phenotypic and genetic characteristics associated with Listeria monocytogenes food chain isolates displaying enhanced and diminished cold tolerance

The potentially fatal human pathogen Listeria monocytogenes (Lm) is most recognized for its ability to contaminate foods and grow during refrigerated storage. Given the importance of preventing Lm from reaching dangerous levels in food, little is known about the genetic and physiological differences between strains with varied cold tolerance. The objective of this study was to determine if Lm isolates with enhanced cold tolerance, exhibit other high risk characteristics that may add to their survival and/or pathogenicity. To accomplish this, 166 predominantly food/food plant Lm isolates were tested in brainheart infusion broth, for their ability to tolerate cold (4°C), salt (6% NaCl, 25°C), acid (pH 5, 25°C), and desiccation (33% RH, 20°C) stress. Isolates were considered tolerant or sensitive if they exhibited survival characteristics > or < than the mean±1SD. Remaining isolates were classified as intermediate. Draft whole genome sequencing was performed to elucidate potential genotype/phenotype correlations. Evidence for several overlapping geno- and phenotypes were observed. Notably, isolates with a wildtype invasion gene, inlA (n=119), had faster (p=<0.000) growth rates at 4°C than strains with a truncated version (n=47). Cold tolerant isolates were more likely to be tolerant to the other three stresses than intermediate and cold sensitive isolates. Similarly, cold sensitive isolates were more likely to be sensitive to the other stresses. Cold tolerant isolates had shorter (p=0.012) lag phases in salt than cold sensitive isolates, and a positive correlation (p=0.002, r=0.239) existed between growth rates of isolates under salt and acid stress. A whole genome single-nucleotide-variants (SNVs) phylogeny revealed closely related cold tolerant and sensitive isolates, suggesting that minor genetic differences (ie. SNVs), are likely responsible for phenotypic differences. This study highlights that Lm isolates displaying high risk factors exist in food processing environments, and emphasizes a need for more research regarding the evolution of these strains.

Phthalates in soft PVC products used in food production equipment and in other food contact materials on the Danish and the Nordic Market 2013-2014

Background

Food contact materials (FCM) containing phthalates can be a source of food contamination when used in plastics for food production equipment, in utensils for food contact and in packaging. Since 2008 several of the phthalates used for FCM were regulated in the EU; some of them because they were well-known endocrine disruptors. Results of the Danish Food Authorities control in 2008 and 2009 showed 23 % non-compliant samples. Critical FCMs turned out to be those made from plasticised PVC and sold as suitable for contact with fatty foodstuffs. Targeted follow up control campaigns were therefore arranged by the Danish food authorities (latest in 2013) and by the Nordic food authorities in a common campaign in 2014.

Findings

FCM plastics were analysed for phthalate content and when needed additionally tested for migration of phthalates according to the declared area of use with respect to food type, contact temperature and time in contact with food. In both recent control campaigns about 1/3 of the samples analysed exceeded the current maximum limits for phthalates (especially DBP and DEHP) in plastics or showed migration into the fatty food simulant above the specific migration limits. Critical sample types were conveyor belts, hoses and gloves.
Conclusions
Legal limits for phthalates were exceeded in many of the samples analysed in recent tests, including a large proportion of conveyor belts and gloves. The proportion of non-compliant conveyor belts, hoses and gaskets was lower in 2013 and 2014 than in 2008-2009, whereas the proportion of non-compliant gloves increased.

Phylloquinone content from wild green vegetables may contribute substantially to dietary intake
Background: Traditional Nordic eatable wild plants are now sold in local stores and available to everyone. Wild vegetables may contain large amounts of vitamin K1. Due to the concomitant therapeutic use of anticoagulants among the populations, it is important to gain knowledge about the content of vitamin K1 in these products, as well as their contribution to the diet. The objective of this study was to measure the vitamin K1 content in four wild edible plants and to estimate how much these wild vegetables contribute to the daily dietary vitamin K1 intake. Results: The wild vegetables had a high phylloquinone content of 400-600 μg vitamin K1/100 g fresh weight. The average daily intake when consuming the average Danish diet is low (64 ±20 μg/d or 72±23 μg/10 MJ/d), however, inclusion of wild vegetables as in the New Nordic Diet increases the vitamin K1 intake to 233±51 μg/d or 260±50 μg/10 MJ/d. Conclusion: Inclusion of more wild vegetables may substantially increase the intake of vitamin K, which could pose a risk for people treated with vitamin K antagonists (VKAs), but may be beneficial for the remaining population.
Physical and Oxidative Stability of Fish Oil-In-Water Emulsions Stabilized with Fish Protein Hydrolysates

The emulsifying and antioxidant properties of fish protein hydrolysates (FPH) for the physical and oxidative stabilization of 5% (by weight) fish oil-in-water emulsions were investigated. Muscle proteins from sardine (Sardina pilchardus) and small-spotted catshark (Scyliorhinus canicula) were hydrolyzed to degrees of hydrolysis (DH) of 3-4-5-6% with subtilisin. Sardine hydrolysates with low DH, 3% and 4%, presented the most effective peptides to physically stabilize emulsions with smaller droplet size. This implied more protein adsorbed at the interface to act as physical barrier against prooxidants. This fact might also be responsible for the higher oxidative stability of these emulsions, as shown by their lowest peroxide value and concentration of volatiles such as 1-penten-3-one and 1-penten-3-ol. Among the hydrolysates prepared from small-spotted catshark only the hydrolysate with DH 3% yielded a physically stable emulsion with low concentration of unsaturated aldehydes. These results show the potential of FPH as alternative protein emulsifiers for the production of oxidatively stable fish oil-in-water emulsions.

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Research Group for Nano-Bio Science, University of Granada
Authors: García Moreno, P. J. (Intern), Guadix, A. (Ekstern), Guadix, E. M. (Ekstern), Jacobsen, C. (Intern)
Pages: 124-135
Publication date: 2016
Main Research Area: Technical/natural sciences

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ISSN (Print): 0308-8146
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BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 2.109 SJR 1.793
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 4.85 SJR 1.731 SNIP 2.095
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.582 SNIP 1.946 CiteScore 4.31
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.557 SNIP 2.01 CiteScore 3.92
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.554 SNIP 2.056 CiteScore 3.87
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.762 SNIP 2.342 CiteScore 3.98
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.911 SNIP 2.383 CiteScore 4.17
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
Physiologically Based Toxicokinetic Models of Tebuconazole and Application in Human Risk Assessment

A series of physiologically based toxicokinetic (PBTK) models for tebuconazole were developed in four species, rat, rabbit, rhesus monkey, and human. The developed models were analyzed with respect to the application of the models in higher tier human risk assessment, and the prospect of using such models in risk assessment of cumulative and aggregate exposure is discussed. Relatively simple and biologically sound models were developed using available experimental data as parameters for describing the physiology of the species, as well as the absorption, distribution, metabolism, and elimination (ADME) of tebuconazole. The developed models were validated on in vivo half-life data for rabbit with good results, and on plasma and tissue concentration-time course data of tebuconazole after i.v. administration in rabbit. In most cases, the predicted concentration levels were seen to be within a factor of 2 compared to the experimental data, which is the threshold set for the use of PBTK simulation results in risk assessment. An exception to this was seen for one of the target organs, namely, the liver, for which tebuconazole concentration was significantly underestimated, a trend also seen in model simulations for the liver after other nonoral exposure scenarios. Possible reasons for this are discussed in the article. Realistic dietary and dermal exposure scenarios were derived based on available exposure estimates, and the human version of the PBTK model was used to simulate the internal levels of tebuconazole and metabolites in the human body for these scenarios. By a variant of the models where the R(-)- and S(+) -enantiomers were treated as two components in a binary mixture, it was illustrated that the inhibition between the two tebuconazole enantiomers did not affect the simulation results for these realistic exposure scenarios. The developed models have potential as an important tool in risk assessment.

General information
State: Published
Organisations: National Food Institute, Research Group for Molecular Toxicology, Division of Risk Assessment and Nutrition
Authors: Jonsdottir, S. O. (Intern), Reffstrup, T. K. (Intern), Petersen, A. (Intern), Nielsen, E. (Intern)
Pages: 715-734
Publication date: 2016
Pilot scale land-based cultivation of Saccharina latissima Linnaeus at southern European climate conditions: Growth and nutrient uptake at high temperatures

Saccharina latissima is a cold water seaweed species with commercial potential. The northern Portuguese coast is the southern distribution limit of the species, where some dispersed populations can be found. S. latissima has been identified as being a potential candidate for monoculture or as part of integrated multi-trophic aquaculture (IMTA) systems, presenting good results considering both growth and biofiltration performance. In the present work, the cultivation of S. latissima in a pilot land-based system was performed in order to assess the efficiency of two different methods: tumbling in the water column vs attached to fixed ropes at the bottom of the tank. S. latissima cultivated in tumble culture presented the best results, reaching growth rates of 10.6 ± 0.9% day−1 and 0.9 ± 0.1 cm day−1, with a weekly yield around 120 g DW m−2. Cultivation using this method was continued over the summer, for assessment of S. latissima growth at warmer temperatures. Average weekly yield ranged between 44.7 and 146.3 (average 110) g DW m−2 from April to mid-May; from mid-May to mid-July a high variability was observed, when some negative values indicating biomass loss were obtained and from mid-July onwards, average weekly yield ranged between 36.7 and 78.3 g DW m−2. These results showed that tank cultivation of S. latissima in tumble culture was possible throughout the summer, withstanding average temperatures around 20 °C from May onwards, well above published optimum temperatures for this species. This fact may be explained by their origin in populations located near the southern distribution boundary, which may have acquired adaptations that increased tolerance to high temperatures. Cultivation of S. latissima using tumble culture in outdoor tanks at southern latitudes appears to be feasible even during high temperature periods. Densities around 8 kg m−3 were effective in keeping epiphytes development low. This system may be used for seaweed monoculture or as a biofilter component of IMTA systems.

General information
State: Published
Organisations: National Food Institute, University of Porto
Authors: Azevedo, I. C. (Ekstern), Silva Marinho, G. (Intern), Silva, D. M. (Ekstern), Sousa-Pinto, I. (Ekstern)
Pages: 166-172
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Aquaculture
Volume: 459
ISSN (Print): 0044-8486
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 1.58 SJR 1.152
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 2.75 SJR 1.122 SNIP 1.51
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.107 SNIP 1.256 CiteScore 2.12
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.01 SNIP 1.33 CiteScore 2.16
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.151 SNIP 1.293 CiteScore 2.18
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.222 SNIP 1.485 CiteScore 2.32
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.281 SNIP 1.536 CiteScore 2.39
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.161 SNIP 1.39
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.949 SNIP 1.27
Web of Science (2009): Indexed yes
Scopus rating (2008): SJR 0.917 SNIP 1.165
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.033 SNIP 1.315
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.021 SNIP 1.695
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 0.937 SNIP 1.238
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 1.072 SNIP 1.626
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 1.151 SNIP 1.909
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 0.969 SNIP 1.458
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 1.062 SNIP 1.319
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 0.981 SNIP 1.114
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 1.073 SNIP 1.24
Original language: English
Saccharina latissima, Seaweed, Land-based cultivation, High-temperature tolerance, Tumbling cultivation
DOIs:
10.1016/j.aquaculture.2016.03.038
Source: FindIt
Source-ID: 2303096237
Publication: Research - peer-review › Journal article – Annual report year: 2016

Plantebaserede kosttilskud – et kvalitativt studie af årsager, motiver og viden

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition
Authors: Nielsen, M. M. (Intern), Fagt, S. (Intern), Trolle, E. (Intern), Sørensen, M. R. (Intern)
Number of pages: 53
Publication date: 2016

Publication information
Place of publication: Søborg
Publisher: DTU Fødevareinstituttet
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Original language: Danish
Main Research Area: Technical/natural sciences
Electronic versions:
Rapport_Plantebaserede_kosttilskud_FINAL.pdf
Publication: Research - peer-review › Report – Annual report year: 2016
Polymers are increasingly applied for the enrichment of hydrophobic organic chemicals (HOCs) from various types of samples and media in many analytical partitioning-based measuring techniques. We propose using polymers as a reference partitioning phase and introduce polymer-polymer partitioning as the basis for a deeper insight into partitioning differences of HOCs between polymers, calibrating analytical methods, and consistency checking of existing and calculation of new partition coefficients. Polymer-polymer partition coefficients were determined for polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and organochlorine pesticides (OCPs) by equilibrating 13 silicones, including polydimethylsiloxane (PDMS) and low-density polyethylene (LDPE) in methanol-water solutions. Methanol as cosolvent ensured that all polymers reached equilibrium while its effect on the polymers’ properties did not significantly affect silicone-silicone partition coefficients. However, we noticed minor cosolvent effects on determined polymer-polymer partition coefficients. Polymer-polymer partition coefficients near unity confirmed identical absorption capacities of several PDMS materials, whereas larger deviations from unity were indicated within the group of silicones and between silicones and LDPE. Uncertainty in polymer volume due to imprecise coating thickness or the presence of fillers was identified as the source of error for partition coefficients. New polymer-based (LDPE-lipid, PDMS-air) and multimedia partition coefficients (lipid-water, air-water) were calculated by applying the new concept of a polymer as reference partitioning phase and by using polymer-polymer partition coefficients as conversion factors. The present study encourages the use of polymer-polymer partition coefficients, recognizing that polymers can serve as a linking third phase for a quantitative understanding of equilibrium partitioning of HOCs between any two phases.
Polyvinyl alcohol (PVA) – polyethylene glycol (PEG) graft copolymer

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition, U.S. Food and Drug Administration, National Institute for Public Health and the Environment
Authors: Jeurissen, S. M. F. (Ekstern), Andersen, J. H. (Intern), DiNovi, M. (Ekstern), Folmer, D. E. (Ekstern), Schlatter, J. (Ekstern), Wallin, H. (Ekstern)
Pages: 88–106
Publication date: 2016

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Title of host publication: Safety evaluation of certain food additives and contaminants
Publisher: World Health Organization
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ISBN (Electronic): 9789240694897
Series: WHO FOOD ADDITIVES SERIES
Number: 71
ISSN: 0300-0923
Main Research Area: Technical/natural sciences
Electronic versions:
9789240694897_eng.pdf

Population Genetic Structure of Listeria monocytogenes Strains as Determined by Pulsed-Field Gel Electrophoresis and Multilocus Sequence Typing

Listeria monocytogenes is a ubiquitous bacterium that may cause the foodborne illness listeriosis. Only a small amount of data about the population genetic structure of strains isolated from food is available. This study aimed to provide an accurate view of the L. monocytogenes food strain population in France. From 1999 to 2014, 1,894 L. monocytogenes strains were isolated from food at the French National Reference Laboratory for L. monocytogenes and classified according to the five risk food matrices defined by the European Food Safety Authority (EFSA). A total of 396 strains were selected on the basis of different pulsed-field gel electrophoresis (PFGE) clusters, serotypes, and strain origins and typed by multilocus sequence typing (MLST), and the MLST results were supplemented with MLST data available from Institut Pasteur, representing human and additional food strains from France. The distribution of sequence types (STs) was compared between food and clinical strains on a panel of 675 strains. High congruence between PFGE and MLST was found. Out of 73 PFGE clusters, the two most prevalent corresponded to ST9 and ST121. Using original statistical analysis, we demonstrated that (i) there was not a clear association between ST9 and ST121 and the food matrices, (ii) serotype IIC, ST8, and ST4 were associated with meat products, and (iii) ST13 was associated with dairy products. Of the two major STs, ST121 was the ST that included the fewest clinical strains, which might indicate lower virulence. This observation may be directly relevant for refining risk analysis models for the better management of food safety. This study showed a very useful backward compatibility between PFGE and MLST for surveillance. The results enabled better understanding of the population structure of L. monocytogenes strains isolated from food and management of the health
risks associated with L. monocytogenes food strains. Moreover, this work provided an accurate view of L. monocytogenes strain populations associated with specific food matrices. We clearly showed that some STs were associated with food matrices, such as meat, meat products, and dairy products. We opened the way to source attribution modeling in order to quantify the relative importance of the main food matrices.

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, University Paris-Est Anses
Authors: Henri, C. (Ekstern), Félix, B. (Ekstern), Guillier, L. (Ekstern), Leekitcharoenphon, P. (Intern), Michelon, D. (Ekstern), Mariet, J. (Ekstern), Aarestrup, F. M. (Intern), Mistou, M. (Ekstern), Hendriksen, R. S. (Intern), Roussel, S. (Ekstern)
Number of pages: 9
Pages: 5720-5728
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Applied and Environmental Microbiology
Volume: 82
Issue number: 18
ISSN (Print): 0099-2240
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2016): CiteScore 4.08
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.891 SNIP 1.308 CiteScore 4.14
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.857 SNIP 1.384 CiteScore 4.02
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.899 SNIP 1.414 CiteScore 4.25
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.975 SNIP 1.429 CiteScore 4.29
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.914 SNIP 1.455 CiteScore 4.12
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 1.887 SNIP 1.436
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 1.972 SNIP 1.528
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 2.156 SNIP 1.572
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 2.043 SNIP 1.647
Potential seaweed-based food ingredients to inhibit lipid oxidation in fish-oil-enriched mayonnaise

Brown seaweed Fucus vesiculosus has a high potential as a source of natural antioxidants due to a high diversity of bioactive compounds in its composition. In this study, four extracts were characterized with respect to composition of bioactive compounds, in vitro antioxidant properties and their partitioning between water and octanol. Additionally, the antioxidant activity of the extracts was evaluated in a fish-oil-enriched mayonnaise. Acetone and ethanol were found to extract the highest amount of phenolic compounds and carotenoids. Water used as extraction solvent, extracted some phenolic compounds but also higher amount of metals and chlorophyll derivates. It was proposed that extracts with high phenolic content and low iron content, such as the acetone and ethanol extract, would have the highest potential as antioxidants in foods. This was confirmed in the storage trial, where these extracts showed higher antioxidant activity.

General information
State: Published
Organisations: National Food Institute, Division of Industrial Food Research, Research Group for Bioactives – Analysis and Application, Matís ltd.
Pages: 571-584
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: European Food Research and Technology
Volume: 242
Issue number: 4
ISSN (Print): 1438-2377
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.846 SJR 0.737
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): SJR 0.763 SNIP 0.881 CiteScore 1.81
Web of Science (2016): Indexed yes
Predicting outgrowth and inactivation of Clostridium perfringens in meat products during low temperature long time heat treatment

With low temperature long time (LTLT) cooking it can take hours for meat to reach a final core temperature above 53 °C and germination followed by growth of Clostridium perfringens is a concern. Available and new growth data in meats including 154 lag times (tlag), 224 maximum specific growth rates (μmax) and 25 maximum population densities (Nmax) were used to develop a model to predict growth of C. perfringens during the coming-up time of LTLT cooking. New data were generated in 26 challenge tests with chicken (pH 6.8) and pork (pH 5.6) at two different slowly increasing temperature...
(SIT) profiles (10 °C to 53 °C) followed by 53 °C in up to 30 h in total. Three inoculum types were studied including vegetative cells, non-heated spores and heat activated (75 °C, 20 min) spores of C. perfringens strain 790-94. Concentrations of vegetative cells in chicken increased 2 to 3 log CFU/g during the SIT profiles. Similar results were found for non-heated and heated spores in chicken, whereas in pork C. perfringens 790-94 increased less than 1 log CFU/g. At 53 °C C. perfringens 790-94 was log-linearly inactivated. Observed and predicted concentrations of C. perfringens, at the time when 53 °C (log(N53)) was reached, were used to evaluate the new growth model and three available predictive models previously published for C. perfringens growth during cooling rather than during SIT profiles. Model performance was evaluated by using mean deviation (MD), mean absolute deviation (MAD) and the acceptable simulation zone (ASZ) approach with a zone of ± 0.5 log CFU/g. The new model showed best performance with MD = 0.27 log CFU/g, MAD = 0.66 log CFU/g and ASZ = 67%. The two growth models that performed best, were used together with a log-linear inactivation model and D53-values from the present study to simulate the behaviour of C. perfringens under the fast and slow SIT profiles investigated in the present study. Observed and predicted concentrations were compared using a new fail-safe acceptable zone (FSAZ) method. FSAZ was defined as the predicted concentration of C. perfringens plus 0.5 log CFU/g. If at least 85% of the observed log-counts were below the FSAZ, the model was considered fail-safe. The two models showed similar performance but none of them performed satisfactorily for all conditions. It is recommended to use the models without a lag phase until more precise lag time models become available.

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Food Safety and Quality, Research Group for Diagnostic Engineering, University of Copenhagen
Authors: Duan, Z. (Intern), Hansen, T. H. (Ekstern), Hansen, T. B. (Intern), Dalgaard, P. (Intern), Knøchel, S. (Ekstern)
Number of pages: 13
Pages: 45-57
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: International Journal of Food Microbiology
Volume: 230
ISSN (Print): 0168-1605
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SJR 1.366 SNIP 1.436
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.97 SJR 1.481 SNIP 1.553
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.614 SNIP 1.683 CiteScore 4.02
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.493 SNIP 1.695 CiteScore 3.62
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.612 SNIP 1.841 CiteScore 3.8
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.603 SNIP 1.705 CiteScore 3.7
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.607 SNIP 1.713 CiteScore 3.63
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Fail-safe acceptable zone (FSAZ) approach, Low temperature cooking, Slowly increasing temperature (SIT), Food Science, Microbiology, Safety, Risk, Reliability and Quality, absorption lag time, animal experiment, bacterial spore, behavior, chicken, Clostridium perfringens, cooking, cooling, growth rate, heat treatment, inoculation, loglinear model, low temperature, meat, nonhuman, population density, pork, provocation test

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Source: FindIt
Source-ID: 2303382201
Publication: Research - peer-review › Journal article – Annual report year: 2016

**Predictive food microbiology**

**General information**
State: Published
Organisations: National Food Institute, Research Group for Microbial Food Safety and Quality
Authors: Hansen, T. B. (Intern)
Number of pages: 18
Publication date: 2016

**Publication information**
Media of output: Powerpoint
Original language: English
Publisher: DTU Fødevareinstituttet, Danmarks Tekniske Universitet
Main Research Area: Technical/natural sciences
Electronic versions:
predictive_micro_041215_Tina_Beck.pdf
Publication: Education › Sound/Visual production (digital) – Annual report year: 2016

**Production and characterization of ice cream with high content in oleic and linoleic fatty acids**
Ice creams produced with unsaturated fats rich in oleic (OO, 70.7% of oleic) and linoleic (LO, 49.0% of linoleic) fatty acids, were compared to ice cream based on saturated coconut oil (CO, 50% of lauric acid). The globule size distribution of OO mix during aging (72h at 4°C) followed a similar trend to CO mix, being stable after 48h; whereas LO mix destabilized after 24h. CO mix showed higher destabilization during ice cream production, but no significant differences among fats
were observed in the particle size of the ice cream produced. The overrun was also lower for OO and LO ice creams (34.19 and 27.12%, respectively) compared to CO based ice cream (45.06%). However, an improved melting behavior, which gradually decreased from 88.69% for CO to 66.09% for LO ice cream, was observed.

**General information**

State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science, Research Group for Bioactives – Analysis and Application, University of Granada
Authors: Marín-Suárez, M. (Ekstern), García Moreno, P. J. (Intern), Padial-Domínguez, M. (Ekstern), Guadix, E. M. (Ekstern)

**Number of pages:** 7
**Pages:** 1846–1852
**Publication date:** 2016

**Main Research Area:** Technical/natural sciences

**Publication information**

**Journal:** European Journal of Lipid Science and Technology
**Volume:** 118
**Issue number:** 12
**ISSN (Print):** 1438-7697

**Ratings:**
- BFI (2018): BFI-level 1
- Web of Science (2018): Indexed yes
- BFI (2017): BFI-level 1
- Scopus rating (2017): SNIP 1.05 SJR 0.776
- Web of Science (2017): Indexed yes
- BFI (2016): BFI-level 1
- Scopus rating (2016): CiteScore 2.06 SJR 0.712 SNIP 1.042
- Web of Science (2016): Indexed yes
- BFI (2015): BFI-level 1
- Scopus rating (2015): SJR 0.643 SNIP 0.878 CiteScore 1.85
- Web of Science (2015): Indexed yes
- BFI (2014): BFI-level 1
- Scopus rating (2014): SJR 0.742 SNIP 1.052 CiteScore 1.98
- BFI (2013): BFI-level 1
- Scopus rating (2013): SJR 0.863 SNIP 1.122 CiteScore 2.16
- ISI indexed (2013): ISI indexed yes
- Web of Science (2013): Indexed yes
- BFI (2012): BFI-level 1
- Scopus rating (2012): SJR 0.864 SNIP 1.221 CiteScore 2.06
- ISI indexed (2012): ISI indexed yes
- Web of Science (2012): Indexed yes
- BFI (2011): BFI-level 1
- Scopus rating (2011): SJR 0.742 SNIP 0.94 CiteScore 1.75
- ISI indexed (2011): ISI indexed yes
- Web of Science (2011): Indexed yes
- BFI (2010): BFI-level 1
- Scopus rating (2010): SJR 0.799 SNIP 1.05
- Web of Science (2010): Indexed yes
- BFI (2009): BFI-level 1
- Scopus rating (2009): SJR 0.84 SNIP 1.07
- Web of Science (2009): Indexed yes
- BFI (2008): BFI-level 1
- Scopus rating (2008): SJR 0.612 SNIP 0.855
- Web of Science (2008): Indexed yes
- Scopus rating (2007): SJR 0.607 SNIP 0.801
- Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 0.715 SNIP 0.962
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 0.684 SNIP 1.002
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 0.599 SNIP 0.96
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 0.48 SNIP 0.751
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 0.793 SNIP 0.68
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 0.33 SNIP 0.646
Web of Science (2001): Indexed yes
Web of Science (2000): Indexed yes
Original language: English
Ice cream, Linoleic acid, Oleic acid, Meltdown, Particle size, Viscosity
DOIs:
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Source: FindIt
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Publication: Research - peer-review › Journal article – Annual report year: 2016

Protein changes in shell and epidermis of shrimp (Pandalus borealis) after maturation on ice or in salt

General information
State: Published
Organisations: National Food Institute, Research Group for Food Production Engineering, University of Copenhagen, Launis A/S, Royal Greenland A/S
Authors: Gringer, N. (Intern), Thi Dang, T. (Ekstern), Olsen, K. (Ekstern), Bøknæs, N. (Ekstern), Schlippe-Steffensen, K. (Ekstern), Orlien, V. (Ekstern), Jessen, F. (Intern)
Number of pages: 1
Publication date: 2016
Event: Poster session presented at 46th conference of the West European Fish Technologists' Association (46th WEFTA), Split, Croatia.
Main Research Area: Technical/natural sciences
Electronic versions:
FLJ_WEFTA_2016_poster_final.pdf
Source: PublicationPreSubmission
Source-ID: 127374678
Publication: Research - peer-review › Poster – Annual report year: 2016

Protein-free cress seed (Lepidium sativum) gum: Physicochemical characterization and rheological properties
Protein-free cress seed gum (PFCSG) was obtained by precipitation of crude cress seed gum (CSG) with ethanol followed by treatment with protease. Molecular weight, moisture, ash and uronic acids content decreased after elimination of protein. Elimination of protein improved significantly rheological properties and thermal stability of cress seed gum. Mechanical spectra of the CSG and PFCSG were classified as weak gels and PFCSG showed stronger and more elastic network structure. The gum dispersions exhibited strong shear-thinning behavior which was described satisfactorily by the Herschel-Bulkley and Moore models. Protein-free cress seed gum had higher apparent and intrinsic viscosities than the crude gum. CSG indicated lower hysteresis loop area, but degree of structural recovery of the samples showed no significant difference. The main decomposition of PFCSG started above 213 °C with two peaks (at 261.72 °C and 306.58 °C) and initial decomposition temperature of CSG was 190.21 °C with one peak at 258.28 °C. DSC results coincided with those observed by thermogravimetric analysis. Enzyme treatment lowered the surface activity of CSG.

General information
State: Published
Organisations: National Food Institute, Research Group for Food Production Engineering, Department of Chemical and Biochemical Engineering, Center for BioProcess Engineering, Ferdowsi University of Mashhad, Tarbiat Modares University
Authors: Razmkhah, S. (Ekstern), Razavi, S. M. A. (Ekstern), Mohammadifar, M. A. (Intern), Ale, M. T. (Intern), Ahmadi Gavlighi, H. (Ekstern)
Pages: 14-24
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Carbohydrate Polymers
Volume: 153
ISSN (Print): 0144-8617
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.733 SJR 1.428
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 5.15 SJR 1.419 SNIP 1.75
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.44 SNIP 1.819 CiteScore 4.86
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.587 SNIP 1.955 CiteScore 4.69
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.346 SNIP 1.945 CiteScore 4.39
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.394 SNIP 2.025 CiteScore 3.93
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.291 SNIP 1.974 CiteScore 4.08
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.37 SNIP 1.79
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.426 SNIP 1.707
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 1.137 SNIP 1.499
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.889 SNIP 1.373
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 0.827 SNIP 1.429
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 0.819 SNIP 1.334
Scopus rating (2004): SJR 0.903 SNIP 1.532
Scopus rating (2003): SJR 0.931 SNIP 1.402
Scopus rating (2002): SJR 0.806 SNIP 1.359
Scopus rating (2001): SJR 0.827 SNIP 1.05
Scopus rating (2000): SJR 0.756 SNIP 1.073
Scopus rating (1999): SJR 0.752 SNIP 1.051
Original language: English
Hydrocolloid, Rheology, Shear thinning, Sugar analysis, Thermal stability, Thixotropy
DOIs:
Proteolysis of camel milk by lactic acid bacteria

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, University of Copenhagen
Authors: Witt, S. P. (Intern), Lametsch, R. (Ekstern), Hansen, E. B. (Intern)
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Article number: P10
Main Research Area: Technical/natural sciences
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Purification of cress seed (Lepidium sativum) gum: A comprehensive rheological study
In this paper, the effects of different purification methods (ethanol (sample E), isopropanol (sample I) and ethanol-isopropanol (sample EI)) on intrinsic viscosity, steady and dynamic rheological properties of cress seed gum were investigated. The gum dispersions exhibited viscoelastic properties, the storage modulus (G') was higher than the loss modulus (G''), and mechanical spectra of the crude and purified cress seed gums were classified as weak gels. The purified samples had stronger and more elastic network structure than the crude gum (CSG) and the gel network got stronger along the series of I, EI and E. All the gum dispersions indicated shear-thinning behavior and the viscosity of the samples followed the order of E > EI > I > CSG. Herschel-Bulkley model was the best model to describe steady shear flow behavior and Arrhenius-type model was also applied to describe the effect of temperature. Crude cress seed gum and EI showed the highest and the lowest activation energy, respectively. The crude and purified gums indicated thixotropic behavior and CSG exhibited the lowest hysteresis loop area and the highest structural recovery. All the samples revealed random coil conformation in dilute regimes, and chain flexibility and intrinsic viscosity enhanced after purification. Intrinsic viscosity of the purified samples increased along the series of I, EI and E.

General information
State: Published
Organisations: National Food Institute, Research Group for Food Production Engineering, Ferdowsi University of Mashhad
Authors: Razmkhah, S. (Ekstern), Razavi, S. M. A. (Ekstern), Mohammadifar, M. A. (Intern)
Pages: 358-368
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Main Research Area: Technical/natural sciences

Publication information
Journal: Food Hydrocolloids
Volume: 61
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Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 1.892 SJR 1.991
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 5.1 SJR 2.03 SNIP 2.045
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.802 SNIP 1.924 CiteScore 4.53
Quantitative Microbiological Risk Assessment and Source Attribution for Salmonella: Taking it Further

General information
State: Published
Authors: Snary, E. L. (Ekstern), Swart, A. N. (Ekstern), Hald, T. (Intern)
Number of pages: 4
Pages: 433-436
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Risk Analysis
Volume: 36
Issue number: 3
Quantitative proteomics suggests metabolic reprogramming during ETHE1 deficiency

Deficiency of mitochondrial sulfur dioxygenase (ETHE1) causes the severe metabolic disorder ethylmalonic encephalopathy, which is characterized by early-onset encephalopathy and defective cytochrome C oxidase because of hydrogen sulfide accumulation. Although the severe systemic consequences of the disorder are becoming clear, the molecular effects are not well defined. Therefore, for further elucidating the effects of ETHE1-deficiency, we performed a
large scale quantitative proteomics study on liver tissue from ETHE1-deficient mice. Our results demonstrated a clear link between ETHE1-deficiency and redox active proteins, as reflected by down-regulation of several proteins related to oxidation-reduction, such as different dehydrogenases and cytochrome P450 (CYP450) members. Furthermore, the protein data indicated impact of the ETHE1-deficiency on metabolic reprogramming through up-regulation of glycolytic enzymes and by altering several heterogeneous ribonucleoproteins (hnRNPs), indicating novel link between ETHE1 and gene expression regulation. We also found increase in total protein acetylation level, pointing out the link between ETB1 and acetylation, which is likely controlled by both redox state and cellular metabolites. These findings are relevant for understanding the complexity of the disease and may shed light on important functions influenced by ETHE1 deficiency and by the concomitant increase in the gaseous mediator hydrogen sulfide.
Recent breakthroughs have unveiled the many knowledge gaps in Clostridium perfringens-associated necrotic enteritis in chickens: the first International Conference on Necrotic Enteritis in Poultry

General information
State: Published
Organisations: National Veterinary Institute, Section for Bacteriology, Pathology and Parasitology, National Food Institute, Ghent University, University of Guelph
Authors: Van Immerseel, F. (Ekstern), Lyhs, U. (Intern), Pedersen, K. (Intern), Prescott, J. F. (Ekstern)
Number of pages: 2
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Publication date: 2016
Main Research Area: Technical/natural sciences

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Journal: Avian Pathology
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Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.047 SJR 0.871
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): SJR 0.637 SNIP 0.768 CiteScore 1.46
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.882 SNIP 0.934 CiteScore 1.55
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.037 SNIP 1.237 CiteScore 1.79
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.067 SNIP 1.282 CiteScore 2.07
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
Recipient Determinants Affecting Conjugational Promiscuity in Enterobacteriaceae

Den globale udvikling og hurtige spredning af antibiotika resistens anses for at være et stigende problem i vores samfund, og en stor trussel for det menneskelige helbred. Det seneste slående eksempel er observationen af plasmid-båret kolistin resistens, som i Danmark blev fundet i en Escherichia coli bakterie som kun var modtagelig for meget få klasser af antibiotika. I dette tilfælde ville optaget af yderligere resistens efterlade et meget begrænset omfang af mulige behandlingsmetoder. Det er derfor af yderste vigtighed at vi tilegner os yderligere viden indenfor de mekanismer som kontrollerer spredningen af antibiotika resistens. Plasmider er et af de mobile elementer kan udveksle DNA mellem bakterier, og er en udbredt mægler i spredningen af antibiotika resistens fra en donor til en recipient.

deres betydning i udviklingen af bakterier. Yderligere har studiet indikeret at der findes gener hos modtageren af DNA, som kan kontrollere overførslen. Ph.d. studiet efterlader store muligheder for at finde gener der er involveret i optaget af plasmider og antibiotika resistens.

**General information**
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology
Authors: Roer, L. (Intern), Aarestrup, F. M. (Intern), Hasman, H. (Intern)
Number of pages: 55
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Original language: English
Main Research Area: Technical/natural sciences
Electronic versions: LouiseRoer_PhD_Thesis.pdf
Publication: Research › Ph.D. thesis – Annual report year: 2016

**Reduction of sodium content in spicy soups using monosodium glutamate**

Background: Excessive dietary sodium intake causes several diseases, such as hypertension, cardiovascular and renal disease, etc. Hence, reducing sodium intake has been highly recommended. In this study the effect of monosodium glutamate (MSG), as an umami substance, on saltiness and sodium reduction was investigated.

Methods and Results: The trained panellists were presented with basic spicy soups (curry chicken and chili chicken) containing different amounts of sodium chloride (NaCl) (0-1.2%) and MSG (0-1.2%). They tasted the optimum concentrations of NaCl and MSG for the two spicy soups and the overall acceptability were 0.8% and 0.7%, respectively. There was no significant effect of spiciness level on the saltiness and umami taste of both soups. The optimum levels of combined NaCl and MSG for overall acceptance in the chili and curry soups were 0.3% and 0.7%, respectively. The results showed that with the addition of MSG, it is possible to reduce sodium intake without changing the overall acceptability of the spicy soup. A 32.5% reduction in sodium level is made feasible by adding 0.7% MSG to the spicy soups.

Conclusions: This study suggests that low-sodium soups can be developed by the addition of appropriate amounts of MSG, while maintaining the acceptability of the spicy soups. It was also proven that it is feasible to reduce sodium intake by replacing NaCl with MSG.

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State: Published
Organisations: National Food Institute, Research Group for Analytical Food Chemistry, Universiti Putra Malaysia
Authors: Jinap, S. (Ekstern), Hajeb, P. (Intern), Karim, R. (Ekstern), Norliana, S. (Ekstern), Yibadatihan, S. (Ekstern), Abdul-Kadir, R. (Ekstern)
Number of pages: 7
Publication date: 2016
Main Research Area: Technical/natural sciences

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Article number: 30463
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Ratings:
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BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.779 SJR 0.823
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.24 SJR 0.906 SNIP 0.768
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.024 SNIP 0.911 CiteScore 2.19
BFI (2014): BFI-level 1
Relative validity of a web-based food frequency questionnaire for patients with type 1 and type 2 diabetes in Denmark

Diet has an important role in the management of diabetes. However, little is known about dietary intake in Danish diabetes patients. A food frequency questionnaire (FFQ) focusing on most relevant nutrients in diabetes including carbohydrates, dietary fibres and simple sugars was developed and validated. To examine the relative validity of nutrients calculated by a web-based food frequency questionnaire for patients with diabetes. The FFQ was validated against a 4-day pre-coded food diary (FD). Intakes of nutrients were calculated. Means of intake were compared and cross-classifications of individuals according to intake were performed. To assess the agreement between the two methods, Pearson and Spearman’s correlation coefficients and weighted kappa coefficients were calculated. Ninety patients (64 with type 1 diabetes and 26 with type 2 diabetes) accepted to participate in the study. Twenty-six were excluded from the final study population. 64 volunteer diabetes patients at the Steno Diabetes Center. Intakes of carbohydrates, simple sugars, dietary fibres and total energy were higher according to the FFQ compared with the FD. However, intakes of nutrients were grossly classified in the same or adjacent quartiles with an average of 82% of the selected nutrients when comparing the two methods. In general, moderate agreement between the two methods was found. The FFQ was validated for assessment of a range of nutrients. Comparing the intakes of selected nutrients (carbohydrates, dietary fibres and simple sugars), patients were classified correctly according to low and high intakes. The FFQ is a reliable dietary assessment tool to use in research and evaluation of patient education for patients with diabetes.

General information
State: Published
Organisations: National Food Institute, Research Group for Risk-Benefit, Division of Risk Assessment and Nutrition, Steno Diabetes Centre
Authors: Bentzen, S. M. R. (Ekstern), Knudsen, V. K. (Intern), Christensen, T. (Intern), Ewers, B. (Ekstern)
Number of pages: 6
Publication date: 2016
Relevance of microbial finished product testing in food safety management

Management of microbiological food safety is largely based on good design of processes, products and procedures. Finished product testing may be considered as a control measure at the end of the production process. However, testing gives only very limited information on the safety status of a food. If a hazardous organism is found it means something, but absence in a limited number of samples is no guarantee of safety of a whole production batch. Finished product testing is often too little and too late. Therefore most attention should be focussed on management and control of the hazards in a more pro-active way by implementing an effective food safety management system. For verification activities in a food safety management system, finished product testing may however be useful. For three cases studies; canned food, chocolate and cooked ham, the relevance of testing both of finished products and the production environment is discussed. Since the level of control of different processes can be largely different it is beneficial if the frequency of sampling of finished products and production environments would be related to the associated human health risk, which can be assessed on the basis of risk assessment and epidemiological data.

General information

State: Published
Organisations: National Food Institute, Research Group for Risk-Benefit, Wageningen IMARES, Ghent University, L'Université Nantes Angers Le Mans, Nestle
Authors: Zwietering, M. H. (Ekstern), Jacxsens, L. (Ekstern), Membré, J. M. (Ekstern), Nauta, M. (Intern), Peterz, M. (Ekstern)
Number of pages: 13
Pages: 31-43
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information

Journal: Food Control
Volume: 60
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Ratings:
Reproducibility of a web-based FFQ for 13- to 15-year-old Danish adolescents

FFQ are widely used in large-scale studies to assess dietary intake. To aid interpretation of diet-disease associations assessment of validity must be performed. Reproducibility is one aspect of validity focusing on the stability of repeated assessment with the same method which may also reveal problems in instrument design or participant instructions. The aim of the present study was to evaluate the reproducibility of a web-based FFQ targeting Danish adolescents within the Danish National Birth Cohort (DNBC). Data for the present study were obtained from a prospective design nested within the DNBC. Adolescents aged 13 to 15 years old (n 48, 60 % girls) completed the FFQ twice 4 weeks apart. The proportion of adolescents consistently classified into the same tertile according to amount of food intake ranged from 45 % (fish) to 77 % (vegetables), whereas classification into opposite tertiles ranged from 0 % (fruit, oils and dressing) to 15 % (beverages). Overall, no significant differences were observed in intake of food groups or nutrients between the two completions of the FFQ. Mean crude Spearman correlation for all food groups was 0·56 and mean intra-class correlation for all food groups was 0·61. In conclusion, the reproducibility of the FFQ for Danish adolescents was acceptable. The study revealed that adolescents aged 13-15 years seemed capable of recalling consistently overall dietary habits and had some difficulties estimating the frequency of consumption of regularly consumed food items.

General information
State: Published
Organisations: National Food Institute, Research Group for Risk-Benefit, Statens Serum Institut
Authors: Bjerregaard, A. A. (Ekstern), Tetens, I. (Intern), Olsen, S. F. (Ekstern), Halldorsson, T. I. (Ekstern)
Number of pages: 7
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Nutritional Science
Volume: 5
Article number: e5
ISSN (Print): 2048-6790
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.822 SJR 0.984
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 0.72 SJR 0.62 SNIP 0.545
Web of Science (2016): Indexed yes
Scopus rating (2015): SNIP 0.376 SJR 0.381
Web of Science (2015): Indexed yes
Scopus rating (2014): SNIP 0.521 SJR 0.204
Scopus rating (2013): SNIP 0.224 SJR 0.246
ISI indexed (2013): ISI indexed no
Original language: English
Adolescents, Dietary assessment, FFQ, GDM, gestational diabetes mellitus, ICC, intra-class correlation coefficient, Reproducibility, Web-based FFQ


We live in an age that increasingly calls for national or regional management of global risks. This article discusses the contributions that expert elicitation can bring to efforts to manage global risks and identifies challenges faced in conducting expert elicitation at this scale. In doing so it draws on lessons learned from conducting an expert elicitation as part of the World Health Organizations (WHO) initiative to estimate the global burden of foodborne disease; a study commissioned by the Foodborne Disease Epidemiology Reference Group (FERG). Expert elicitation is designed to fill gaps in data and...
research using structured, transparent methods. Such gaps are a significant challenge for global risk modeling. Experience with the WHO FERG expert elicitation shows that it is feasible to conduct an expert elicitation at a global scale, but that challenges do arise, including: defining an informative, yet feasible geographical structure for the elicitation; defining what constitutes expertise in a global setting; structuring international, multidisciplinary expert panels; and managing demands on experts’ time in the elicitation. This article was written as part of a workshop, Methods for Research Synthesis: A Cross-Disciplinary Approach held at the Harvard Center for Risk Analysis on October 13, 2013.
Robustness of a cross contamination model describing transfer of pathogens during grinding of meat

This study aimed to evaluate a cross contamination model for its capability of describing transfer of Salmonella spp. and L. monocytogenes during grinding of varying sizes and numbers of pieces of meats in two grinder systems. Data from 19 trials were collected. Three evaluation approaches were applied: i) Acceptable Simulation Zone method compared observed with simulated transfer, ii) each trial was fitted and parameters were integrated in a Quantitative Microbiological Risk Assessment model, iii) the Total Transfer Potential was calculated from fitted parameters. Risk estimates revealed that grinding was influenced by sharpness of grinder knife, specific grinder and grinding temperature.

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State: Published
Organisations: National Food Institute, Research Group for Risk-Benefit, Research Group for Microbial Food Safety, Universidade de Sao Paulo, University of Campinas
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Journal: Procedia Food Science
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Microbial transfer, Foodborne pathogens, Model assessment, Risk, Meat processing
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Source: PublicationPreSubmission
Source-ID: 125364707
Publication: Research - peer-review › Conference article – Annual report year: 2016

Safety assessment of chemically defined flavouring substances

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition, European Food Safety Authority, National Institute for Public Health and the Environment
Safety of UV-treated milk as a novel food pursuant to Regulation (EC) No 258/97

Following a request from the European Commission, the EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA) was asked to deliver an opinion on UV-treated milk as a novel food submitted pursuant to Regulation (EC) No 258/97, taking into account the comments and objections of a scientific nature raised by Member States. The novel food is cow’s milk (whole, semi-skimmed or skimmed) to which a treatment with ultraviolet (UV) radiation is applied after pasteurisation in order to extend the shelf life of the milk. This treatment results in an increase in the vitamin D3 concentrations. The Panel considers that the provided compositional data, the specifications and the data from batch testing do not give rise to safety concerns. The data provided on the production process are sufficient and do not give rise to safety concerns. The target group is the general population with the exclusion of infants (up to 1 year of age). The Panel considers that it is unlikely that tolerable upper intake levels established by EFSA for children aged 1–10 years, adolescents and adults will be exceeded. The Panel considers that the novel food is not nutritionally disadvantageous. The data provided do not give rise to concerns with regard to the microbiological quality. The Panel considers that the risk of allergic reactions to the novel food is not dissimilar to that associated with conventional milk. The Panel concludes that the novel food, UV-treated milk, is safe under the intended conditions of use as specified by the applicant.

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Authors: EFSA Journal
Number of pages: 14
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Source-ID: 134853578
Publication: Commissioned › Report – Annual report year: 2017

Salted herring brine as a coating or additive for herring (Clupea harengus) products — A source of natural antioxidants?
The objective of this study was to characterise herring brine and assess its use as natural antioxidant in herring preservation. Herring brines from different marinated products (brine from fillet-ripened spice-cured herring SC, traditional barrel-salted spice-cured herring TSp and brine from traditional barrel-salted herring TSA) were used without any pre-treatment or with a previous pH adjustment, and tested either as coating agents (glazing) for frozen herring or additives in fresh mince herring, in order to prevent oxidation.

TSA and TSp were the most effective glazing agents, retarding lipid oxidation. Brines tested as additive retarded lipid and protein oxidation in a similar trend than herring mince containing salt and/or protein. SC brine was more efficient against lipid and protein oxidation when compared to the other tested brines.
Using protein fractions isolated from herring marinating brines as glazing or additive seems feasible for preventing oxidation of both frozen and fresh herring.
Saltindhold i brød og morgenmadscerealier

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition
Authors: Trolle, E. (Intern), Saxholt, E. (Intern), Knuthsen, P. (Intern)
Number of pages: 5
Pages: 1-5
Publication date: 2016
Main Research Area: Technical/natural sciences

Sample-based reporting of official national control of veterinary drug residues
Data collection is an essential prerequisite for assessing compliance of chemical residues in food and for risk assessment. The present system for collecting aggregated data of residues of veterinary medicinal products and other substances in animals and animal products has limitations for risk assessment as well as risk management. The European Food Safety Authority has been assigned with the task to set up a system for data collection based on individual analytical results. A pilot project has been launched with participants from eleven Member States for parallel reporting of monitoring results from 2015 in aggregated form as well as individual analytical results using a standardised data model. The challenges that face the pilot participants include provisions for categorised sample information, specific method performance data, result evaluation and follow-up actions. Experience gained through the reporting of monitoring data from Denmark will be presented.

Scientific opinion of Flavouring Group Evaluation 205 Revision 1 (FGE.205Rev1): consideration of genotoxicity data on representatives for 13 α,β-unsaturated aliphatic ketones with terminal double bonds and precursors from chemical subgroup 1.2.2 of FGE.19
The EFSA Panel on Food Contact Materials, Enzymes, Flavourings and Processing Aids (CEF Panel) was requested to consider in the Flavouring Group Evaluation 205 (FGE.205), the additional data on genotoxicity submitted by the Industry on two representative substances, oct-1-en-3-one [FL-no: 07.081] and pent-1-en-3-one [FL-no: 07.102], from subgroup 1.2.2 of FGE.19. The Panel concluded that both substances were weakly genotoxic in bacteria with pent-1-en-3-one being the most potent (previously available data). In these assays, the representative substances were highly cytotoxic with a steep toxicity curve and with a very narrow concentration range resulting in mutagenicity. Both substances were also
tested in mammalian cells for gene mutations at the hprt locus and for structural and numerical chromosomal aberrations in the micronucleus assay. Also in mammalian cells, the test substances were highly cytotoxic. The Panel considered that the positive effects in the bacterial mutagenicity assays of the two representative substances cannot be overruled by the one negative and one equivocal gene mutation test in mammalian cells. Therefore, the Panel recommended to test the most potent of the representative substances, pent-1-en-3-one, in an in vivo Comet assay on the first site of contact (e.g. the stomach or duodenum) and on the liver. The Industry has now submitted new data, a combined micronucleus and Comet assay for pent-1-en-3-one, with scoring in the liver and duodenum, and an Ames test and a Comet assay with scoring in the liver for oct-1-en-3-one. Based on these new data, the Panel concluded that the concern for a genotoxic potential could be ruled out for the two representative substances and accordingly for the remaining 11 substances in FGE.205Rev1. The 13 substances in FGE.205Rev1 can therefore be evaluated via the Procedure.

Scientific Opinion on erucic acid in feed and food
Erucic acid is the trivial name of the fatty acid cis-13-docosenoic acid and occurs at high concentrations mainly in the seeds of species of the Brassicaceae (e.g. rape seed or mustard seed). The European Commission requested EFSA to deliver a scientific opinion on the risks for animal and human health related to the presence of erucic acid in feed and food. For most humans, the main contributor to dietary exposure to erucic acid was the food group ‘Fine bakery wares’. In ‘Infants’, ‘Food for infants and small children’ was the main contributor to exposure. The heart is the principal target organ for toxic effects after exposure. Myocardial lipidosis was identified as the critical effect for chronic exposure to erucic acid. This effect is reversible and transient during prolonged exposure. A tolerable daily intake (TDI) of 7 mg/kg body weight (bw) per day for erucic acid was established, based on a no observed adverse effect level of 0.7 g/kg bw per day for lipidosis in young rats and newborn piglets. Mean chronic exposure of the different groups of the population did not exceed the TDI. The 95th percentile dietary exposure level was highest in infants and other children, ranging from 1.3 to 7.4 mg/kg bw per day; the higher level being at the level of the TDI. This may indicate a risk for young individuals with high erucic acid exposure. In pigs, levels of erucic acid are unlikely to represent a health concern. However, for poultry, the small margin between the lowest observed adverse effect level (LOAEL) and the estimated exposure may indicate a health risk where maximum inclusion rates are applied. Due to the absence of adequate data, the risk for ruminants, horses, fish and rabbits could not be assessed.
Scientific opinion on the acute health risks related to the presence of cyanogenic glycosides in raw apricot kernels and products derived from raw apricot kernels

Amygdalin is the major cyanogenic glycoside present in apricot kernels and is degraded to cyanide by chewing or grinding. Cyanide is of high acute toxicity in humans. The lethal dose is reported to be 0.5–3.5 mg/kg body weight (bw). An acute reference dose (ARfD) of 20 μg/kg bw was derived from an exposure of 0.105 mg/kg bw associated with a non-toxic blood cyanide level of 20 micro mol (µM), and applying an uncertainty factor of 1.5 to account for toxicokinetic and of 3.16 to account for toxicodynamic inter-individual differences. In the absence of consumption data and thus using highest intakes of kernels promoted (10 and 60 kernels/day for the general population and cancer patients, respectively), exposures exceeded the ARfD 17–413 and 3–71 times in toddlers and adults, respectively. The estimated maximum quantity of apricot kernels (or raw apricot material) that can be consumed without exceeding the ARfD is 0.06 and 0.37 g in toddlers and adults, respectively. Thus the ARfD would be exceeded already by consumption of one small kernel in toddlers, while adults could consume three small kernels. However, consumption of less than half of a large kernel could already exceed the ARfD in adults.

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Authors: EFSA Publication
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Number: 4424
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Source: PublicationPreSubmission
Source-ID: 124370847
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Scientific opinion on the risks for human health related to the presence of 3-and 2-monochloropropanediol (MCPD), and their fatty acid esters, and glycidyl fatty acid esters in food
EFSA was asked to deliver a scientific opinion on free and esterified 3- and 2-monochloropropane-1, 2-diol (MCPD) and glycidyl esters in food. Esters of 3- and 2-MCPD and glycidol are contaminants of processed vegetable oils; free MCPDs
are formed in some processed foods. The Panel on Contaminants in the Food Chain (CONTAM Panel) evaluated 7,175 occurrence data. Esters of 3- and 2-MCPD and glycidyl esters were found at the highest levels in palm oil/fat, but most vegetable oil/fats contain substantial quantities. Mean middle bound (MB) dietary exposure values to total 3-MCPD, 2-MCPD and glycidol, respectively, across surveys and age groups in μg/kg body weight (bw) per day were 0.2–1.5, 0.1–0.7 and 0.1–0.9; high exposure (P95) values were 0.3–2.6, 0.2–1.2 and 0.2–2.1. Animal studies show extensive hydrolysis of esterified 3-MCPD and glycidol following oral administration; esterified and free forms were assumed to contribute equally to internal exposures. Nephrotoxicity was consistently observed in rats treated with 3-MCPD. Data on 2-MCPD toxicity were insufficient for dose–response assessments. Chronic treatment with glycidol increased the incidence of tumours in several tissues of rats and mice, likely via a genotoxic mode of action. The Panel selected a BMDL10 value for 3-MCPD of 0.077 mg/kg bw per day for induction of renal tubular hyperplasia in rats and derived a tolerable daily intake (TDI) of 0.8 μg/kg bw per day. The mean exposure to 3-MCPD was above the TDI for 'Infants', 'Toddlers' and 'Other children'. For glycidol, the Panel selected a T25 value of 10.2 mg/kg bw per day for neoplastic effects in rats. The margins of exposure (MoEs) were 11,300–102,000 and 4,900–51,000 across surveys and age groups at mean and P95 exposures, respectively. An exposure scenario for infants receiving formula only resulted in MoEs of 5,500 (mean) and 2,100 (P95). MoEs of 25,000 or higher were considered of low health concern.

**General information**

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**Scientific opinion on the safety of synthetic L-ergothioneine (Ergoneine®) as a novel food pursuant to Regulation (EC) No 258/97**

Following a request from the European Commission, the EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA) was asked to deliver a scientific opinion on synthetic L-ergothioneine, marketed as Ergoneine®, as a novel food submitted pursuant to Regulation (EC) No 258/97 of the European Parliament and of the Council. The novel food, synthetic L-ergothioneine, is produced by a one-pot patented manufacturing process. Chemically, L-ergothioneine is a derivative of thiolhistidine, and it is naturally present in a number of foodstuffs such as mushrooms, some varieties of black and red beans, offal and cereals. The production process for the novel food is sufficiently described and does not raise concerns about the safety of the novel food. The information on the composition, specifications, batch-to-batch variability and stability of the novel food is sufficient and does not raise safety concerns. The applicant intends to use the novel food in quantities of up to 5 mg per serving in alcohol-free beverages, cereal bars, milk, fresh dairy products and chocolate. The applicant also proposes to provide the novel food as a food supplement, with a daily dose of up to 30 mg/day for adults and 20 mg/day for children. The target population is children above 3 years of age and the general adult population, except pregnant and breastfeeding women. Considering the NOAEL of 800 mg/kg bw per day, which was based on two subchronic toxicity studies in rats, and the maximum estimated intake levels for L-ergothioneine from all sources, the Panel concludes that the margins of safety of 470 for adults (except pregnant and breastfeeding women) and of 216 for children above 3 years of age are sufficient. The Panel concludes that the novel food, synthetic L-ergothioneine (marketed as Ergoneine®), is safe under the intended conditions of use as specified by the applicant.
Seasonal variations of antioxidants in the brown seaweed *Saccharina latissima*

Mainly the brown seaweeds are known for their high antioxidative capacity within the specific compounds such as phlorotannins, polyphenols, flavonoids, pigments, and these natural antioxidants are of high industrial interest. Previous studies have shown large seasonal variations in biomass composition. The aim of this study was to see if there was a seasonal variation in the antioxidant content of sugar kelp (*Saccharina latissima*), compare two cultivation sites, REF and IMTA, and test different solvents applied for extractions, methanol or ethyl acetate. Rope cultivated sugar kelp were sampled both in close proximity to a blue mussel and fish farm (IMTA) and at a reference/control site (REF), both outside Horsens fjord in Denmark. Sugar kelp biomass was measured (n=3) at 2 m depth in 2013-2014, and freeze dried and stored frozen for further analyses. In relation to the extraction, two solvents with different polarities were applied. Methanol was generally a better solvent for extracting the more polar compounds i.e. phenolics, whereas ethyl acetate tended more efficient for flavonoid extraction. There was no significant variation in the TAC between the two cultivation sites, ranging between 1,531-5,135 μg GA/g DW, and with no clear pattern of seasonal variation. Within the phenolic content no significant difference was seen (258- 3,594 μg GA/g DW), and for IMTA the flavonoid concentration for September 2013 (4,830±1,048 μg rutin/g DW) was significantly higher than the other months. The biological variability had a high impact revealed by large standard deviation. The pigment specimens did not change during the year, however the concentration did, and with fucoxanthin as the most interesting. No clear correlation was found between pigments and the antioxidants. This study showed high concentration of antioxidant in sugar kelp and in 100 times higher range than e.g. microalgae. However, the large variations should be taken into account when aiming for industrial use.
Selenium status and risk of prostate cancer in a Danish population
Low-Se status may be associated with a higher risk of notably advanced prostate cancer. In a Danish population with a relatively low Se intake, we investigated the association between pre-diagnostic Se status and (1) the risk of total, advanced and high-grade prostate cancer and (2) all-cause and prostate cancer-specific mortality among men with prostate cancer. Within the Danish ‘Diet, Cancer and Health’ cohort, including 27 179 men, we identified 784 cases with incident prostate cancer through 2007. Each case was risk set-matched to one control. Two-thirds (n 525) of the cases had advanced disease at the time of diagnosis, and among these 170 had high-grade disease; 305 cases died (n 212 from prostate cancer) during follow-up through 2012. Plasma Se was not associated with total or advanced prostate cancer risk, but higher Se levels were associated with a lower risk of high-grade disease (HR 0·77; 95 % CI 0·64, 0·94; P=0·009). In survival analyses, a higher level of plasma Se was associated with a lower risk of all-cause (HR 0·92; 95 % CI 0·85, 1·00; P=0·04), but not prostate cancer-specific mortality. Higher levels of selenoprotein P were associated with a lower risk of high-grade disease (HR 0·85; 95 % CI 0·74, 0·97; P=0·01), but not with the risk of or mortality from advanced prostate cancer. In conclusion, levels of plasma Se and selenoprotein P were not associated with the risk of total and advanced prostate cancer, but higher levels of these two biomarkers were associated with a lower risk of high-grade disease.

General information
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Organisations: National Food Institute, Research Group for Nano-Bio Science, Danish Cancer Society, Aarhus University
Authors: Outzen, M. (Ekstern), Tjønneland, A. (Ekstern), Larsen, E. H. (Intern), Friis, S. (Ekstern), Larsen, S. B. (Ekstern), Christensen, J. (Ekstern), Overvad, K. (Ekstern), Olsen, A. (Ekstern)
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BFI (2016): BFI-level 1
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Scopus rating (2015): SJR 1.583 SNIP 1.442 CiteScore 3.52
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.532 SNIP 1.273 CiteScore 3.18
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Sequence-Based Characterization of Tn5801-Like Genomic Islands in Tetracycline-Resistant Staphylococcus pseudintermedius and Other Gram-positive Bacteria from Humans and Animals

Antibiotic resistance in pathogens is often associated with mobile genetic elements, such as genomic islands (GI) including integrative and conjugative elements (ICEs). These can transfer resistance genes within and between bacteria from humans and/or animals. The aim of this study was to investigate whether Tn5801-like GIs carrying the tetracycline resistance gene, tet(M), are common in Staphylococcus pseudintermedius from pets, and to do an overall sequences-based characterization of Tn5801-like GIs detected in Gram-positive bacteria from humans and animals. A total of 27 tetracycline-resistant S. pseudintermedius isolates from Danish pets (1998-2005) were screened for tet(M) by PCR. Selected isolates (13) were screened for GI- or ICE-specific genes (int Tn5801 or xis Tn916) and their tet(M) gene was sequenced (Sanger-method). Long-range PCR mappings and whole-genome-sequencing (Illumina) were performed for
selected S. pseudintermedius-isolates (seven and three isolates, respectively) as well as for human S. aureus isolates (seven and one isolates, respectively) and one porcine Enterococcus faecium isolate known to carry Tn5801-like GIs. All 27 S. pseudintermedius were positive for tet(M). Out of 13 selected isolates, seven contained Tn5801-like GIs and six contained Tn916-like ICEs. Two different Tn5801-like GI types were detected among S. pseudintermedius (Tn5801 and GI6287) - both showed high similarity compared to GenBank sequences from human pathogens. Two distinct Tn5801-like GI types were detected among the porcine E. faecium and human S. aureus isolates (Tn6014 and GI6288). Tn5801-like GIs were detected in GenBank-sequences from Gram-positive bacteria of human, animal or food origin worldwide. Known Tn5801-like GIs were divided into seven types. The results showed that Tn5801-like GIs appear to be relatively common in tetracycline-resistant S. pseudintermedius in Denmark. Almost identical Tn5801-like GIs were identified in different Gram-positive species of pet and human origin, suggesting that horizontal transfer of these elements has occurred between S. pseudintermedius from pets and human pathogens, including S. aureus.

**General information**
State: Published
Organisations: National Food Institute, Metropolitan University College, Universidad Complutense
Authors: de Vries, L. E. (Ekstern), Hasman, H. (Intern), Jurado Rabadán, S. (Ekstern), Agersø, Y. (Intern)
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Web of Science (2017): Indexed yes
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Web of Science (2016): Indexed yes
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Scopus rating (2015): SJR 1.869 SNIP 1.193 CiteScore 4.15
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Web of Science (2013): Indexed yes
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Web of Science (2011): Indexed yes
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GIs, ICEs, Tn916, horizontal gene transfer, integrative and conjugative elements, mobile genetic elements, tet(M), transmission

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Links:
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4844618/
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Publication: Research - peer-review › Journal article – Annual report year: 2016
Series of Norovirus Outbreaks Caused by Consumption of Green Coral Lettuce, Denmark, April 2016

In early April 2016, an unusual high number of point-source outbreaks of gastrointestinal disease were reported to occur in Denmark. Outbreaks were individually investigated. Two analytical studies were performed. Patient stool samples collected and analysed; positive stool samples were sequenced over the polymerase and/or capsid gene areas. Implicated lettuce heads were collected and analysed for the presence of norovirus. Foods were traced-back and traced-forward and international alert systems applied. A total of 23 linked point-source outbreaks occurred over the course of one week. Fresh green coral lettuce (Lollo Bionda lettuce) had been consumed in all settings. In a cohort study including 234 participants a dish containing green lettuce was associated with illness. Norovirus of Genogroup I (GI) was detected in samples from 28 patients comprising eight of the outbreaks. Sequencing showed GI.P2-GI.2. GI norovirus was detected in one of 20 examined lettuce heads. All lettuce consumed was supplied by the same packer who in turn had bought the lettuce from a wholesaler in France. The two lots of lettuce came from two different growers in different parts of France. Green coral lettuce produced in France was found to have caused a large series of linked norovirus outbreaks in Denmark as established by a number of lines of evidence. A similar incidence occurred in 2010. Fresh lettuce increasingly appear to be a risk food for norovirus infections.

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Organisations: National Veterinary Institute, National Food Institute, Research Group for Microbial Food Safety
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Scopus rating (2016): SJR 1.691 SNIP 1.241 CiteScore 2.88
Scopus rating (2015): SJR 1.519 SNIP 1.284 CiteScore 1.72
Scopus rating (2014): SJR 1.327 SNIP 0.939 CiteScore 1.52
Scopus rating (2013): SJR 0.914 SNIP 0.581 CiteScore 1.4
Scopus rating (2012): SJR 1.042 SNIP 0.577 CiteScore 1.76
Scopus rating (2011): SJR 1.268 SNIP 0.839
Scopus rating (2010): SJR 0.951 SNIP 0.783
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Links: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5074700/
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Source-ID: 234860862
Publication: Research - peer-review › Journal article – Annual report year: 2016

Sharing Data for Global Infectious Disease Surveillance and Outbreak Detection
Rapid global sharing and comparison of epidemiological and genomic data on infectious diseases would enable more rapid and efficient global outbreak control and tracking of diseases. Several barriers for global sharing exist but, in our opinion, the presumed magnitude of the problems appears larger than they are, and solutions can be found.

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, Erasmus Medical Center
Authors: Aarestrup, F. M. (Intern), Koopmans, M. G. (Ekstern)
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Publication information
Sikkert fremstilling af fermenterede pølser

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Authors: Hansen, T. B. (Intern)
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Skolebørn

General information
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Organisations: National Food Institute, Division of Risk Assessment and Nutrition , Professionshøjskolen Metropol
Authors: Fagt, S. (Intern), Larsen, R. (Ekstern), Trolle, E. (Intern)
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Sleep duration modifies effects of free ad libitum school meals on adiposity and blood pressure

Background: Insufficient sleep can potentially affect both energy intake and energy expenditure resulting in obesity and reduced cardiometabolic health. Objective: To investigate if habitual sleep duration of 8-11-year-olds modifies the effect of free ad libitum school meals on cardiometabolic markers, body composition, dietary intake, and physical activity. Methods: For two consecutive three-month periods this cluster-randomized, controlled, cross-over trial provided 530 children with school meals or usual lunch brought from home. Dietary intake, activity, and sleep were measured simultaneously for seven consecutive days using dietary records and accelerometers. Short and long sleeping children were defined as lower and upper tertile of sleep duration. Body composition, blood pressure, blood lipids, and homeostatic model assessment of insulin resistance (HOMAIR) were measured/calculated. Results: Overall, school meals compared to lunch from home had positive effects on physical activity and blood pressure in long sleeping children and negative effects on body fat in short sleeping children. Short sleeping children increased fat mass compared to long sleeping children by 0.21 (95% CI 0.03;0.38) kg, android fat mass by 0.02 (0.001;0.04) kg, waist circumference by 0.73 (0.23;1.24) cm, blood pressure by 1.5 (0.4;2.6) mmHg, fat intake by 1.1 (0.2;2.0) energy %, and decreased total physical activity by 7.2 (1.6;12.7) % (all P≤0.04), while HOMAIR and blood lipids were not modified by sleep duration (all P≥0.32). Conclusions: The susceptibility to increase abdominal adiposity and blood pressure when exposed to dietary changes can potentially be explained by too little sleep that results in increased caloric intake and reduced physical activity.

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State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition , Research Group for Risk-Benefit
Authors: Hjorth, M. F. (Ekstern), Sjödin, A. M. (Ekstern), Dalskov, S. (Ekstern), Damsgaard, C. T. (Ekstern), Michaelsen, K. F. (Ekstern), Biltoft-Jensen, A. P. (Intern), Andersen, R. (Intern), Ritz, C. (Ekstern), Chaput, J. (Ekstern), Astrup, A. (Ekstern)
Slippery when sticky: Lubricating properties of thin films of *Taxus baccata* aril mucilage

Mucilage is hydrogel produced from succulent plants and microorganisms displaying unique adhesiveness and slipperiness simultaneously. The objective of this study is to establish an understanding on the lubricating mechanisms of the mucilage from *Taxus baccata* aril as thin, viscous lubricant films. Oscillation and flow rheological studies revealed that *T. baccata* mucilage is shear-thinning, thixotropic, and weak hydrogel that is highly stretchable under shear stress due to its high density physical crosslinking characteristics. In addition, *T. baccata* mucilage showed a distinct Weissenberg effect, i.e., increasing normal force with increasing shear rate, and thus it contributes to deplete the lubricant from tribological interfaces. Lubrication studies with a number of tribopairs with varying mechanical properties and surface
wettability have shown that the lubricity of *T. baccata* mucilage is most effectively manifested at soft, hydrophilic, and rolling tribological contacts. Based on tenacious spreading on highly wetting surfaces, slip plane can be formed within mucilage hydrogel network even when the lubricating films cannot completely separate the opposing surfaces. Moreover, highly stretchable characteristics of mucilage under high shear enhance smooth shearing of two opposing surfaces as lubricating film.

**General information**

**State:** Published
**Organisations:** Department of Mechanical Engineering, Materials and Surface Engineering, National Food Institute, Research Group for Nano-Bio Science
**Authors:** Røn, T. (Intern), Sankaranarayanan, R. (Intern), Chronakis, I. S. (Intern), Lee, S. (Intern)
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- BFI (2015): BFI-level 1
- Scopus rating (2015): SJR 0.708 SNIP 0.751 CiteScore 1.62
- BFI (2014): BFI-level 1
- Scopus rating (2014): SJR 0.846 SNIP 0.745 CiteScore 1.95
- BFI (2013): BFI-level 1
- Scopus rating (2013): SJR 0.818 SNIP 0.603 CiteScore 1.66
- ISI indexed (2013): ISI indexed yes
- Scopus rating (2012): SJR 0.896 SNIP 0.732 CiteScore 2.24
- ISI indexed (2012): ISI indexed no
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- Scopus rating (2011): SJR 0.907 SNIP 0.686 CiteScore 2.05
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- Scopus rating (2010): SJR 1.156 SNIP 0.971
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**Socio-economic differences in cardiometabolic risk markers are mediated by diet and body fatness in 8- to 11-year-old Danish children: a cross-sectional study**

**Objective** To explore whether socio-economic differences exist in cardiometabolic risk markers in children and whether lifestyle-related factors potentially mediate these differences. Design Cross-sectional study including measurements of fasting blood lipids, glucose, homeostasis model assessment of insulin resistance (HOMA-IR), blood pressure and heart rate. Potential mediators examined were fat mass index (FMI); intakes of fruit, vegetables, dietary fibre and added sugar; whole-blood n-3 long-chain PUFA (LCPUFA) as a biomarker of fish intake; and physical activity and sedentary time. Setting Nine primary schools in Denmark. Subjects Children aged 8–11 years (n 715). Results Children of parents with the shortest compared with longest education had higher TAG by 0·12 (95 % CI 0·04, 0·21) mmol/l and HOMA-IR by 0·36 (0·10, 0·62), whereas children of parents with a vocational education had higher total cholesterol by 0·14 (0·02, 0·27)
mmol/l and LDL cholesterol by 0·14 (0·03, 0·25) mmol/l compared with children of parents with the longest education; all P<0·05. FMI explained 25 % of the difference in TAG, 64 % of the difference in HOMA-IR and 21–29 % of the differences in cholesterol. FMI and whole-blood n-3 LCPUFA combined explained 42 % of the difference in TAG, whereas FMI, whole-blood n-3 LCPUFA and dietary fibre explained 89 % of the difference in HOMA-IR. Conclusions Socio-economic differences were present in blood lipids and insulin resistance among 8- to 11-year-olds and were mediated by body fatness, whole-blood n-3 LCPUFA and dietary fibre. These lifestyle factors may be targets in public initiatives to reduce socio-economic differences. Confirmation in longitudinal studies and trials is warranted.

General information
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Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Research Group for Risk-Benefit, University of Copenhagen
Authors: Hauger, H. (Ekstern), Groth, M. V. (Intern), Ritz, C. (Ekstern), Biltoft-Jensen, A. P. (Intern), Andersen, R. (Intern), Dalskov, S. (Ekstern), Hjorth, M. F. (Ekstern), Sjödin, A. (Ekstern), Astrup, A. (Ekstern), Michaelsen, K. F. (Ekstern), Damsgaard, C. T. (Ekstern)
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BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.04 SJR 1.1 SNIP 0.896
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.058 SNIP 1.075 CiteScore 1.82
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
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ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.266 SNIP 1.189 CiteScore 2.22
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.139 SNIP 1.118 CiteScore 1.86
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.093 SNIP 0.991
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.331 SNIP 1.287
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Solution-blown nanofiber mats from fish sarcoplasmic protein

In the present work, solution-blowing was adopted to form nanofibers from fish sarcoplasmic proteins (FSPs). Nanofiber mats containing different weight ratios (up to 90/10) of FSP in the FSP/nylon 6 blended nanofibers were formed from formic acid solutions, and compared to electrospun fibers made from the same solutions. The nanofiber mats produced by the two methods were characterized in terms of FSP content, fiber diameter distribution, fiber mat porosity, and mass of the fibers collected. The mechanical strength of the solution-blown fibers was also measured. Overall, fibers made by the two techniques were similar, but with some exceptions. The fiber diameter of the electrospun fibers was slightly smaller than those made using solution-blowing, however in both cases the fiber diameter increased with increasing FSP content. Interestingly, for uniform fibers the stretchability of the fibers increased with increasing FSP content, indicated by an increased strain at rupture. Moreover, the mechanical tests showed that up to 50% of nylon 6 could be replaced with FSP without compromising the mechanical properties, compared to pure nylon 6 nanofibers. Comparison of the yield showed that the production rate of solution-blowing was increased 30-fold in relation to electrospinning. Overall, this study reveals FSP as an interesting biopolymeric alternative to synthetic polymers, and the introduction of FSP to nylon 6 provides a composite with controlled properties.

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Organisations: National Food Institute, University of Illinois at Chicago
Authors: Sett, S. (Ekstern), Boutrup Stephansen, K. (Intern), Yarin, A. (Ekstern)
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Spatial patterns of Antimicrobial Resistance Genes in Danish Pig Farms

 Samples from 687 Danish pig farms were collected at five finisher slaughterhouses in February and March 2015. Faecal samples from five pigs per farm were collected randomly at the slaughter line and pooled into one sample per farm. DNA was extracted from the pooled samples and the level of seven antimicrobial resistance genes, ermB, ermF, sulI, sulII, tet(M), tet(O) and tet(W), was quantified by a high-throughput qPCR. It was evaluated whether the sample method resulted in a study population representative of Danish pig farms with finishers where it was found that the study population was biased towards farms having more finisher and a higher productivity. Spatial cluster analyses were
performed in SaTScan®. The results showed significant spatial clusters for ermF, ermB, sulII and tet(W) whereas no significant clusters were found for sulI, tet(M) and tet(O).

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**Relations**
Activities:

**Spectroscopic and tribological studies of the interactions between β-lactoglobulin and mucins**
Proteins are important ingredients for food products in terms of providing desirable textural, sensory, and nutritional properties. In oral processing, food products are continuously mixed with saliva and it is the resulting aggregates that are ultimately consumed by human body. In order to understand the interaction mechanisms of food proteins-saliva/gastrointestinal fluid on a molecular level, we have selected β-lactoglobulin (BLG) and mucins (bovine submaxillayruminin (BSM) and porcine gastric mucin (PGM)) as representative macromolecules of food proteins and saliva/gastric juice, respectively. Various spectroscopic approaches, including Dynamic Light Scattering (DLS), circular dichroism (CD) spectroscopy, fluorescence spectroscopy, and low and high field Nuclear Magnetic Resonance (NMR) spectroscopy were employed to understand the structural changes upon interaction. Additionally, tribological techniques were applied to investigate the interaction of BLG with mucins under tribological stress. To understand the pH effect, three pH values, pH 3.0, 5.0, 7.4, were used. The most interestingly, the changes in the size distribution of the mixture as studied by DLS suggested attractive interaction between BLG and BSM molecules to form a more compact conformation of the BSM molecules. Moreover, high field NMR showed stronger interactions at lower pH due to electrostatic attraction of the protonated amino groups of BLG to the negatively charged mucin. The High field NMR results for the BSM-BLG mixture indicated that spectral differences were mostly observed for solvent exposed groups, especially the mucin glycanchains, while hydrophobic core residues of PGM-BLG mixture were also highly affected. Surface adsorption properties of the proteins by bicinchoninic acid (BCA) assay revealed that both mucins adsorbed onto the hydrophobic substrates in a large amount to form either highly compact layers or multilayers, whereas BLG appeared to adsorb to a much less extent. Even in the absence of tribostress, the adsorbed masses of the mixed protein solutions reduced significantly, and BLG appeared to dominate the surface adsorption event, presumably due to the reduced concentration of mucins as well as the Vroman effect. Nevertheless, BSM apparently dominated the tribological interface, which highlights the excellent lubricating capabilities of BSM, while PGM's intrinsically weaker lubricity remained largely unchanged in the interaction with BLG. The pH dependent lubricating properties of BLG-BSM mixed solutions appeared to be determined by competitive adsorption of the two proteins onto the substrates, which suggests that they do not form as strong aggregates as BLG-saliva, especially under tribological stress. The combined spectroscopic and lubricating properties of BLG and mucins provided advanced understanding on the molecular level interaction between two macromolecules, representing food proteins and bodily fluids.

**General information**
State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science, Department of Mechanical Engineering, Materials and Surface Engineering, University of Iceland
Authors: Celebioglu, H. Y. (Intern), Guðjónsdóttir, M. (Ekstern), Chronakis, I. S. (Intern), Lee, S. (Intern)
Number of pages: 1
Publication date: 2016
Event: Abstract from 4th International conference on food oral processing, Lausanne, Switzerland.
Main Research Area: Technical/natural sciences
Electronic versions:
Spectroscopic_and_tribological_studies.pdf

**Relations**
Stability of vitamin D in fish and mushrooms during different cooking procedures

**General information**
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application
Authors: Ložnjak, P. (Intern), Jakobsen, J. (Intern)
Number of pages: 1
Publication date: 2016
Event: Poster session presented at 4th International Vitamin Conference, Copenhagen, Denmark.
Main Research Area: Technical/natural sciences
Electronic versions:
Poster.pdf
Source: PublicationPreSubmission
Source-ID: 127841350
Publication: Research - peer-review › Poster – Annual report year: 2016

Statement on the presence of microplastics and nanoplastics in food, with particular focus on seafood

Following a request from the German Federal Institute for Risk Assessment (BfR), the EFSA Panel for Contaminants in the Food Chain was asked to deliver a statement on the presence of microplastics and nanoplastics in food, with particular focus on seafood. Primary microplastics are plastics originally manufactured to be that size, while secondary microplastics originate from fragmentation. Nanoplastics can originate from engineered material or can be produced during fragmentation of microplastic debris. Microplastics range from 0.1 to 5,000 μm and nanoplastics from approximately 1 to 100 nm (0.001–0.1 μm). There is no legislation for microplastics and nanoplastics as contaminants in food. Methods are available for identification and quantification of microplastics in food, including seafood. Occurrence data are limited. In contrast to microplastics no methods or occurrence data in food are available for nanoplastics. Microplastics can contain on average 4% of additives and the plastics can adsorb contaminants. Both additives and contaminants can be of organic as well as inorganic nature. Based on a conservative estimate the presence of microplastics in seafood would have a small effect on the overall exposure to additives or contaminants. Toxicity and toxicokinetic data are lacking for both microplastics and nanoplastics for a human risk assessment. It is recommended that analytical methods should be further developed for microplastics and developed for nanoplastics and standardized, in order to assess their presence, identity and to quantify their amount in food. Furthermore, quality assurance should be in place and demonstrated. For microplastics and nanoplastics, occurrence data in food, including effects of food processing, in particular, for the smaller sized particles (< 150 μm) should be generated. Research on the toxicokinetics and toxicity, including studies on local effects in the gastrointestinal (GI) tract, are needed as is research on the degradation of microplastics and potential formation of nanoplastics in the human GI tract.

**General information**
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition
Authors: EFSA publication
Number of pages: 30
Publication date: 2016

**Publication information**
Place of publication: Parma, Italy
Publisher: European Food Safety Authority
Original language: English

Series: The EFSA Journal
Volume: 14(6)
Number: 4501
ISSN: 1830-5458
Main Research Area: Technical/natural sciences
Electronic versions:
4501.pdf
Links:

**Relations**
Activities:
Stimulation of acetoin production in metabolically engineered Lactococcus lactis by increasing ATP demand

Having a sufficient supply of energy, usually in the form of ATP, is essential for all living organisms. In this study, however, we demonstrate that it can be beneficial to reduce ATP availability when the objective is microbial production. By introducing the ATP hydrolyzing F1-ATPase into a Lactococcus lactis strain engineered into producing acetoin, we show that production titer and yield both can be increased. At high F1-ATPase expression level, the acetoin production yield could be increased by 10%; however, because of the negative effect that the F1-ATPase had on biomass yield and growth, this increase was at the cost of volumetric productivity. By lowering the expression level of the F1-ATPase, both the volumetric productivity and the final yield could be increased by 5% compared to the reference strain not overexpressing the F1-ATPase, and in batch fermentation, it was possible to convert 176 mM (32 g/L) of glucose into 146.5 mM (12.9 g/L) acetoin with a yield of 83% of the theoretical maximum. To further demonstrate the potential of the cell factory developed, we complemented it with the lactose plasmid pLP712, which allowed for growth and acetoin production from a dairy waste stream, deproteinized whey. Using this cheap and renewable feedstock, efficient acetoin production with a titer of 157 mM (14 g/L) acetoin was accomplished.
Additional ATP consumption, F1-ATPASE, Acetoin, Lactococcus lactis

**Strengthen of the Nordic monitoring system**

**General information**

State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition
Authors: Fagt, S. (Intern), Matthiessen, J. (Intern)
Number of pages: 7
Publication date: 2016

**Publication information**

Media of output: Powerpoint
Original language: English
Place of publication: Søborg, Denmark
Publisher: National Food Institute, Technical University of Denmark
Main Research Area: Technical/natural sciences
Electronic versions:

**NORMO_Bremen_14_April_2016Final.pdf**

Publication: Research › Sound/Visual production (digital) – Annual report year: 2016

**Sublethal Concentrations of Antibiotics Cause Shift to Anaerobic Metabolism in Listeria monocytogenes and Induce Phenotypes Linked to Antibiotic Tolerance**

The human pathogenic bacterium Listeria monocytogenes is exposed to antibiotics both during clinical treatment and in its saprophytic lifestyle. As one of the keys to successful treatment is continued antibiotic sensitivity, the purpose of this study was to determine if exposure to sublethal antibiotic concentrations would affect the bacterial physiology and induce
antibiotic tolerance. Transcriptomic analyses demonstrated that each of the four antibiotics tested caused an antibiotic-specific gene expression pattern related to mode-of-action of the particular antibiotic. All four antibiotics caused the same changes in expression of several metabolic genes indicating a shift from aerobic to anaerobic metabolism and higher ethanol production. A mutant in the bifunctional acetaldehyde-CoA/alcohol dehydrogenase encoded by Imo1634 did not have altered antibiotic tolerance. However, a mutant in Imo1179 (eutE) encoding an aldehyde oxidoreductase where rerouting caused increased ethanol production was tolerant to three of four antibiotics tested. This shift in metabolism could be a survival strategy in response to antibiotics to avoid generation of ROS production from respiration by oxidation of NADH through ethanol production. The monocin locus encoding a cryptic prophage was induced by co-trimoxazole and repressed by ampicillin and gentamicin, and this correlated with an observed antibiotic-dependent biofilm formation. A monocin mutant (Delta lmaDCBA) had increased biofilm formation when exposed to increasing concentration of co-trimoxazole similar to the wild type, but was more tolerant to killing by co-trimoxazole and ampicillin. Thus, sublethal concentrations of antibiotics caused metabolic and physiological changes indicating that the organism is preparing to withstand lethal antibiotic concentrations.
Substantial equivalence evaluation of Isomalto-oligosaccharides in relation to Regulation EC 258/97

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition
Authors: Mejborn, H. (Intern)
Number of pages: 3
Publication date: 2016

Publication information
Place of publication: Søborg
Publisher: National Food Institute, Technical University of Denmark
Original language: English
Main Research Area: Technical/natural sciences

Bibliographical note
Novel food evaluation
Source: PublicationPreSubmission
Source-ID: 134770744
Publication: Commissioned › Report – Annual report year: 2017

Substantial equivalent evaluation of African chia seeds (Salvia hispanica L.) in relation to Regulation EC 258/97: An evaluation of Indian chia seeds

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition
Authors: Mejborn, H. (Intern)
Number of pages: 4
Publication date: 2016

Publication information
Place of publication: Søborg
Publisher: National Food Institute, Technical University of Denmark
Original language: English
Main Research Area: Technical/natural sciences

Bibliographical note
Novel food evaluation
Source: PublicationPreSubmission
Source-ID: 134770619
Publication: Commissioned › Report – Annual report year: 2017

Substantial equivalent evaluation of African chia seeds (Salvia hispanica L.) in relation to Regulation EC 258/97: An evaluation of African chia seeds

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition
Authors: Mejborn, H. (Intern)
Number of pages: 4
Publication date: 2016

Publication information
Place of publication: Søborg
Publisher: National Food Institute, Technical University of Denmark
Original language: English
Main Research Area: Technical/natural sciences

Bibliographical note
Novel food evaluation
Substantial equivalent evaluation of seeds from Chia (Salvia hispanica L.) in relation to Regulation EC 258/97

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition
Authors: Mejborn, H. (Intern)
Number of pages: 5
Publication date: 2016

Publication information
Place of publication: Søborg
Publisher: National Food Institute, Technical University of Denmark
Original language: English
Main Research Area: Technical/natural sciences

Bibliographical note
Novel food evaluation

Suitability of Food Stimulants for Migration Study of Silver Nanoparticles

General information
State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science
Authors: Jokar, M. (Intern), Löschner, K. (Intern)
Number of pages: 1
Publication date: 2016

Host publication information
Title of host publication: 6th international symposium on food packaging - scientific developments supporting safety and innovation
Place of publication: Barcelona, Spain
Article number: S4-17-A
Main Research Area: Technical/natural sciences
Electronic versions:
Proceeding_Abstract.pdf
Source: PublicationPreSubmission
Source-ID: 127845759
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2016

Suitability of Food Stimulants for Migration Study of Silver Nanoparticles

General information
State: Published
Organisations: National Food Institute, Research Group for Nano-Bio Science
Authors: Jokar, M. (Intern), Löschner, K. (Intern)
Number of pages: 1
Publication date: 2016
Event: Poster session presented at 6th international symposium on food packaging , Barcelona, Spain.
Main Research Area: Technical/natural sciences
Electronic versions:
Proceeding_Abstract.pdf
Publication: Research - peer-review › Poster – Annual report year: 2016

Sun Exposure Guidelines and Serum Vitamin D Status in Denmark: The StatusD Study
Little is known on how vitamin D status is affected by adherence to UVB-limiting sun exposure guidelines. Our aim was to investigate the relationship between adherence to the Danish sun exposure guidelines and vitamin D status. In total, 3194
Danes (2625 adults, 569 children) were recruited among the general population, and more than 92% had blood samples taken both autumn and spring. Using linear regression, we associated serum vitamin D concentrations to questionnaire responses on: seeking shade, wearing a sunhat, wearing protective clothing or using sunscreen. The odds ratio (OR) of either low (<25 or 50 nmol/L) or adequate/high (≥50 nmol/L) vitamin D status was examined using logistic regression. For adults, those who always sought shade or wore protective clothing compared to those who did not had lower levels of vitamin D (autumn concentrations for shade: 7.2 nmol/L lower (-11.0--3.6 nmol/L); for protective clothing: 9.9 nmol/L lower (-13.6--6.2 nmol/L). Adherence to all four guidelines was also associated with lower vitamin D concentrations (autumn: 9.7 nmol/L lower (-14.3--5.1 nmol/L). Use of sunscreen was associated with adequate vitamin D status, as those who always sought shade compared to those who did not had an OR (95% CI) of 1.68 (1.25-2.35) of having ≥50 nmol/L during both spring and autumn. No associations were found with wearing a sunhat, and there were no clear associations for children. In conclusion, adherence to the sun exposure guidelines on shade and protective clothing was associated with lower vitamin D status among Danish adults, but not children.
Synthesis of (3R)-acetoin and 2,3-butanediol isomers by metabolically engineered Lactococcus lactis

The potential that lies in harnessing the chemical synthesis capabilities inherent in living organisms is immense. Here we demonstrate how the biosynthetic machinery of Lactococcus lactis, can be diverted to make (3R)-acetoin and the derived 2,3-butanediol isomers meso-(2,3)-butanediol (m-BDO) and (2R,3R)-butanediol (R-BDO). Efficient production of (3R)-acetoin was accomplished using a strain where the competing lactate, acetate and ethanol forming pathways had been blocked. By introducing different alcohol dehydrogenases into this strain, either EcBDH from Enterobacter cloacae or SadB from Achromobacter xylosoxidans, it was possible to achieve high-yield production of m-BDO or R-BDO respectively. To achieve biosustainable production of these chemicals from dairy waste, we transformed the above strains with the lactose plasmid pLP712. This enabled efficient production of (3R)-acetoin, m-BDO and R-BDO from processed whey waste, with titers of 27, 51, and 32 g/L respectively. The corresponding yields obtained were 0.42, 0.47 and 0.40 g/g lactose, which is 82%, 89%, and 76% of maximum theoretical yield respectively. These results clearly demonstrate that L. lactis is an excellent choice as a cell factory for transforming lactose containing dairy waste into value added chemicals.

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Biotechnology and Biorefining
Authors: Kandasamy, V. (Intern), Liu, J. (Intern), Dantoft, S. H. (Intern), Solem, C. (Intern), Jensen, P. R. (Intern)
Number of pages: 9
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Scientific Reports
Volume: 6
Article number: 36769
ISSN (Print): 2045-2322
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.245 SJR 1.533
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 4.63 SJR 1.692 SNIP 1.354
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 2.034 SNIP 1.597 CiteScore 5.3
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 2.163 SNIP 1.554 CiteScore 4.75
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.998 SNIP 1.57 CiteScore 4.06
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.531 SNIP 0.962 CiteScore 2.44
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
ISI indexed (2011): ISI indexed no
Original language: English
Electronic versions:
srep36769.pdf
DOIs:
10.1038/srep36769
Tarmens mikroflora og spædbørns komælkstolerance skal undersøges

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology
Authors: Graversen, K. (Intern), Bøgh, K. L. (Intern)
Number of pages: 2
Pages: 6-7
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Mælkeritidende
Issue number: 25-26
Original language: Danish
Publication: Research - peer-review › Journal article – Annual report year: 2017

Tarmmikrobiota som følsom indikator for biologisk relevante restkoncentrationer af kemiske pesticider i fødevarer eksemplificeret ved glyphosat (Roundup®)

General information
State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, Aarhus University
Authors: Nielsen, L. N. (Intern), Bohse Hendriksen, N. (Ekstern), Bay Gosewinkel, U. (Ekstern), Licht, T. R. (Intern), Bahl, M. I. (Intern)
Number of pages: 1
Publication date: 2016
Event: Abstract from Miljøstyrelsens Bekæmpelsesmiddelforskningskonference, Vejle, Denmark.
Main Research Area: Technical/natural sciences
Electronic versions:
Poster_MST_Bekæmpelsesmiddelforskningskonference_2016.pdf

Bibliographical note
Poster præsentation
Source: PublicationPreSubmission
Source-ID: 120952961
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2016

Teaching Philosophy Game - A Way to Clarify Values, Attitudes, and Preferences Related to Teaching
The authors propose a game that can be used to clarify faculty members’ values, attitudes, and preferences related to teaching and learning. The game is intended to establish a guided, yet informal and amusing, framework for considering and discussing what staff members find important in their task and role as university teachers. During the gaming process, the participants get a chance to externalize their tacit knowledge through individual reflections and team-based discussions. This can be useful not only for individual clarification, but also for teams of teachers to develop common ground principles of teaching and learning. Although no award will be given and no winners will be appointed, all participants will potentially gain insight into their own and colleagues’ values, attitudes, and preferences related to teaching and learning. During this workshop, you will try out the game and engage in discussions of possible use scenarios and further development.

General information
State: Published
Organisations: Office for Study Programmes and Student Affairs, Department of Mechanical Engineering, Engineering Design and Product Development, National Food Institute, Research Group for Microbial Food Safety and Quality
Authors: Christiansen, B. L. (Intern), Hansen, C. T. (Intern), Jensen, L. B. (Intern)
Number of pages: 3
Publication date: 2016
Event: Abstract from 12th CDIO Annual International Conference, Turku, Finland.
Main Research Area: Technical/natural sciences
Teaching Philosophy, Faculty Development, Standard 10
Electronic versions:
Test and validation of methods to sample and detect human virus from environmental surfaces using norovirus as a model virus

Background: Viruses cause a major proportion of human infections, especially gastroenteritis and respiratory infections in children and adults. Indirect transmission between humans via environmental surfaces may play a role in infections, but methods to investigate this have been sparse. Aim: To validate and test efficient and reliable procedures to detect multiple human pathogenic viruses on surfaces. Methods: The study was divided into two parts. In Part A, six combinations of three different swabs (consisting of cotton, foamed cotton, or polyester head) and two different elution methods (direct lysis or immersion in alkaline glycine buffer before lysis) were tested for efficient recovery of human norovirus GII.7 and mengovirus from artificially contaminated surfaces. In Part B we determined the detection limit for norovirus GI.1 and GII.3 using the best procedure found in Part A linked with a commercial multiplex real-time quantitative polymerase chain reaction detection assay. Findings: Combining the polyester swab with direct lysis allowed recovery down to 100 and 10 genome copies/cm² of norovirus GI.1 and GII.3, respectively. This procedure resulted in the significant highest recovery of both norovirus and mengovirus, whereas no differences in amplification efficiencies were observed between the different procedures. Conclusion: The results indicate that it is possible to detect low concentrations of virus on environmental surfaces. We therefore suggest that a polyester swab, followed by direct lysis, combined with a multiplex qPCR detection assay is an efficient screening tool that merits study of different respiratory and gastrointestinal viruses on environmental surfaces.

General information
State: Published
Organisations: National Food Institute, Research Group for Diagnostic Engineering, Copenhagen University Hospital
Authors: Ibfelt, T. (Ekstern), Frandsen, T. (Ekstern), Permin, A. (Intern), Andersen, L. P. (Ekstern), Schultz, A. C. (Intern)
Number of pages: 7
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Hospital Infection
Volume: 92
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ISSN (Print): 0195-6701
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BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.565 SJR 1.66
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): SJR 1.245 SNIP 1.499 CiteScore 2.66
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.399 SNIP 1.451 CiteScore 2.41
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.203 SNIP 1.328 CiteScore 2.3
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.394 SNIP 1.397 CiteScore 2.21
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.436 SNIP 1.571 CiteScore 2.26
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.617 SNIP 1.636 CiteScore 2.25
The 1st EURL-AR Proficiency Test on selective isolation of E. coli with presumptive ESBL or AmpC phenotypes from meat or caecal samples - 2015

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology
Authors: Cavaco, L. (Intern), Karlsmose Pedersen, S. (Intern), Hendriksen, R. S. (Intern), Aarestrup, F. M. (Intern)
Number of pages: 15
Publication date: 2016

Publication information
Place of publication: Søborg
Publisher: National Food Institute, Technical University of Denmark
ISBN (Electronic): 978-87-93109-72-8
Original language: English
Main Research Area: Technical/natural sciences
Electronic versions:
Links:
Source: PublicationPreSubmission
Source-ID: 124120137
Publication: Research - peer-review › Report – Annual report year: 2016

The burden of disease caused by botulism

General information
State: Published
Organisations: National Food Institute, Research Group for Risk-Benefit, Technical University of Denmark
Authors: Nissen, I. (Intern), Pires, S. M. (Intern), Pedersen, A. A. (Ekstern)
Pages: 15-15
Publication date: 2016

Host publication information
Title of host publication: Annual Report on Zoonoses in Denmark 2015
Place of publication: Søborg
Publisher: National Food Institute, Technical University of Denmark
Series: Annual Report on Zoonoses in Denmark
ISSN: 1600-3837
Main Research Area: Technical/natural sciences
Electronic versions:
Rapport_Annual_Report_On_Zoonoses_in_Denmark_2015_FINAL.pdf
Publication: Commissioned › Report chapter – Annual report year: 2016

The Burden of diseases caused by congenital toxoplasmosis

General information
State: Published
Organisations: National Food Institute, Research Group for Risk-Benefit, Statens Serum Institut
Authors: Nissen, I. (Intern), Pires, S. M. (Intern), Vedel Nielsen, H. (Ekstern)
Pages: 16-16
The effectiveness of the Danish Organic Action Plan 2020 to increase the level of organic public procurement in Danish public kitchens

To measure the effect of organic food conversion projects on the percentage of organic food used in Danish public kitchens participating in the Danish Organic Action Plan 2020. The current longitudinal study was based on measurements of organic food percentages in Danish public kitchens before and after kitchen employees participated in conversion projects. Public kitchens participating in the nine organic food conversion projects under the Danish Organic Action Plan 2020, initiated during autumn 2012 and spring 2013 and completed in summer 2015. A total of 622 public kitchens. The average (median) increase in organic food percentage from baseline to follow-up was 24 percentage points (P<0·001) during an overall median follow-up period of 1·5 years. When analysing data according to public kitchen type, the increase remained significant for seven out of eight kitchens. Furthermore, the proportion of public kitchens eligible for the Organic Cuisine Label in either silver (60–90 % organic food procurement) or gold (90–100 % organic food procurement) level doubled from 31 % to 62 %, respectively, during the conversion period. Conversion project curriculum mostly included elements of ‘theory’, ‘menu planning’, ‘network’ and ‘Organic Cuisine Label method’ to ensure successful implementation. The study reports significant increases in the level of organic food procurement among public kitchens participating in the Danish Organic Action Plan 2020. Recommendations for future organic conversion projects include adding key curriculum components to the project’s educational content and measuring changes in organic food percentage to increase the chances of successful implementation.
The effect of added enzymes on process potentials derived from different qualities of barley: a model study using simulated mashing conditions by rapid visco analyser

Barley sorting is an important step for picking up grain of desired quality. Whilst brewing with 100% sorted barley (picked high quality) has become realistic with the addition of exogenous enzymes, the effect of added enzymes on process potentials derived from un-sorted barley (mixed) and sorted-out barley (low quality) were almost not investigated. The aims of this study were to examine the rheological behaviours of sorted out barleys affected by addition of enzymes, and to evaluate the quality attributes derived from respective barleys focusing on wort fermentability and filterability parameters. To achieve this, rapid visco analyser was used to simulate brewery mashing process by applying two commercial enzymes (Ondea® Pro and Cellic® CTec2) at lab scale. During the simulated process, the rheological profile of low quality barley was markedly different from others, irrespective of enzyme type, whereas small difference was observed between the sorted and un-sorted barley. With respect to the major wort nutrients for fermentation, the sorted-out barley generated the lowest sugar yield, regardless of the enzyme used; however, the use of Cellic® CTec2 resulted in significantly higher sugar content compared to Ondea® Pro, irrespective of the quality types of barley. Interestingly, considerably higher levels of free amino nitrogen were observed resulting from the sorted-out...
barley, likely due to the smaller size/weight of the barley compared to others. For wort filterability, the Ondea® Pro treatment resulted in significantly lower turbidity and smaller particle size compared to Cellic® CTec2; however, this effect was observed in sorted and un-sorted barley but not in sorted-out barley. Consequently the un-sorted barley demonstrated great potential in brewing process with added enzymes, whereas the sorted-out barley is not comparable to sorted barley in terms of rheological behaviors of mashes, as well as nutrient and filtration parameters studied, showing potential as biofuel feedstock that can be degraded to fermentable sugars by enzymes such as Cellic® CTec2.

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Biotechnology and Biorefining
Authors: Shetty, R. (Intern), Zhuang, S. (Intern), Hansen, P. B. (Intern), Hobley, T. J. (Intern)
Number of pages: 1
Publication date: 2016
Main Research Area: Technical/natural sciences
Links:
http://www.sustain.dtu.dk/

Bibliographical note
Sustain Abstract F-4
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2016

The effect of reducing numbers of Campylobacter in broiler intestines on human health risk
One option for Campylobacter control in broiler chickens is to reduce the concentration in the intestinal content of the birds prior to slaughter, for example by vaccination or phage therapy. It is however unsure how such a reduction in concentration can be translated into a reduction in concentration on the meat and a reduction in the human health risk of campylobacteriosis. In this study, two methods are presented and compared. The first is a linear regression model, based on count data from caecal contents and skin sample data, obtained after processing from the same flocks. Alternatively, a previously published risk assessment model is used, that describes the dynamics of transfer and survival of Campylobacter during broiler processing at the slaughterhouse. Data from five European countries are used as inputs for the models. For both approaches the analyses show that a one to two log reduction in concentration in the intestinal content has a large impact on the risk of campylobacteriosis due to the consumption of chicken meat: a relative risk reduction between 44% and 95%. Therefore it seems promising to aim interventions at a reduction of the concentration of Campylobacter during broiler intestines. However, it is not possible to derive a generic rule that can be used to relate a reduction in concentration in broiler intestines into a reduction in human health risk. Regression models based on different data sets predict different relationships between bacterial count data from caeca and skins, whereas the risk assessment model requires data on contamination of the birds' exterior, which is not sufficiently available in combination with caecal concentration data. Simulations performed with the risk assessment model show that it can pretty well adequately describe the observed correlation in the data and the variation in regression lines obtained.

General information
State: Published
Organisations: National Food Institute, Research Group for Risk-Benefit, Norwegian Veterinary Institute, Nutreco Food Research Center, University of Liverpool
Authors: Nauta, M. (Intern), Johannessen, G. (Ekstern), Laureano Adame, L. (Ekstern), Williams, N. (Ekstern), Rosenquist, H. (Intern)
Number of pages: 10
Pages: 68-77
Publication date: 2016
Main Research Area: Technical/natural sciences

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Volume: 2-3
ISSN (Print): 2352-3522
Original language: English
Campylobacter control, Risk assessment, Regression, Colonization level, Europe
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Publication: Research - peer-review › Journal article – Annual report year: 2016
The effects of water and dairy drinks on dietary patterns in overweight adolescents

The aim was to investigate the effects of increased water or dairy intake on total intake of energy, nutrients, foods and dietary patterns in overweight adolescents in the Milk Components and Metabolic Syndrome (MoMS) study (n=173). Participants were randomly assigned to consume 1l/d of skim milk, whey, casein or water for 12 weeks. A decrease in the dietary pattern called Convenience Food, identified by principal component analysis, was observed during the intervention both in the water and dairy groups. Total energy intake decreased by 990.9 kJ/d (236.8 kcal/d) in the water group but was unchanged in the dairy group during intervention. To conclude, an extra intake of fluid seems to favourably affect the rest of the diet by decreasing the intake of convenience foods, including sugar-sweetened beverages. A low energy drink, such as water, seems advantageous considering the total energy intake in these overweight adolescents. This study is registered at clinicaltrials.gov (NCT00785499).

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition, University of Copenhagen
Authors: Andersen, L. B. B. (Ekstern), Arnberg, K. (Ekstern), Trolle, E. (Intern), Michaelsen, K. F. (Ekstern), Bro, R. (Ekstern), Pipper, C. B. (Ekstern), Melgaard, C. (Ekstern)
Number of pages: 11
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Journal: International Journal of Food Sciences and Nutrition
Volume: 67
Issue number: 3
ISSN (Print): 0963-7486
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BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.761 SJR 0.733
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): SJR 0.592 SNIP 0.671 CiteScore 1.61
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.521 SNIP 0.664 CiteScore 1.58
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.493 SNIP 0.712 CiteScore 1.41
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.496 SNIP 0.678 CiteScore 1.48
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.51 SNIP 0.739 CiteScore 1.26
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.539 SNIP 0.776 CiteScore 1.32
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.431 SNIP 0.461
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.505 SNIP 0.769
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.488 SNIP 0.673
Scopus rating (2007): SJR 0.466 SNIP 0.679
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 0.485 SNIP 0.587
Scopus rating (2005): SJR 0.378 SNIP 0.62
The External Quality Assurance System of the WHO Global Foodborne Infections Network, 2014

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, Division of Risk Assessment and Nutrition
Authors: Roer, L. (Intern), Karlsmose Pedersen, S. (Intern), Frimann, J. M. (Intern), Aarestrup, F. M. (Intern), Hendriksen, R. S. (Intern)
Number of pages: 37
Publication date: 2016

Publication information
Place of publication: Søborg
Publisher: National Food Institute, Technical University of Denmark
ISBN (Electronic): 978-87-93109-6
Original language: English
Main Research Area: Technical/natural sciences
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Publication: Commissioned › Report – Annual report year: 2016

The External Quality Assurance System of the WHO Global Foodborne Infections Network, 2015

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, Division of Risk Assessment and Nutrition
Authors: Hendriksen, R. S. (Intern), Karlsmose Pedersen, S. (Intern), Roer, L. (Intern), Frimann, J. M. (Intern), Aarestrup, F. M. (Intern)
Number of pages: 38
Publication date: 2016

Publication information
Place of publication: Søborg
Publisher: National Food Institute, Technical University of Denmark
Original language: English
Main Research Area: Technical/natural sciences
Electronic versions:
Source: PublicationPreSubmission
Source-ID: 124318159
Publication: Commissioned › Report – Annual report year: 2016
The impact of farmers’ participation in field trials in creating awareness and stimulating compliance with the World Health Organization’s farm-based multiple-barrier approach

The results of a study aimed at assessing the extent to which urban vegetable farmers’ participation in field trials can impact on their awareness and engender compliance with the World Health Organization’s farm-based multiple-barrier approach are presented in this paper. Both qualitative and quantitative approaches have been used in this paper. One hundred vegetable farmers and four vegetable farmers’ associations in the Kumasi Metropolis in Ghana were covered.

The individual farmers were grouped into two, namely: (1) participants and (2) non-participants of the farm-based multiple-barrier approach field trials. The results of the study show that participation in the field trials has statistically significant effects on farmers’ awareness of the farm-based multiple-barrier approach. Compliance has, however, been undermined by the farmers’ perception that the cost of compliance is more than the benefits. Policy tools that can address these constraints have been recommended in the paper.

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, DHI Denmark, Kwame Nkrumah University of Science and Technology
Authors: Amponsah, O. (Ekstern), Vigre, H. (Intern), Schou, T. W. (Ekstern), Braimah, I. (Ekstern), Abaidoo, R. C. (Ekstern)
Pages: 1059-1079
Publication date: 2016
Main Research Area: Technical/natural sciences

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Journal: Environment, Development and Sustainability
Volume: 18
Issue number: 4
ISSN (Print): 1387-585X
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 0.67 SJR 0.392
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): SJR 0.385 SNIP 0.921 CiteScore 1.08
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.432 SNIP 0.796 CiteScore 1.04
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.485 SNIP 0.788 CiteScore 1.06
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.412 SNIP 0.865 CiteScore 1.09
ISI indexed (2013): ISI indexed no
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.398 SNIP 0.818 CiteScore 0.91
ISI indexed (2012): ISI indexed no
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.478 SNIP 0.954 CiteScore 1.06
ISI indexed (2011): ISI indexed no
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.36 SNIP 0.828
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.455 SNIP 0.906
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.482 SNIP 1.107
Scopus rating (2007): SJR 0.431 SNIP 0.833
Scopus rating (2006): SJR 0.361 SNIP 0.785
Scopus rating (2005): SJR 0.379 SNIP 0.817
The inner Danish waters as suitable seaweed cultivation area- evaluation of abiotic factors

Increased production of macroalgae may contribute to solving e.g. the demand for food globally. Palmaria palmata and Saccharina latissima are at present demanded and cultivated in European waters, and can potentially be cultivated at even larger scale. The present study investigated suitable cultivation areas in Danish waters for these two algal species in regard to a variation in the abiotic conditions: light, temperature, and the unusual salinity gradient through the inner Danish waters towards the Baltic Sea. Published tolerance levels of the abiotic conditions of the species were reviewed and compared to surveillance data on presence of the species and to empiric abiotic data at five sites in Denmark. Furthermore, in situ experiments were conducted at the locations by deployed vertical ropes with inserted adults of P. palmata and S. latissima at 1-6 m depth. The analysis of the abiotic conditions showed, that light conditions are sufficient to meet the light saturation level of both algae, but large seasonal and a site specific variations in light attenuation determine optimal cultivation depth. Water temperatures were found to exceed the tolerance level for P. palmata in July, August, and September and for S. latissima in August at some sites. A large geographical variation in salinity was seen between sites, with salinities below the tolerance level of P. palmata at most sites. The results the in situ experiments showed increased biomass over a seven months cultivation period for both species at salinities down to 21±3 PSU, and at the low salinity site (17±5 PSU) P. palmata turned green while continuing growing. This most likely due to stress such as low salinity and light. Cultivation of P. palmata near Fredericia provided the highest specific growth rate of 0.038 d-1 which was significant from the other sites. These findings were further discussed and the inner Danish waters evaluated as suitable location for cultivation of the assessed species.

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application
Authors: Grandorf Bak, U. (Intern), Holdt, S. L. (Intern)
Number of pages: 1
Publication date: 2016
Event: Abstract from 22nd International Seaweed Symposium, Copenhagen, Denmark.
Main Research Area: Technical/natural sciences

The Lake Chad Basin, an Isolated and Persistent Reservoir of Vibrio cholerae O1: A Genomic Insight into the Outbreak in Cameroon, 2010

The prevalence of reported cholera was relatively low around the Lake Chad basin until 1991. Since then, cholera outbreaks have been reported every couple of years. The objective of this study was to investigate the 2010/2011 Vibrio cholerae outbreak in Cameroon to gain insight into the genomic make-up of the V. cholerae strains responsible for the outbreak. Twenty-four strains were isolated and whole genome sequenced. Known virulence genes, resistance genes and integrating conjugative element (ICE) elements were identified and annotated. A global phylogeny (378 genomes) was inferred using a single nucleotide polymorphism (SNP) analysis. The Cameroon outbreak was found to be clonal and clustered distant from the other African strains. In addition, a subset of the strains contained a deletion that was found in the ICE element causing less resistance. These results suggest that V. cholerae is endemic in the Lake Chad basin and different from other African strains.

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, Centre Pasteur du Cameroon, Mahidol University
Authors: Kaas, R. S. (Intern), Ngandjio, A. (Ekstern), Nzouankeu, A. (Ekstern), Siriphap, A. (Ekstern), Fonkoua, M. (Ekstern), Aarestrup, F. M. (Intern), Hendriksen, R. S. (Intern)
Number of pages: 12
The new Danish (Q)SAR database: A freely available tool with predictions for > 600,000 substances

General information
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Organisations: National Food Institute, Research Group for Molecular and Reproductive Toxicology, Environmental Protection Agency
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Main Research Area: Technical/natural sciences

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ISSN (Print): 0378-4274
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BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
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Scopus rating (2017): SNIP 1.025 SJR 1.103
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.83 SJR 1.302 SNIP 1.201
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.281 SNIP 1.117 CiteScore 3.62
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.142 SNIP 1.154 CiteScore 3.45
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.11 SNIP 1.199 CiteScore 3.56
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.072 SNIP 1.148 CiteScore 3.41
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.133 SNIP 1.157 CiteScore 3.38
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.233 SNIP 1.15
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.09 SNIP 1.202
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 1.02 SNIP 1.053
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.951 SNIP 1.211
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.018 SNIP 1.277
The New version of Danish food composition database FRIDA including a case study on recipe calculation compared to a chemical analysis

Objective: Constantly updated food data that reflect the food supply, such as the recently published http://frida.fooddata.dk, is essential for recipe calculation in dietary assessment. The objective of this study was to compare the content of selected nutrients estimated by recipe calculation and chemical analysis of fast food based on data from http://frida.fooddata.dk. Materials and methods: New fast food data in http://frida.fooddata.dk was based on 135 samples of ready to eat fast foods as burgers and sandwiches collected from fast food outlets, separated into their recipe components which were weighed. Typical components were bread, French fries, vegetables, meat, and dressings. The fast foods were analyzed and the content of energy, protein, saturated fat, iron, thiamin, potassium and sodium were compared to recipe calculation. Wilcoxon Signed Rank test, Spearman correlation coefficients and Bland-Altman plots were used for comparing the two methods. Results: Overall there were differences between the chemical and recipe analysis for energy, protein, saturated fat and iron (P<0.01), but not for thiamin, potassium and sodium (P>0.05). The error percentage was largest for saturated fat (28%). Correlations ranged from 0.49 for iron to 0.75 for energy. Bland-Altman plots showed larger differences for higher contents for thiamin and potassium. Results depended on the type of fast food. For burgers (n=36) there was no significant difference for any of the nutrients between the two methods. Meat/French fry mix (n=16) had significant differences (P<0.01) for five out of seven nutrients, and the fast food type with the largest difference between the two methods. Significance: Recipe calculation is a cost-effective alternative to chemical analysis in dietary assessment and nutrient labeling. But recipe calculation can introduce deviations compared to chemical analysis. Future challenges for Frida.fooddata.dk in relation to recipe calculation, could be to include more varieties and better coverage of foods used as ingredients.

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition
Authors: Biltoft-Jensen, A. P. (Intern), Saxholt, E. (Intern), Knuthsen, P. (Intern), Christensen, T. (Intern)
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Publication date: 2016
Main Research Area: Technical/natural sciences
Nutrient content, Recipe calculation, Food composition data, Dietary assessment
Electronic versions:
Abstract_recipe_calculation_vs_chemical_analysis_vers_2_1.pdf
Source: PublicationPreSubmission
Source-ID: 127119989
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2016
components which were weighed. Typical components were bread, French fries, vegetables, meat, and dressings. The fast foods were analyzed and the content of energy, protein, saturated fat, iron, thiamin, potassium and sodium were compared to recipe calculation. Wilcoxon Signed Rank test, Spearman correlation coefficients and Bland-Altman plots were used for comparing the two methods. Results: Overall there were differences between the chemical and recipe analysis for energy, protein, saturated fat and iron (P<0.01), but not for thiamin, potassium and sodium (P>0.05). The error percentage was largest for saturated fat (28%). Correlations ranged from 0.49 for iron to 0.75 for energy. Bland-Altman plots showed larger differences for higher contents for thiamin and potassium. Results depended on the type of fast food. For burgers (n=36) there was no significant difference for any of the nutrients between the two methods. Meat/French fry mix (n=16) had significant differences (P<0.01) for five out of seven nutrients, and the fast food type with the largest difference between the two methods. Significance: Recipe calculation is a cost-effective alternative to chemical analysis in dietary assessment and nutrient labeling. But recipe calculation can introduce deviations compared to chemical analysis. Future challenges for Frida.fooddata.dk in relation to recipe calculation, could be to include more varieties and better coverage of foods used as ingredients.

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition
Authors: Christensen, T. (Intern), Biltoft-Jensen, A. P. (Intern)
Number of pages: 18
Publication date: 2016
The acute waste management problems, coupled with the proliferation of small scale industries in many developing countries, make low quality water treatment before use inevitable in the long run. These industries have the potential to discharge effluent containing chemicals and heavy metals into the environment. The indiscriminate use of pharmaceutical products by households in many of these countries is another source of health concern. Low quality water treatment in these countries has however been hampered by the high cost of infrastructure provision and maintenance.

Cost-sharing among stakeholders appears to be a promising strategy to finance and maintain the wastewater treatment infrastructure. In this study therefore, the willingness and ability of urban open space commercial vegetable farmers to pay for reclaimed water for irrigation purposes has been assessed. One hundred open space commercial vegetable farmers and four vegetable farmers’ associations were selected and interviewed in Kumasi in Ghana using semi-structured interview schedules and interview guides respectively. The results of the study show that approximately three out of every five vegetable farmers were willing to pay for reclaimed water for irrigation. The results further show that the probability of being willing to pay by farmers who agreed that the current water they used for irrigation was harmful is approximately 5.3 times greater than that of those who did not. The analysis of the farmers’ ability to pay revealed that all the farmers would be capable of paying for reclaimed water at a price of US$0.11/m³. This has implications for land tenure security and vegetable consumers’ willingness to pay higher prices for the produce.

General information
State: Published
Organisations: National Veterinary Institute, National Food Institute, Research Group for Genomic Epidemiology, DHI Hørsholm, Kwame Nkrumah University of Science and Technology
Authors: Amponsah, O. (Ekstern), Vigre, H. (Intern), Braimah, I. (Ekstern), Schou, T. W. (Ekstern), Abaidoo, R. C. (Ekstern)
Number of pages: 38
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Publication date: 2016
Main Research Area: Technical/natural sciences

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Journal: Heliyon
Volume: 2
Issue number: 3
ISSN (Print): 2405-8440
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Scopus rating (2016): CiteScore 0.62 SJR 0.187 SNIP 0.72
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Agricultural economics, Agriculture, Development
Electronic versions:
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The proficiency test (pilot) report of the global microbial identifier (GMI) initiative, year 2014

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, Technical University of Denmark, University of Sydney, New York State Department of Health, Hvidovre Hospital, Ben Gurion University, National Institute of Standards and Technology, Microbiologics, Inc., Public Health England, US Food & Drug Administration
Authors: Hendriksen, R. S. (Intern), Karlsmose Pedersen, S. (Intern), Larsen, M. V. (Intern), Neubert Pedersen, J. (Ekstern), Lukjancenko, O. (Intern), Kaas, R. S. (Intern), Leekitcharoenphon, P. (Intern), Bergmark, L. (Intern), Hansen, I. M. (Intern), Sintchenko, V. (Ekstern), Wolfgang, W. J. (Ekstern), Westh, H. T. (Ekstern), Moran-Gilad, J. (Ekstern), Hsiao, W. (Ekstern), Cuesta, I. (Ekstern), Barrera, J. (Ekstern), Zaballos, A. (Ekstern), Olson, N. D. (Ekstern), Beck, B. (Ekstern), Underwood, A. (Ekstern), Aarestrup, F. M. (Intern), Strain, E. (Ekstern), Pettengill, J. (Ekstern)
Number of pages: 23
Publication date: 2016

Publication information
There is a need for speciation analysis of selenium in fish feed and fish tissue

General information
State: Published
Authors: Sele, V. (Ekstern), Sloth, J. J. (Intern), Ørnsrud, R. (Ekstern), Amlund, H. (Ekstern)
Number of pages: 1
Publication date: 2016
Main Research Area: Technical/natural sciences
Electronic versions:
Sele_Sloth_Se_speciation_fish_feed_poster_Loen2016_final_Veronika.pdf
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Source-ID: 127052218
Publication: Research - peer-review › Poster – Annual report year: 2016

The risk of chemical cocktail effects and how to deal with the issue

General information
State: Published
Organisations: National Food Institute, Research Group for Molecular Toxicology
Authors: Svingen, T. (Intern), Vinggaard, A. M. (Intern)
Pages: 322-323
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Epidemiology & Community Health
Volume: 70
ISSN (Print): 0143-005X
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 1.484 SJR 1.932
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 2
Scopus rating (2016): SJR 1.849 SNIP 1.391 CiteScore 2.74
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.019 SNIP 1.728 CiteScore 3.23
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.021 SNIP 1.679 CiteScore 2.98
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.923 SNIP 1.653 CiteScore 2.91
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.623 SNIP 1.517 CiteScore 2.72
The use of risk assessment to support control of Salmonella in pork

Despite the effectivity of control measures in the past decade, domestic pork was estimated to be the most important food source for salmonellosis in Denmark in 2014 (Anonymous 2015). Therefore, there is a continued focus on the identification of effective intervention measures in the pig and pork production chain. In this paper, an overview will be given of the results of some research projects that have been performed at the National Food Institute to study the potentials of interventions. In these projects, the specific objective was to estimate the effectivity in terms of reduction of the risk of salmonellosis for the Danish population. The results of these projects illustrate how quantitative microbiological risk assessments (QMRAs) can be applied to support the control of Salmonella in pork.
The "We Act – together for health study": design of a multicomponent intervention study to promote physical activity, healthy diet and wellbeing in school among children aged 10-12 years

Background: Strategies to improve health behavior and wellbeing of Danish children are needed. A multicomponent intervention “WeAct – together for health” was developed to improve the dietary habits, physical activity and wellbeing among school children aged 10-12 years by increasing their health competences and promoting a healthy school environment. This paper describes the development and evaluation of the intervention guided by theory and adjustment to real life setting.

Methods: The intervention builds upon the health promoting school approach and the IVAC model. The settings are the school and the family. Three educational components targeted the school: 1) Lunch meal habits integrated into science and Danish (“IEAT”) and physical activity integrated into maths (“IMOVE”), 2) Vision workshop integrated primarily into Danish, and 3) the Action and Change process at class and school level. Teachers participated in a course to develop competencies regarding the holistic health concept, active involvement of school children and the IVAC approach. Components developed for parental support included a homepage, an APP, a Facebook-group and a handout produced by their child.

A quasi-experimental study design with 4 intervention schools and 4 matched control schools was conducted. In total 658 school children participated. The baseline data were collected in October/November 2015 and the follow-up in May/June 2016 with the intervention in between the measurements. The quality of dietary intake during the school day was measured using a digital photographic method, physical activity was registered by pedometers and an electronic questionnaire was used to assess wellbeing among the pupils. A process evaluation was done.

Results and conclusion: The recruitment of schools for the full health promoting school process was demanding due to the context of the school reform and the present pressure on schools. In total 27 municipalities and 256 schools were contacted. A moderation of the theory based intervention, reducing the school level, was done to recruit the necessary number of schools. The result of theory and real life setting has been an intervention focusing on health education but in a health promoting perspective.

Toxic Elements

Food is considered the main source of toxic element (arsenic, cadmium, lead, and mercury) exposure to humans, and they can cause major public health effects. In this chapter, we discuss the most important sources for toxic element in food and the foodstuffs which are significant contributors to human exposure. The occurrence of each element in food classes from different regions is presented. Some of the current toxicological risk assessments on toxic elements, the human health effect of each toxic element, and their contents in the food legislations are presented. An overview of analytical techniques and challenges for determination of toxic elements in food is also given.
Translation of risk factor estimates into on-farm interventions and their effect on Campylobacter broiler flock prevalence

Before deciding upon interventions to control Campylobacter in broiler flocks, it would be useful to estimate the potential effects of different interventions. Certain previously identified risk factors for colonization of broiler flocks with Campylobacter may seem to have large impact on the broiler flock prevalence. Nevertheless, interventions related to these risk factors may have only limited effect on the overall prevalence estimate, since in practice only a relatively small
fraction of farms are actually amenable for an intervention related to a given risk factor. We present a novel method for the risk assessor that predicts effects of interventions at the farm, based on results from a risk factor study that included data from six European countries (Denmark, Netherlands, Norway, Poland, Spain and United Kingdom). In the present study, five previously identified risk factors, which had shown to have significant impact on Campylobacter flock prevalence, were translated into practical on-farm interventions. Given the implementation of these interventions the population prevalence was predicted by developing and using a statistical method anchored in the ideas behind standardized population estimations using logistic regression. To obtain population estimates per country, the predicted prevalence values were multiplied by the frequencies (no. of farms) in a reference population based on data from the risk factor study and a large questionnaire. The latter was included to improve the representativeness of the reference population. Population prevalence estimates were calculated before and after implementation of a given intervention in the six countries. Results showed that if biosecurity was not accounted for, some individual interventions resulted in a limited reduction of the population prevalence. The reduction differed between countries depending on the current farm management practices and the actual flock prevalence level. In general, the most effective interventions were “building new houses with strict biosecurity for all houses older than 15 years” and “apply drinkers with nipples without cups”. In conclusion, the novel method translates results from risk factor studies into effects of on-farm interventions for the reduction of the prevalence of Campylobacter in broiler flocks. The method is very useful for providing the basis for risk management decisions. The usefulness would improve further when the results are integrated with costs of interventions in a cost effectiveness study. The approach was developed for Campylobacter in broiler flocks, but it can also be applied to other pathogens and other farm animals, given that the required data are available.

**General information**

State: Published  
Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, National Food Institute, Research Group for Risk-Benefit  
Authors: Sommer, H. M. (Intern), Nauta, M. (Intern), Rosenquist, H. (Intern)  
Number of pages: 11  
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Main Research Area: Technical/natural sciences

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Volume: 2-3  
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European study, Intervention, Logistic regression, On-farm Campylobacter control, Standardized population estimate, Translation model  
DOIs:  
10.1016/j.mran.2016.06.001  
Source: Findit  
Source-ID: 2305408551  
Publication: Research - peer-review › Journal article – Annual report year: 2016

**Two listeria outbreaks caused by smoked fish consumption-using whole-genome sequencing for outbreak investigations**

Listeria monocytogenes may contaminate and persist in food production facilities and cause repeated, seemingly sporadic, illnesses over extended periods of time. We report on the investigation of two such concurrent outbreaks. We compared patient isolates and available isolates from foods and food production facilities by use of whole-genome sequencing and subsequent multilocus sequence type and single nucleotide polymorphism analysis. Outbreak cases shared outbreak strains, defined as Listeria monocytogenes isolates belonging to the same sequence type with fewer than five single nucleotide polymorphism differences. We performed routine food consumption interviews of L. monocytogenes patients and compared outbreak cases with sporadic cases. Two outbreaks were defined, each consisting of ten outbreak cases in the period 2013-15. Seven outbreak cases and a fetus in gestational week 38 died. Listeria monocytogenes isolates from cold smoked or gravad fish products or their two respective production environments were repeatedly found to belong to the outbreak strains. Outbreak cases more often than sporadic cases stated that they consumed the relevant fish products, odds ratio 10.7. Routine collection and typing of food isolates was key to solving the outbreaks. Furthermore, these outbreaks illustrate the value of whole-genome sequencing for outbreak definition and investigation. Whole-genome sequencing combined with epidemiological investigations provided the discriminatory power to recognize low-intensity, extended time-period outbreaks and link them to food products from two different contaminated production facilities with sufficient strength for food authorities to intervene on. Cold smoked and gravad fish constitute risk products and may be responsible for more listeriosis cases than previously recognized.

**General information**

State: Published  
Organisations: National Food Institute, Research Group for Analytical and Predictive Microbiology, Research Group for Genomic Epidemiology, Statens Serum Institut, Danish Veterinary and Food Administration  
Authors: Gillesberg Lassen, S. (Ekstern), Ethelberg, S. (Ekstern), Björkman, J. T. (Ekstern), Jensen, T. (Ekstern), Sørensen, G. (Intern), Kvistholm Jensen, A. (Ekstern), Muller, L. (Ekstern), Nielsen, E. M. (Ekstern), Mølbak, K. (Ekstern)
Use of Linear Programming to Develop Cost-Minimized Nutritionally Adequate Health Promoting Food Baskets

Food-Based Dietary Guidelines (FBDGs) are developed to promote healthier eating patterns, but increasing food prices may make healthy eating less affordable. The aim of this study was to design a range of cost-minimized nutritionally adequate health-promoting food baskets (FBs) that help prevent both micronutrient inadequacy and diet-related non-communicable diseases at lowest cost. Average prices for 312 foods were collected within the Greater Copenhagen area. The cost and nutrient content of five different cost-minimized FBs for a family of four were calculated per day using linear programming. The FBs were defined using five different constraints: cultural acceptability (CA), or dietary guidelines (DG), or nutrient recommendations (N), or cultural acceptability and nutrient recommendations (CAN), or dietary guidelines and nutrient recommendations (DGN). The variety and number of foods in each of the resulting five baskets was increased through limiting the relative share of individual foods. The one-day version of N contained only 12 foods at the minimum cost of DKK 27 (€ 3.6). The CA, DG, and DGN were about twice of this and the CAN cost ~DKK 81 (€ 10.8). The baskets with the greater variety of foods contained from 70 (CAN) to 134 (DGN) foods and cost between DKK 60 (€ 8.1, N) and DKK 125 (€ 16.8, DGN). Ensuring that the food baskets cover both dietary guidelines and nutrient recommendations doubled the cost while cultural acceptability (CAN) tripled it. Use of linear programming facilitates the generation of low-cost food baskets that are nutritionally adequate, health promoting, and culturally acceptable.
Validation of Reported Whole-Grain Intake from a Web-Based Dietary Record against Plasma Alkylresorcinol Concentrations in 8- to 11-Year-Olds Participating in a Randomized Controlled Trial

BACKGROUND: Whole-grain (WG) intake is important for human health, but accurate intake estimation is challenging. Use of a biomarker for WG intake provides a possible way to validate dietary assessment methods. OBJECTIVE: Our aim was to validate WG intake from 2 diets reported by children, using plasma alkylresorcinol (AR) concentrations, and to investigate the 3-mo reproducibility of AR concentrations and reported WG intake. METHODS: AR concentrations were analyzed in fasting blood plasma samples, and WG intake was estimated in a 7-d web-based diary by 750 participants aged 8-11 y in a 2 school meal × 3 mo crossover trial. Reported WG intake and plasma AR concentrations were compared when children ate their usual bread-based lunch (UBL) and when served a hot lunch meal (HLM). Correlations and cross-classification were used to rank subjects according to intake. The intraclass correlation coefficients (ICCs) between subjects' measurements at baseline and after the UBL were used to assess reproducibility. RESULTS: Correlations between reported WG wheat + rye intake and plasma AR were 0.40 and 0.37 (P <0.001) for the UBL and the HLM diets, and 78% and 77% were classified in the same or adjacent quartiles for the UBL and HLM diets, respectively. The ICC over 3 mo was 0.47 (95% CI: 0.38, 0.55) for plasma total ARs and 0.64 (95% CI: 0.58, 0.70) for reported WG intake. Correlations were higher when using the AR C17:0 homolog as a biomarker, reflecting rye intake instead of plasma total ARs [UBL: r = 0.47; HLM: r = 0.43, P <0.001; ICC = 0.51 (95% CI: 0.43, 0.59)]. CONCLUSIONS: Self-reported WG wheat + rye intake among children showed moderate correlations with plasma AR concentrations. Substantial intraindividual variation was found in WG intake and plasma AR concentrations. The AR homolog C17:0 may be used as a biomarker for WG intake when the WG intake primarily comes from rye as in the present study. This trial was registered at clinicaltrials.gov as NCT01457794.
Variation in growth and quality of Saccharina latissima cultivated in the Faroe Islands

Macroalgal cultivation is a developing industry in the western part of the world, and in the Faroe Islands experimental cultivation including Alaria esculenta, Laminaria hyperborea and Saccharina latissima, has been carried out since 2005. The cultivation experiments with A. esculenta and S. latissima have shown promising results with regard to growth and yield, but the quality and composition of the cultivated biomass has not been investigated. Protein level and amino acid composition are essential factors when estimating the quality of the produced biomass for food and/or feed, but how does e.g. seasonality, exposure and nutrient levels affect these factors. Current work investigated growth and yield in cultivated S. latissima in a sound in the Faroe Islands, and studied the variation in total Kjeldal nitrogen, nitrate and protein content and changes in amino acid composition with regard to season (spring and summer), and exposure (current exposed, wave exposed and sheltered). To enable comparison we also investigated the variation in total Kjeldal nitrogen, nitrate and protein content and changes in amino acid composition in wild S. latissima populations. In the cultivated biomass there was a significantly lower yield at the current exposed site (5.2 ± 0.4 kg m⁻¹) compared to the sheltered (9.9 ± 1.3 kg m⁻¹) and the wave exposed (8.0 ± 1.5 kg m⁻¹). The growth rate (SGR) did not differ with regard to exposure, however the weight of the individuals at the current exposed site was significantly higher compared to the individuals at the sheltered and wave exposed sites through out the cultivation period. In both the cultivated biomass and the natural populations a significant seasonal differences was observed in the total Kjeldal nitrogen, nitrate and protein levels and amino acid composition. A significant difference related to exposure degree was observed in total Kjeldal nitrogen and nitrogen, but this was not observed for protein and amino acid composition.

Variation in modelled healthy diets based on three different food patterns identified from the Danish national diet – and the impact on carbon footprint Nordic Nutrition Conference, Gothenburg 2016 (poster)

Background and aims: A healthy diet complies with the national food-based dietary guidelines (FBDG) and Nordic nutrition recommendations (NNR2012). In this study we aim at 1) developing new healthy diet compositions by a simple diet modelling technique that ensures a nutrient content in accordance with the recommended values and depending on food preferences and habits, and 2) further optimizing the diet composition with regard to carbon footprint (CF).

Methods: We used a simple modelling of the ‘Traditional’, ‘Health conscious’ and ‘Fast food’ patterns identified from national dietary data (1)Knudsen et al. 2014) into isocaloric healthy diets that fulfil the Danish FBDGs and NNR2012 with respect to both micro- and macronutrients. Furthermore we updated the list of estimated carbon footprint (CF) of food items included in the diets and further optimized the diet composition with regard to CF. Extension of modelling was used to optimise the diets with regard to their estimated carbon footprint (CF).

Results: Around 365 food items are included in the three food patterns. Based on literature CF of these foods is updated,
including the contribution from waste, transportation and cooking at home. Despite variation in the amounts of contribution of foods in each food group and in the composition of foods within each food group, the estimated CFs of the modelled healthy dietary patterns are similar to original Danish patterns. CFs of the CF-optimized dietary patterns similar to each other, and CF of CF-optimized dietary patterns are approx. 25% lower. Only a small contribution to CF from transportation and cooking at home.

Conclusion: Different dietary patterns can fulfill dietary recommendations. Specific optimization is needed to lower the CF of the diets.

**General information**

State: Published  
Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Aarhus University  
Authors: Trolle, E. (Intern), Thorsen, A. V. (Intern), Mogensen, L. (Ekstern), Christensen, T. (Intern)  
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Publication: Research - peer-review › Poster – Annual report year: 2016

**Variation in modelled healthy diets based on three different food patterns identified from the Danish national diet – and the impact on carbon footprint Nordic Nutrition Conference, Gothenburg 2016 (poster)**

Background and aims: A healthy diet complies with the national food-based dietary guidelines (FBDG) and Nordic nutrition recommendations (NNR2012). In this study we aim at 1) developing new healthy diet compositions by a simple diet modelling technique that ensures a nutrient content in accordance with the recommended values and depending on food preferences and habits, and 2) further optimizing the diet composition with regard to carbon footprint (CF).

Methods: We used a simple modelling of the ‘Traditional’, ‘Health conscious’ and ‘Fast food’ patterns identified from national dietary data (Knudsen et al. 2014) into isocaloric healthy diets that fulfill the Danish FBDGs and NNR2012 with respect to both micro- and macronutrients. Furthermore we updated the list of estimated carbon footprint (CF) of food items included in the diets and further optimized the diet composition with regard to CF. Extension of modelling was used to optimise the diets with regard to their estimated carbon footprint (CF).

Results: Around 365 food items are included in the three food patterns. Based on literature CF of these foods is updated, including the contribution from waste, transportation and cooking at home. Despite variation in the amounts of contribution of foods in each food group and in the composition of foods within each food group, the estimated CFs of the modelled healthy dietary patterns are similar to original Danish patterns. CFs of the CF-optimized dietary patterns similar to each other, and CF of CF-optimized dietary patterns are approx. 25% lower. Only a small contribution to CF from transportation and cooking at home.

Conclusion: Different dietary patterns can fulfill dietary recommendations. Specific optimization is needed to lower the CF of the diets.

**General information**

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Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Aarhus University  
Authors: Trolle, E. (Intern), Thorsen, A. V. (Intern), Mogensen, L. (Ekstern), Christensen, T. (Intern)  
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**Variation in the effect of carcass decontamination impacts the risk for consumers**

• The variation of decontamination has an effect on consumer risk reduction.  
• The effect of variation on risk is lower when mean log reduction is high.  
• The effect of variation on risk also depends on initial carcass contamination.  
• The effect of decontamination should be expressed as consumer risk reduction.

**General information**

State: Published  
Organisations: National Food Institute, Research Group for Genomic Epidemiology, Division of Epidemiology and Microbial Genomics, Research Group for Risk-Benefit, Research Group for Microbial Food Safety and Quality  
Authors: Ribeiro Duarte, A. S. (Intern), Nauta, M. (Intern), Aabo, S. (Intern)
Visible spectroscopy as a tool for the assessment of storage conditions of fresh pork packaged in modified atmosphere

The storage conditions of fresh meat are known to impact its colour and microbial shelf life. In the present study, visible spectroscopy was evaluated as a method to assess meat storage conditions and its optimisation. Fresh pork steaks (longissimus thoracis et lumborum and semimembranosus) were placed in modified atmosphere packaging using gas mixtures containing 0, 40, 50, and 80% oxygen, and stored with or without light for up to 9days. Principal component analysis of visible reflectance spectra (400-700nm) showed that the colour of the different meat cuts was affected by presence of oxygen, illumination, and storage time. Differences in the oxygen levels did not contribute to the observed variance. Predictive models based on partial least squares regression-discriminant analysis exhibited high potency in the classification of the storage parameters of meat cuts packaged in modified atmosphere. The study demonstrates the applicability of visible spectroscopy as a tool to assess the storage conditions of meat cuts packaged in modified atmosphere.
Vitamin D3 and 25-hydroxyvitamin D3 in pork and their relationship to vitamin D status in pigs

The content of vitamin D in pork produced in conventional systems depends on the vitamin D concentration in the pig feed. Both vitamin D3 and 25-hydroxyvitamin D3 (25(OH)D3) are essential sources of dietary vitamin D; however, bioavailability assessed by serum 25(OH)D3 concentration is reported to be different between the two sources. Furthermore, the relationship between serum 25(OH)D3 level and the tissue content of vitamin D3 and 25(OH)D3 is unknown. The objective of this study was to investigate the potential of increasing the content of vitamin D in different pig tissues by increasing the levels of vitamin D3 and 25(OH)D3 in the pig feed for 49 d before slaughter. Concurrently, the 25(OH)D3 level in serum was investigated as a biomarker to assess the content of vitamin D3 and 25(OH)D3 in pig tissues. Adipose tissue, white and red muscle, the liver and serum were sampled from pigs fed feed containing either vitamin D3 or 25(OH)D3 at 5, 20, 35 or 50 µg/kg feed for 7 weeks before slaughter. The tissue 25(OH)D3 level was significantly higher in the pigs fed 25(OH)D3 compared with those fed vitamin D3, while the tissue vitamin D3 level was higher in the pigs fed vitamin D3 compared with those fed 25(OH)D3. The content of 25(OH)D3 in the different tissues fully correlated with the serum 25(OH)D3 level, whereas the correlation between the tissue content of vitamin D3 and serum 25(OH)D3 was dependent on the source of the ingested vitamin D3.
Vitamin D-enhanced eggs are protective of wintertime serum 25-hydroxyvitamin D in a randomized controlled trial of adults

Despite numerous animal studies that have illustrated the impact of additional vitamin D in the diet of hens on the resulting egg vitamin D content, the effect of the consumption of such eggs on vitamin D status of healthy individuals has not, to our knowledge, been tested. We performed a randomized controlled trial (RCT) to investigate the effect of the consumption of vitamin D-enhanced eggs (produced by feeding hens at the maximum concentration of vitamin D3 or serum 25-hydroxyvitamin D [25(OH)D3] lawfully allowed in feed) on winter serum 25(OH)D in healthy adults. We conducted an 8-wk winter RCT in adults aged 45-70 y (n = 55) who were stratified into 3 groups and were requested to consume ≤2 eggs/wk (control group, in which status was expected to decline), 7 vitamin D3-enhanced eggs/wk, or seven 25(OH)D3-enhanced eggs/wk. Serum 25(OH)D was the primary outcome. Although there was no significant difference (P > 0.1; ANOVA) in the mean preintervention serum 25(OH)D in the 3 groups, it was ∼7-8 nmol/L lower in the control group than in the 2 groups who consumed vitamin D-enhanced eggs. With the use of an ANCOVA, in which baseline 25(OH)D was accounted for, vitamin D3-egg and 25(OH)D3-egg groups were shown to have had significantly higher (P ≤ 0.005) postintervention serum 25(OH)D than in the control group. With the use of a within-group analysis, it was shown that, although serum 25(OH)D in the control group significantly decreased over winter (mean ± SD: -6.4 ± 6.7 nmol/L; P = 0.001), there was no change in the 2 groups who consumed vitamin D-enhanced eggs (P > 0.1 for both). Weekly consumption of 7 vitamin D-enhanced eggs has an important impact on winter vitamin D status in adults.

General information
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Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, University College Cork
Authors: Hayes, A. (Ekstern), Duffy, S. (Ekstern), O'Grady, M. (Ekstern), Jakobsen, J. (Intern), Galvin, K. (Ekstern), Teahan-Dillon, J. (Ekstern), Kerry, J. (Ekstern), Kelly, A. (Ekstern), O'Doherty, J. (Ekstern), Higgins, S. (Ekstern), Seamans, K. M. (Ekstern), Cashman, K. D. (Ekstern)
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Scopus rating (2017): SNIP 2.191 SJR 3.438
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BFI (2015): BFI-level 2
Scopus rating (2015): SJR 3.899 SNIP 2.394 CiteScore 5.87
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 3.853 SNIP 2.385 CiteScore 5.71
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BFI (2013): BFI-level 2
Scopus rating (2013): SJR 4.055 SNIP 2.58 CiteScore 6.38
ISI indexed (2013): ISI indexed yes
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Scopus rating (2012): SJR 3.744 SNIP 2.432 CiteScore 6.05
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BFI (2010): BFI-level 2
Scopus rating (2010): SJR 3.307 SNIP 2.234
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 3.25 SNIP 2.453
BFI (2008): BFI-level 2
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Web of Science (2008): Indexed yes
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Web of Science (2007): Indexed yes
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Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 2.664 SNIP 2.594
Web of Science (2003): Indexed yes
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Vitamin D in salmonids – wild and farmed, from head to tail – impact on dietary intake?

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Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Daithi O'Murchu Marine Research Station
Authors: Jakobsen, J. (Intern), Knuthsen, P. (Intern), Smith, C. (Ekstern)
Number of pages: 1
Publication date: 2016
Event: Abstract from International Vitamin Conference 2016, Copenhagen, Denmark.
Main Research Area: Technical/natural sciences
Electronic versions:
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Vitaminer i 100 år

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Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Division of Risk Assessment and Nutrition
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Volatile organic compounds and Photobacterium phosphoreum associated with spoilage of modified-atmosphere-packaged raw pork
Accumulation of volatile organic compounds was monitored in association with sensory quality, bacterial concentrations and culture-independent microbial community analyses in raw pork loin and pork collar during storage under high-oxygen modified atmosphere at +4°C. Of the 48 volatile compounds detected in the pork samples, the levels of acetoin, diacetyl and 3-methyl-1-butanol had the highest correlations with the sensory scores and bacterial concentrations. These compounds accumulated in all of the four monitored lots of non-sterile pork but not in the sterilized pork during chilled storage. According to the culture-dependent and culture-independent characterization of bacterial communities, Brochothrix thermosphacta, lactic acid bacteria (Carnobacterium, Lactobacillus, Lactococcus, Leuconostoc, Weissella) and Photobacterium spp. predominated in pork samples. Photobacterium spp., typically not associated with spoilage of meat, were detected also in 8 of the 11 retail packages of pork investigated subsequently. Eleven isolates from the pork samples were shown to belong to Photobacterium phosphoreum by phenotypic tests and sequencing of the 16S rRNA and gyrB gene fragments. Off-odors in pork samples with high proportion of Photobacterium spp. were associated with accumulation of acetoin, diacetyl and 3-methyl-1-butanol in meat, but these compounds did not explain all the off-odors reported in sensory analyses.

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Organisations: National Food Institute, Research Group for Microbial Food Safety and Quality, University of Helsinki
Authors: Nieminen, T. T. (Ekstern), Dalgaard, P. (Intern), Björkroth, J. (Ekstern)
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Scopus rating (2017): SJR 1.366 SNIP 1.436
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Wellbeing at work among kitchen workers during organic food conversion in Danish public kitchens: a longitudinal survey

Background: In 2011, the Danish Ministry of Food, Agriculture and Fisheries launched the Danish Organic Action Plan 2020 intending to double the organic agricultural area in Denmark. This study aims to measure experienced physical and psychological wellbeing at work along with beliefs and attitudes among kitchen workers before and after participating in educational training programmes in organic food conversion. Method: This longitudinal study applied an online self-administered questionnaire among kitchen workers before and after the implementation of an organic food conversion programme with 1-year follow-up. The study targeted all staff members in the participating public kitchens taking part in the organic food conversion process funded by the Danish Organic Action Plan 2020. Results: Of the 448 eligible kitchen workers, 235 completed the questionnaire at baseline (52%) and 149 at follow-up (63% of those surveyed at baseline). No substantive differences between baseline and follow-up measurements of organic food conversion were detected on physical or psychological wellbeing at work. Kitchen workers reported a significant improvement in the perceived food quality, motivation to work and application of nutritional guidelines. Reported organic food percentages for the kitchens also increased significantly (P < 0.001) and a shift from using ready-made food products to producing more food from base was indicated. Conclusion: Within 1 year, a significant increase in motivation to work among kitchen staff was observed with no substantive changes in physical or psychological wellbeing at work identified. The results support the Danish Organic Action Plan 2020 and initiatives of similar kind.

General information
State: Published
Organisations: Research Group for Risk-Benefit, National Food Institute, Center for Bachelor of Engineering Studies, Division of Risk Assessment and Nutrition, University of Sydney
Authors: Sørensen, N. N. (Intern), Løje, H. (Intern), Tetens, I. (Intern), HY Wu, J. (Ekstern), Neal, B. (Ekstern), Lassen, A. D. (Intern)
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Web of Science (2017): Indexed Yes
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Scopus rating (2016): SJR 1.466 SNIP 1.393 CiteScore 2.49
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.344 SNIP 1.339 CiteScore 2.32
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.302 SNIP 1.255 CiteScore 2.1
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.142 SNIP 1.23 CiteScore 2
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.06 SNIP 1.347 CiteScore 1.95
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.091 SNIP 1.387 CiteScore 2.01
ISI indexed (2011): ISI indexed yes
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BFI (2009): BFI-level 2
Where does Salmonella hide after grinding of meat?

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Organisations: National Food Institute, Research Group for Microbial Food Safety, Technical University of Denmark
Authors: Hansen, T. B. (Intern), Møller, C. O. D. A. (Intern), Hansen, S. K. H. (Intern), Andersen, B. (Ekstern), Aabo, S. (Intern)
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Whole genome sequencing as a tool for phylogenetic analysis of clinical strains of Mitis group streptococci

Identification of Mitis group streptococci (MGS) to the species level is challenging for routine microbiology laboratories. Correct identification is crucial for the diagnosis of infective endocarditis, identification of treatment failure, and/or infection relapse. Eighty MGS from Danish patients with infective endocarditis were whole genome sequenced. We compared the phylogenetic analyses based on single genes (recA, sodA, gdh), multigene (MLSA), SNPs, and core-genome sequences. The six phylogenetic analyses generally showed a similar pattern of six monophyletic clusters, though a few differences were observed in single gene analyses. Species identification based on single gene analysis showed their limitations when more strains were included. In contrast, analyses incorporating more sequence data, like MLSA, SNPs and core-genome analyses, provided more distinct clustering. The core-genome tree showed the most distinct clustering.
Whole-genome Sequencing Used to Investigate a Nationwide Outbreak of Listeriosis Caused by Ready-to-eat Delicatessen Meat, Denmark, 2014

Listeriosis is a serious foodborne infection. Outbreaks of listeriosis occur rarely, but have often proved difficult to solve. In June 2014, we detected and investigated a listeriosis outbreak in Denmark using patient interviews and whole-genome sequencing (WGS). We performed WGS on Listeria monocytogenes isolates from patients and available isolates from ready-to-eat foods and compared them using single-nucleotide polymorphism (SNP) analysis. Case patients had L. monocytogenes with ≤3 SNPs (the outbreak strain) isolated in September 2013-December 2014. Through interviews, we established case patients' food and clinical histories. Food production facilities were inspected and sampled, and we performed trace-back/trace-forward of food delivery chains. In total, 41 cases were identified; 17 deaths occurred (41%). An isolate from a delicatessen meat (spiced meat roll) from company A was identical to the outbreak strain. Half of the patients were infected while hospitalized/institutionalized; institutions were supplied food by company A. The outbreak strain was repeatedly isolated from further samples taken within this company and within companies in its distribution chain. Products from company A were traced and recalled from >6000 food establishments, after which the outbreak ended. Ready-to-eat spiced meat roll from a single production facility caused this outbreak. The product, served sliced and cold, is popular among the elderly; serving it at hospitals probably contributed to the high case-fatality rate. WGS used for patient isolates and isolates from food control inspections, coupled with routine epidemiological follow-up, was instrumental in swiftly locating the source of infections, preventing further illnesses and deaths.

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Authors: Kvistholm Jensen, A. (Ekstern), Nielsen, E. M. (Ekstern), Björkman, J. T. (Ekstern), Jensen, T. (Ekstern), Müller, L. (Ekstern), Persson, S. (Ekstern), Bjørgager, G. (Ekstern), Perge, A. (Ekstern), Krause, T. G. (Ekstern), Kil, K. (Ekstern), Sørensen, G. (Intern), Andersen, J. K. (Intern), Mølbak, K. (Ekstern), Ethelberg, S. (Ekstern)
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Scopus rating (2011): SJR 4.292 SNIP 3.233 CiteScore 6.09
BackgroundThe Foodborne Disease Burden Epidemiology Reference Group (FERG) was established in 2007 by the World Health Organization (WHO) to estimate the global burden of foodborne diseases (FBDs). This estimation is complicated because most of the hazards causing FBD are not transmitted solely by food; most have several potential exposure routes consisting of transmission from animals, by humans, and via environmental routes including water. This paper describes an expert elicitation study conducted by the FERG Source Attribution Task Force to estimate the relative contribution of food to the global burden of diseases commonly transmitted through the consumption of food.Methods and FindingsWe applied structured expert judgment using Cooke's Classical Model to obtain estimates for 14 subregions for the relative contributions of different transmission pathways for eleven diarrheal diseases, seven other infectious diseases and one chemical (lead). Experts were identified through international networks followed by social network sampling. Final selection of experts was based on their experience including international working experience. Enrolled experts were scored on their ability to judge uncertainty accurately and informatively using a series of subject-matter specific 'seed' questions whose answers are unknown to the experts at the time they are interviewed. Trained facilitators elicited the 5th, and 50th and 95th percentile responses to seed questions through telephone interviews. Cooke's Classical Model uses responses to the seed questions to weigh and aggregate expert responses. After this interview, the experts were asked to provide 5th, 50th, and 95th percentile estimates for the 'target' questions regarding disease transmission routes. A total of 72 experts were enrolled in the study. Ten panels were global, meaning that the experts should provide estimates for all 14 subregions, whereas the nine panels were subregional, with experts providing estimates for one or more subregions, depending on their experience in the region. The size of the 19 hazard-specific panels ranged from 6 to 15 persons with several experts serving on more than one panel. Pathogens with animal reservoirs (e.g. non-typhoidal Salmonella spp. and Toxoplasma gondii) were in general assessed by the experts to have a higher proportion of illnesses attributable to food than pathogens with mainly a human reservoir, where human-to-human transmission (e.g. Shigella spp. and Norovirus) or waterborne transmission (e.g. Salmonella Typhi and Vibrio cholerae) were judged to dominate. For many pathogens, the foodborne route was assessed relatively more important in developed subregions than in developing subregions. The main exposure routes for lead varied across subregions, with the foodborne route being assessed most important only in two subregions of the European region.ConclusionsFor the first time, we present worldwide estimates of the proportion of specific diseases attributable to food and other major transmission routes. These findings are essential for global burden of FBD estimates. While gaps exist, we believe the estimates presented here are the best current source of guidance to support decision makers when allocating resources for control and intervention, and for future research.
16S rRNA gene sequencing as a tool to study microbial populations in foods and process environments: limitations and opportunities

Introduction: Methodological constraints during culturing and biochemical testing have left the true microbiological diversity of foods and process environments unexplored. Culture-independent molecular methods, such as 16S rRNA gene sequencing, may provide deeper insight into microbial communities and their role in food safety. During method optimization, we have identified several factors which distort the characterization of microbial populations, including DNA extraction methods, DNA polymerases, and most importantly the analyzed fragment of the 16S rRNA gene.

Methods: This study investigated microbial communities in meat and the meat process environment with special focus on the Enterobacteriaceae family as a subpopulation comprising enteropathogens including Salmonella. Samples were analyzed by a nested PCR approach combined with MiSeq® Illumina®16S DNA sequencing and standardized culture methods as cross reference.

Results: Taxonomic assignments and abundances of sequences in the total community and in the Enterobacteriaceae subpopulation were affected by the 16S rRNA gene variable region, DNA extraction methods, and polymerases chosen. However, community compositions were very reproducible when the same methods were used.

Conclusions: Altogether, we have shown that conclusions from population studies based on 16S rRNA gene sequencing need to be made with caution. Overcoming the constraints, we believe that population studies can give new research possibilities for e.g. interaction studies, identification and growth of indicator organisms, or source attribution.
16S rRNA gene sequencing as a tool to study microbial populations in foods and process environments – limitations and opportunities

General information
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Organisations: National Food Institute, Research Group for Microbial Food Safety, Research Group for Gut Microbiology and Immunology
Authors: Buschhardt, T. (Intern), Hansen, T. B. (Intern), Bahl, M. I. (Intern), Abu Al-Soud, W. (Ekstern), Asser Hansen, M. (Ekstern), Aabo, S. (Intern)
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20 Years of Risk-Based International Trade - Successes and Failures of the WTO

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Authors: Stanton, G. (Ekstern), Cahill, S. (Ekstern), Andersen, J. K. (Intern), Buchanan, R. (Ekstern), Stephens, A. (Ekstern), Jenson, I. (Ekstern)
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Web of Science (2013): Indexed yes
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Scopus rating (2012): SJR 1.083 SNIP 0.981 CiteScore 2.03
A Bayesian approach to the evaluation of risk-based microbiological criteria for Campylobacter in broiler meat

Shifting from traditional hazard-based food safety management toward risk-based management requires statistical methods for evaluating intermediate targets in food production, such as microbiological criteria (MC), in terms of their effects on human risk of illness. A fully risk-based evaluation of MC involves several uncertainties that are related to both the underlying Quantitative Microbiological Risk Assessment (QMRA) model and the production-specific sample data on the prevalence and concentrations of microbes in production batches. We used Bayesian modeling for statistical inference and evidence synthesis of two sample data sets. Thus, parameter uncertainty was represented by a joint posterior distribution, which we then used to predict the risk and to evaluate the criteria for acceptance of production batches. We also applied the Bayesian model to compare alternative criteria, accounting for the statistical uncertainty of parameters, conditional on the data sets. Comparison of the posterior mean relative risk, \( E(RR|\text{data}) = E(P(\text{illness}|\text{criterion is met})/P(\text{illness})|\text{data}) \), and relative posterior risk, \( \text{RPR} = P(\text{illness}|\text{data, criterion is met})/P(\text{illness}|\text{data}) \), showed very similar results, but computing is more efficient for RPR. Based on the sample data, together with the QMRA model, one could achieve a relative risk of 0.4 by insisting that the default criterion be fulfilled for acceptance of each batch.

General information

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Organisations: National Food Institute, Research Group for Risk-Benefit, Finnish Food Safety Authority, Swedish University of Agricultural Sciences, National Veterinary Institute Sweden
Authors: Ranta, J. (Ekstern), Lindqvist, R. (Ekstern), Hansson, I. (Ekstern), Tuominen, P. (Ekstern), Nauta, M. (Intern)
Number of pages: 18
A catalog of the mouse gut metagenome

We established a catalog of the mouse gut metagenome comprising ∼2.6 million nonredundant genes by sequencing DNA from fecal samples of 184 mice. To secure high microbiome diversity, we used mouse strains of diverse genetic backgrounds, from different providers, kept in different housing laboratories and fed either a low-fat or high-fat diet. Similar to the human gut microbiome, >99% of the cataloged genes are bacterial. We identified 541 metagenomic species and defined a core set of 26 metagenomic species found in 95% of the mice. The mouse gut microbiome is functionally similar to its human counterpart, with 95.2% of its Kyoto Encyclopedia of Genes and Genomes (KEGG) orthologous groups in common. However, only 4.0% of the mouse gut microbial genes were shared (95% identity, 90% coverage) with those of the human gut microbiome. This catalog provides a useful reference for future studies.

General information

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Organisations: National Food Institute, Department of Systems Biology, Center for Biological Sequence Analysis, University of Copenhagen, Pfizer Inc., Chinese Academy of Sciences, Chinese University of Hong Kong, National Institute for Agronomic Research, King's College London, BGI-Shenzhen, University of Gothenburg
Authors: Xiao, L. (Ekstern), Feng, Q. (Ekstern), Liang, S. (Ekstern), Sonne, S. B. (Ekstern), Xia, Z. (Ekstern), Qiu, X. (Ekstern), Li, X. (Ekstern), Long, H. (Ekstern), Zhang, J. (Ekstern), Zhang, D. (Ekstern), Liu, C. (Ekstern), Fang, Z. (Ekstern), Chou, J. (Ekstern), Glanville, J. (Ekstern), Hao, Q. (Ekstern), Kotowska, D. (Ekstern), Colding, C. (Ekstern), Licht, T. R. (Intern), Wu, D. (Ekstern), Yu, J. (Ekstern), Sung, J. J. Y. (Ekstern), Liang, Q. (Ekstern), Li, J. (Ekstern), Jia, H.
Accounting for Campylobacter biology and epidemiology in source attribution modelling

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Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Research Group for Risk-Benefit, Research Group for Genomic Epidemiology, Danish Veterinary and Food Administration
Authors: Boysen, L. (Intern), Rosenquist, H. (Ekstern), Hald, T. (Intern)
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Accuracy of self-reported intake of signature foods in a school meal intervention study: comparison between control and intervention period
Bias in self-reported dietary intake is important when evaluating the effect of dietary interventions, particularly for intervention foods. However, few have investigated this in children, and none have investigated the reporting accuracy of fish intake in children using biomarkers. In a Danish school meal study, 8- to 11-year-old children (n 834) were served the New Nordic Diet (NND) for lunch. The present study examined the accuracy of self-reported intake of signature foods (berries, cabbage, root vegetables, legumes, herbs, potatoes, wild plants, mushrooms, nuts and fish) characterising the NND. Children, assisted by parents, self-reported their diet in a Web-based Dietary Assessment Software for Children during the intervention and control (packed lunch) periods. The reported fish intake by children was compared with their ranking according to fasting whole-blood EPA and DHA concentration and weight percentage using the Spearman correlations and cross-classification. Direct observation of school lunch intake (n 193) was used to score the accuracy of food-reporting as matches, intrusions, omissions and faults. The reporting of all lunch foods had higher percentage of matches compared with the reporting of signature foods in both periods, and the accuracy was higher during the control period compared with the intervention period. Both Spearman’s rank correlations and linear mixed models demonstrated positive associations between EPA+DHA and reported fish intake. The direct observations showed that both reported and real intake of signature foods did increase during the intervention period. In conclusion, the self-reported data represented a true increase in the intake of signature foods and can be used to examine dietary intervention effects.

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Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Research Group for Risk-Benefit, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, University of Copenhagen, University of Waterloo
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Acid hydrolysed gluten induces high avidity antibodies to gluten: A study in gluten tolerant Brown Norway rats.

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Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology
Authors: Bøgh, K. L. (Intern), Madsen, C. B. (Intern)
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Main Research Area: Technical/natural sciences
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A critical view on microplastic quantification in aquatic organisms
Microplastics, plastic particles and fragments smaller than 5mm, are ubiquitous in the marine environment. Ingestion and accumulation of microplastics have previously been demonstrated for diverse marine species ranging from zooplankton to bivalves and fish, implying the potential for microplastics to accumulate in the marine food web. In this way, microplastics can potentially impact food safety and human health. Although a few methods to quantify microplastics in biota have been described, no comparison and/or intercalibration of these techniques have been performed. Here we conducted a literature review on all available extraction and quantification methods. Two of these methods, involving wet acid destruction, were used to evaluate the presence of microplastics in field-collected mussels (Mytilus galloprovincialis) from three different “hotspot” locations in Europe (Po estuary, Italy; Tagus estuary, Portugal; Ebro estuary, Spain). An average of 0.18±0.14 total microplastics g⁻¹ w.w. for the Acid mix Method and 0.12±0.04 total microplastics g⁻¹ w.w. for the Nitric acid Method was established. Additionally, in a pilot study an average load of 0.13±0.14 total microplastics g⁻¹ w.w. was recorded in commercial mussels (Mytilus edulis and M. galloprovincialis) from five European countries (France, Italy, Denmark, Spain and The Netherlands). A detailed analysis and comparison of methods indicated the need for further research to develop a standardised operating protocol for microplastic quantification and monitoring.

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Acute and subacute pulmonary toxicity and mortality in mice after intratracheal instillation of ZnO nanoparticles in three laboratories

Inhalation is the main pathway of ZnO exposure in the occupational environment but only few studies have addressed toxic effects after pulmonary exposure to ZnO nanoparticles (NP). Here we present results from three studies of pulmonary exposure and toxicity of ZnO NP in mice. The studies were prematurely terminated because interim results unexpectedly showed severe pulmonary toxicity. High bolus doses of ZnO NP (25 up to 100μg; ≥1.4mg/kg) were clearly associated with a dose dependent mortality in the mice. Lower doses (≥6μg; ≥0.3mg/kg) elicited acute toxicity in terms of reduced weight gain, desquamation of epithelial cells with concomitantly increased barrier permeability of the alveolar/blood as well as DNA damage. Oxidative stress was shown via a strong increase in lipid peroxidation and reduced glutathione in the pulmonary tissue. Two months post-exposure revealed no obvious toxicity for 12.5 and 25μg on a range of parameters. However, mice that survived a high dose (50μg; 2.7mg/kg) had an increased pulmonary collagen...
accumulation (fibrosis) at a similar level as a high bolus dose of crystalline silica. The recovery from these toxicological effects appeared dose-dependent. The results indicate that alveolar deposition of ZnO NP may cause significant adverse health effects.

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Organisations: National Food Institute, Division of Risk Assessment and Nutrition, National Research Center for Working Environment, Helmholtz Zentrum München, University of Warmia and Mazury in Olsztyn, University of Copenhagen, Missouri University of Science and Technology, Universite Catholique de Louvain
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Scopus rating (2014): SJR 1.038 SNIP 1.369 CiteScore 3.12
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Web of Science (2011): Indexed yes
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BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.833 SNIP 1.056
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Web of Science (2008): Indexed yes
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Adaptation of Lactococcus lactis to high growth temperature leads to a dramatic increase in acidification rate

*Lactococcus lactis* is essential for most cheese making, and this mesophilic bacterium has its growth optimum around 30 °C. We have, through adaptive evolution, isolated a mutant TM29 that grows well up to 39 °C, and continuous growth at 40 °C is possible if pre-incubated at a slightly lower temperature. At the maximal permissive temperature for the wild-type, 38 °C, TM29 grows 33% faster and has a 12% higher specific lactate production rate than its parent MG1363, which results in fast lactate accumulation. Genome sequencing was used to reveal the mutations accumulated, most of which were shown to affect thermal tolerance. Of the mutations with more pronounced effects, two affected expression of single proteins (chaperone; riboflavin transporter), two had pleiotropic effects (RNA polymerase) which changed the gene expression profile, and one resulted in a change in the coding sequence of CDP-diglyceride synthase. A large deletion containing 10 genes was also found to affect thermal tolerance significantly. With this study we demonstrate a simple approach to obtain non-GMO derivatives of the important *L. lactis* that possess properties desirable by the industry, e.g. thermal robustness and increased rate of acidification. The mutations we have identified provide a genetic basis for further investigation of thermal tolerance.
Adequacy of the measurement capability of fatty acid compositions and sterol profiles to determine authenticity of milk fat through formulation of adulterated butter

In this research a comparison has been made between the fatty acid and sterol compositions of Iranian pure butter and three samples of adulterated butter. These samples were formulated using edible vegetable fats/oils with similar milk fat structures including palm olein, palm kernel and coconut oil to determine the authenticity of milk fat. The amount of vegetable fats/oils used in the formulation of the adulterated butter was 10%. The adulterated samples were formulated so that their fatty acid profiles were comforted with acceptable levels of pure butter as specified by the Iranian national standard. Based on the type of the vegetable oil/fat, fatty acids such as C4:0, C12:0 and C18:2 were used as indicators for the adulterated formulations. According to the standard method of ISO, the analysis was performed using gas chromatography. The cholesterol contents were 99.71% in pure butter (B1), and 97.61%, 98.48% and 97.98% of the total sterols in the samples adulterated with palm olein, palm kernel and coconut oil (B2, B3, and B4), respectively. Contents of the main phytosterol profiles such as β-sitosterol, stigmasterol and campesterol were also determined. The β-sitosterol content, as an indicator of phytosterols, was 0% in pure butter, and 1.81%, 1.67% and 2.16%, of the total sterols in the adulterated samples (B2, B3 and B4), respectively. Our findings indicate that fatty acid profiles are not an efficient indicator for butter authentication. Despite the increase in phytosterols and the reduction in cholesterol and with regard to the conformity of the sterol profiles of the edible fats/oils used in the formulations with Codex standards, lower cholesterol and higher phytosterols contents should have been observed. It can therefore be concluded that sterol measurement is insufficient to verify the authenticity of the milk fat in butter. It can therefore be concluded that sterol measurement is insufficient in verifying the authenticity of milk fat.
Adverse effects of plant food supplements and botanical preparations: a systematic review with critical evaluation of causality

The objective of this review was to collect available data on the following: (i) adverse effects observed in humans from the intake of plant food supplements or botanical preparations; (ii) the misidentification of poisonous plants; and (iii) interactions between plant food supplements/botanicals and conventional drugs or nutrients. PubMed/MEDLINE and Embase were searched from database inception to June 2014, using the terms ‘adverse effect/s’, ‘poisoning/s’, ‘plant food supplement/s’, ‘misidentification/s’ and ‘interaction/s’ in combination with the relevant plant name. All papers were critically evaluated according to the World Health Organization Guidelines for causality assessment. Data were obtained for 66 plants that are common ingredients of plant food supplements; of the 492 papers selected, 402 (81.7%) dealt with adverse effects directly associated with the botanical and 89 (18.1%) concerned interactions with conventional drugs. Only one case was associated with misidentification. Adverse effects were reported for 39 of the 66 botanical substances searched. Of the total references, 86.6% were associated with 14 plants, including Glycine max/soybean (19.3%), Glycyrrhiza glabra/licorice (12.2%), Camellia sinensis/green tea (8.7%) and Ginkgo biloba/gingko (8.5%). Considering the length of time examined and the number of plants included in the review, it is remarkable that: (i) the adverse effects due to botanical ingredients were relatively infrequent, if assessed for causality; and (ii) the number of severe clinical reactions was very limited, but some fatal cases have been described. Data presented in this review were assessed for quality in order to make the results maximally useful for clinicians in identifying or excluding deleterious effects of botanicals.

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Organisations: National Food Institute, Division of Toxicology and Risk Assessment, Universidade de São Paulo, Université degli Studi di Milano, University of Zurich, Quadram Institute
Authors: Di Lorenzo, C. (Ekstern), Ceschi, A. (Ekstern), Kupferschmidt, H. (Ekstern), Lüde, S. (Ekstern), De Souza Nascimento, E. (Ekstern), Dos Santos, A. (Ekstern), Colombo, F. (Ekstern), Frigerio, G. (Ekstern), Nørby, K. K. (Intern), Plumb, J. (Ekstern), Finglas, P. (Ekstern), Restani, P. (Ekstern)
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Aetiology-Specific Estimates of the Global and Regional Incidence and Mortality of Diarrhoeal Diseases Commonly Transmitted through Food

Diarrhoeal diseases are major contributors to the global burden of disease, particularly in children. However, comprehensive estimates of the incidence and mortality due to specific aetiologies of diarrhoeal diseases are not available. The objective of this study is to provide estimates of the global and regional incidence and mortality of diarrhoeal diseases caused by nine pathogens that are commonly transmitted through foods. We abstracted data from systematic reviews and, depending on the overall mortality rates of the country, applied either a national incidence estimate approach or a modified Child Health Epidemiology Reference Group (CHERG) approach to estimate the aetiology-specific incidence and mortality of diarrhoeal diseases, by age and region. The nine diarrhoeal diseases assessed caused an estimated 1.8 billion (95% uncertainty interval [UI] 1.1-3.3 billion) cases and 599,000 (95% UI 472,000-802,000) deaths worldwide in 2010. The largest number of cases were caused by norovirus (677 million; 95% UI 468-1,153 million), enterotoxigenic Escherichia coli (ETEC) (233 million; 95% UI 154-380 million), Shigella spp. (188 million; 95% UI 94-379 million) and
Giardia lamblia (179 million; 95% UI 125-263); the largest number of deaths were caused by norovirus (213,515; 95% UI 171,783-266,561), enteropathogenic E. coli (121,455; 95% UI 103,657-143,348), ETEC (73,041; 95% UI 55,474-96,984) and Shigella (64,993; 95% UI 48,966-92,357). There were marked regional differences in incidence and mortality for these nine diseases. Nearly 40% of cases and 43% of deaths caused by these nine diarrhoeal diseases occurred in children under five years of age. Diarrhoeal diseases caused by these nine pathogens are responsible for a large disease burden, particularly in children. These aetiology-specific burden estimates can inform efforts to reduce diarrhoeal diseases caused by these nine pathogens commonly transmitted through foods.
A lab-on-a-chip system with integrated sample preparation and loop-mediated isothermal amplification for rapid and quantitative detection of Salmonella spp. in food samples

Foodborne disease is a major public health threat worldwide. Salmonellosis, an infectious disease caused by Salmonella spp., is one of the most common foodborne diseases. Isolation and identification of Salmonella by conventional bacterial culture or molecular-based methods are time consuming and usually take a few hours to days to complete. In response to the demand for rapid on line or at site detection of pathogens, in this study, we describe for the first time an eight-chamber lab-on-a-chip (LOC) system with integrated magnetic beads-based sample preparation and loop-mediated isothermal amplification (LAMP) for rapid and quantitative detection of Salmonella spp. in food samples. The whole diagnostic procedures including DNA isolation, isothermal amplification, and real-time detection were accomplished in a single chamber. Up to eight samples could be handled simultaneously and the system was capable to detect Salmonella at concentration of 50 cells per test within 40 min. The simple design, together with high level of integration, isothermal amplification, and quantitative analysis of multiple samples in short time will greatly enhance the practical applicability of the LOC system for rapid on-site screening of Salmonella for applications in food safety control, environmental surveillance, and clinical diagnostics.

General information
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Organisations: Department of Micro- and Nanotechnology, BioLabChip, Division of Food Microbiology, National Food Institute
Authors: Sun, Y. (Intern), Than Linh, Q. (Intern), Hung, T. Q. (Intern), Chin, W. H. (Intern), Wolff, A. (Intern), Bang, D. D. (Intern)
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Web of Science (2016): Indexed yes
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Scopus rating (2015): SJR 2.239 SNIP 1.721 CiteScore 5.74
Web of Science (2015): Indexed yes
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Scopus rating (2014): SJR 2.555 SNIP 1.797 CiteScore 5.6
Web of Science (2014): Indexed yes
Alkyl chain length impacts the antioxidative effect of lipophilized ferulic acid in fish oil enriched milk

Lipophilization of phenolics by esterification with fatty alcohols may alter their localization in an emulsion and thereby their antioxidative effect. In this study, synthesized unbranched alkyl ferulates were evaluated as antioxidants in fish oil enriched milk. Lipid oxidation was determined by peroxide values and concentration of volatile oxidation products. A cut-off effect in the antioxidative effect in relation to the alkyl chain length was observed. The most efficient alkyl ferulate was methyl ferulate followed by ferulic acid and butyl ferulate, whereas octyl ferulate was prooxidative and the prooxidative effect increased further with an increment in the alkyl chain length from C8 to C12. Further elongation of the alkyl chain length to C16 and C20 resulted in weak prooxidative effects to weak antioxidative effects depending on the different volatile oxidation compounds developed.

General information
State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, Centre de cooperation Internationale en Recherche Agronomique pour le Développement
Authors: Sørensen, A. M. (Intern), Lyneborg, K. S. (Intern), Villeneuve, P. (Ekstern), Jacobsen, C. (Intern)
Amphibian antimicrobial peptide fallaxin analogue FL9 affects virulence gene expression and DNA replication in Staphylococcus aureus

The rapid rise in antibiotic-resistant pathogens is causing increased health concerns, and consequently there is an urgent need for novel antimicrobial agents. Antimicrobial peptides (AMPs), which have been isolated from a wide range of organisms, represent a very promising class of novel antimicrobials. In the present study, the analogue FL9, based on the amphibian AMP fallaxin, was studied to elucidate its mode of action and antibacterial activity against the human pathogen Staphylococcus aureus. Our data showed that FL9 may have a dual mode of action against S. aureus. At concentrations around the MIC, FL9 bound DNA, inhibited DNA synthesis and induced the SOS DNA damage response, whereas at concentrations above the MIC the interaction between S. aureus and FL9 led to membrane disruption. The antibacterial activity of the peptide was maintained over a wide range of NaCl and MgCl2 concentrations and at alkaline pH, while it was compromised by acidic pH and exposure to serum. Furthermore, at subinhibitory concentrations of FL9, S. aureus responded by increasing the expression of two major virulence factor genes, namely the regulatory malP and hla, encoding α-haemolysin. In addition, the S. aureus-encoded natural tolerance mechanisms included peptide cleavage and the addition of positive charge to the cell surface, both of which minimized the antimicrobial activity of FL9. Our results add new information about FL9 and its effect on S. aureus, which may aid in the future development of analogues with improved therapeutic potential.

General information

State: Published
Organisations: National Food Institute, Department of Systems Biology, Bacterial Ecophysiology and Biotechnology, University of Copenhagen
Authors: Gottschalk, S. (Ekstern), Gottlieb, C. T. (Intern), Vestergaard, M. (Ekstern), Hansen, P. R. (Ekstern), Gram, L. (Intern), Ingmer, H. (Ekstern), Thomsen, L. E. (Ekstern)
Number of pages: 10
Pages: 1504-1513
Analysis of primary aromatic amines (PAA) in black nylon kitchenware 2014: Selected samples from the Norwegian Market

Primary aromatic amines (PAA) are chemical compounds, of which some are carcinogenic and allergenic, while others of these compounds are suspected carcinogens. PAA may arise in materials intended for food contact as a result of the occurrence of impurities or degradation products of e.g. aromatic isocyanates used in lacquers and adhesives in azocoulorants.

According to the regulation on plastics EC 10/2011:

‘Plastic materials and articles shall not release primary aromatic amines, excluding those appearing in Table 1 of Annex I, in a detectable quantity into food or food simulant. The detection limit is 0.01 mg of substance per kg of food or food simulant. The detection limit applies to the sum of primary aromatic amines released’

Since July 1st 2011, an additional EU regulation has come into place, which states that each consignment of polyamide (nylon) kitchen utensils from China and Hong Kong shall be accompanied by appropriate documentation, including analytical results showing that it meets the requirements concerning the release of primary aromatic amines.

25 samples of black nylon kitchenware each of three articles were tested for migration of primary aromatic amines (PAA), using 3% acetic acid as food simulant at an exposure temperature of 100°C and time from ½-4 hours, depending on the foreseeable use of the utensil. The samples were collected by the Norwegian Food Safety Authority at importers and retail shops.

Of the 20 PAAs analysed, four PAAs were detected, being aniline (ANL) in 11 samples (0.6-2.3 μg/kg), 4,4’-Methyleneedianiline (4,4’-MDA) in 11 samples (0.6-14 μg/kg), 2,4-Toluenediamine (2,4-TDA) in one sample (2.3 μg/kg) and 2,4-Dimethylaniline (2,4-DMA) in one sample (0.45 μg/kg).

11 samples did not contain PAAs, 14 samples contained PAAs, where the sum (ΣPAA), however did not exceed the specific migration limit of 10 μg/kg food simulant after the expanded uncertainty is subtracted from the sum of PAA. The highest content of ΣPAA migrants was from a frying spatula originating from China containing ΣPAA of 16.0 μg/kg before correction for expanded uncertainty, however after correction the content of 9.7 μg/kg was compliant.
A new strategy for synthesizing AgInS2 quantum dots emitting brightly in near-infrared window for in vivo imaging

A new strategy for fabricating water-dispersible AgInS2 quantum dots (QDs) with bright near-infrared (NIR) emission is demonstrated. A type of multidentate polymer (MDP) was synthesized and utilized as a compact capping ligand for the AgInS2 QDs. Using silver nitrate, indium acetate and sulfur-hydrazine hydrate complex as the precursors, MDP-capping AgInS2 QDs were synthesized in aqueous solution at room temperature. Characterization indicates that the MDP-capping AgInS2 QDs are highly photoluminescent in NIR window and possess good photostability. Also, the QDs are stable in different media and have low cytotoxicity. Nude mice photoluminescence imaging shows that the MDP-capping AgInS2 QDs can be well applied to in vivo imaging. These readily prepared NIR fluorescent nanocrystals have huge potential for biomedical applications.
A New Type of YumC-Like Ferredoxin (Flavodoxin) Reductase Is Involved In Ribonucleotide Reduction

The trxB2 gene, which is annotated as a thioredoxin reductase, was found to be essential for growth of Lactococcus lactis in the presence of oxygen. The corresponding protein (TrxB2) showed a high similarity with Bacillus subtilis YumC (E value = 4.0E-88), and YumC was able to fully complement the ΔtrxB2 mutant phenotype. YumC represents a novel type of ferredoxin (flavodoxin) reductase (FdR) with hitherto-unknown biological function. We adaptively evolved the ΔtrxB2 mutant under aerobic conditions to find suppressor mutations that could help elucidate the involvement of TrxB2 in aerobic growth. Genome sequencing of two independent isolates, which were able to grow as well as the wild-type strain under aerated conditions, revealed the importance of mutations in nrdI, encoding a flavodoxin involved in aerobic ribonucleotide reduction. We suggest a role for TrxB2 in nucleotide metabolism, where the flavodoxin (NrdI) serves as its redox partner, and we support this hypothesis by showing the beneficial effect of deoxynucleosides on aerobic growth of the ΔtrxB2 mutant. Finally, we demonstrate, by heterologous expression, that the TrxB2 protein functionally can substitute for YumC in B. subtilis but that the addition of deoxynucleosides cannot compensate for the lethal phenotype displayed by the B. subtilis yumC knockout mutant. Ferredoxin (flavodoxin) reductase (FdR) is involved in many important reactions in both eukaryotes and prokaryotes, such as photosynthesis, nitrate reduction, etc. The recently identified bacterial YumC-type FdR belongs to a novel type, the biological function of which still remains elusive. We found that the YumC-like FdR (TrxB2) is essential for aerobic growth of Lactococcus lactis. We suggest that the YumC-type FdR is involved in the ribonucleotide reduction by the class Ib ribonucleotide reductase, which represents the workhorse for the bioconversion of nucleotides to deoxynucleotides in many prokaryotes and eukaryotic pathogens under aerobic conditions. As the partner of the flavodoxin (NrdI), the key FdR is missing in the current model describing the class Ib system in Escherichia coli. With this study, we have established a role for this novel type of FdR and in addition found the missing link needed to explain how ribonucleotide reduction is carried out under aerobic conditions.

General information
State: Published
Organisations: National Food Institute, Research Group for Microbial Biotechnology and Biorefining
Authors: Chen, J. (Intern), Shen, J. (Intern), Solem, C. (Intern), Jensen, P. R. (Intern)
An explorative study of the effect of apple and apple products on the human plasma metabolome investigated by LC–MS profiling

Apple is one of the most commonly consumed fruits worldwide and it has been associated with several health effects, especially on plasma cholesterol and risk of cardiovascular disease both in human and animal studies. By using an untargeted metabolomics approach we wanted to investigate whether supplementation of whole apple or processed apple products affect the human plasma metabolome. Therefore, 24 healthy volunteers were recruited for a comprehensive 5 × 4 weeks dietary crossover study and receiving supplement of whole apples (550 g/day), clear and cloudy apple juices (500 ml/day), dried apple pomace (22 g/day), or no supplement. Plasma was collected for analysis after an overnight fast and analysed by UPLC-ESI-TOF-MS. Discriminative features revealed by Partial Least Square-Discriminant Analysis showed whole apple and apple pomace having generally a stronger modifying effect of the plasma metabolome than the other apple products. We observed an effect on branched-chain amino acids and aromatic amino acids degradation, and a decreased use of lipid fuels indicating an improvement in glucose utilisation. A reduced level of plasma bile acids after apple consumption may indicate less re-absorption from the gut. Some lysoPCs and a steroid hormone precursor decreased as well, indicating a reduced outbound cholesterol transport from the liver and less use of cholesterol for steroid synthesis. In the light of these results, we speculate that apple and/or apple pomace seems to affect cholesterol homeostasis by several mechanisms.

General information
State: Published
Organisations: National Food Institute, Division of Toxicology and Risk Assessment, University of Copenhagen
Authors: Rago, D. (Ekstern), Gürdéniz, G. (Ekstern), Ravn-Haren, G. (Intern), Dragsted, L. O. (Ekstern)
Number of pages: 13
Pages: 27-39
Annual Report on Zoonoses in Denmark 2014

General information
State: Published
An OXA-48-producing Escherichia coli isolated from a Danish patient with no hospitalization abroad

Carbapenemase-producing organisms are disseminating globally and are now emerging as a worrying threat in Scandinavia. Before August 2013, OXA-48-producing organisms had not been detected in Danish patients. Here we report the isolation of an ST746 OXA-48-producing Escherichia coli with the plasmid pOXA-48a carrying the bla(OXA-48) gene isolated from a Danish patient without history of hospitalization abroad. The patient reported tourist travel to Egypt and Turkey. The potential acquisition of carbapenemase-producing organisms by ingestion of contaminated food is discussed.

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, Aarhus University Hospital
Authors: Gedebjerg, A. (Ekstern), Hasman, H. (Intern), Sorensen, C. M. (Ekstern), Wang, M. (Ekstern)
Number of pages: 3
Pages: 593-595
Publication date: 2015
Main Research Area: Technical/natural sciences

Publication information
Journal: B M C Infectious Diseases
Volume: 47
Issue number: 8
ISSN (Print): 1471-2334
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.187 SJR 1.576
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.9 SJR 1.666 SNIP 1.309
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.556 SNIP 1.21 CiteScore 2.91
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.574 SNIP 1.393 CiteScore 3.14
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.493 SNIP 1.438 CiteScore 3.23
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Antibiotic treatment affects intestinal permeability and gut microbial composition in Wistar rats dependent on antibiotic class

Antibiotics are frequently administered orally to treat bacterial infections not necessarily related to the gastrointestinal system. This has adverse effects on the commensal gut microbial community, by disrupting the intricate balance between specific bacterial groups within this ecosystem potentially leading to dysbiosis. We hypothesized that modulation of community composition and function induced by antibiotics affects intestinal integrity depending on the antibiotic administered. To address this a total of 60 Wistar rats (n=12 per group) were dosed by oral gavage with either amoxicillin (AMX), cefataxime (CTX), vancomycin (VAN), metronidazole (MTZ), or water (CON) daily for 10-11 days. Bacterial composition, alpha diversity and cecum short chain fatty acid levels were significantly affected by AMX, CTX and VAN, and varied among antibiotic treatments. A general decrease in diversity and increase in the relative abundance of Proteobacteria was observed for all three antibiotics. Additionally, the relative abundance of Bifidobacteriaceae was increased in the CTX group and both Lactobacillaceae and Verrucomicrobiaceae were increased in the VAN group compared to controls. No changes in microbiota composition or function were observed following MTZ treatment. Permeability to 4 kDa FITC-dextran was decreased after CTX and VAN treatment and increased following MTZ treatment. Plasma haptoglobin levels were increased by both AMX and CTX but no changes in expression of host tight junction genes were found in any treatment group. Antibiotic induced changes in microbiota could be linked to intestinal permeability, although changes in permeability did not always result from major changes in microbiota and vice versa.

General information

State: Published
Organisations: National Food Institute, Research Group for Gut Microbiology and Immunology, Lund University, Aarhus University
Authors: Tulstrup, M. V. (Intern), Christensen, E. G. (Intern), Carvalho, V. (Intern), Linninge, C. (Ekstern), Ahrne, S. (Ekstern), Hejberg, O. (Ekstern), Licht, T. R. (Intern), Bahl, M. I. (Intern)
Number of pages: 17
Publication date: 2015
Main Research Area: Technical/natural sciences

Publication information
Journal: P L o S One
Volume: 10
Issue number: 12
Article number: e0144854
Antibiotics, Gastrointestinal tract, Permeability, Haptoglobins, Blood plasma, Ribosomal RNA, Ileum, Vancomycin

Electronic versions:
journal.pone.0144854_1_.PDF

DOIs:
10.1371/journal.pone.0144854

Links:
http://journals.plos.org/plosone/article?id=10.1371%2Fjournal.pone.0144854

Source: PublicationPreSubmission
Source-ID: 110974601
Publication: Research - peer-review › Journal article – Annual report year: 2015

Antibiotika til mink fra 2007-2012

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, Division of Epidemiology and Microbial Genomics, National Veterinary Institute, Copenhagen Fur
Antimicrobial consumption in animals

General information
State: Published
Organisations: National Food Institute, Research Group for Genomic Epidemiology, Division of Risk Assessment and Nutrition
Authors: Borck Høg, B. (Intern), de Knegt, L. (Intern)
Pages: 27-35
Publication date: 2015

Host publication information
Title of host publication: DANMAP 2014 : Use of antimicrobial agents and occurrence of antimicrobial resistance in bacteria from food animals, food and humans in Denmark
Publisher: Statens Serum Institut
Chapter: 4

Series: Dansk Veterinaertidsskrift
ISSN: 1600-2032
Main Research Area: Technical/natural sciences
Electronic versions:
Danmap2014.pdf
Source: PublicationPreSubmission
Source-ID: 116836507
Publication: Research › Book chapter – Annual report year: 2015

Antimony: Evaluation of health hazards and proposal of a health based quality criterion for soil
The Danish Environmental Protection Agency has requested an evaluation of health hazards by exposure to antimony. This resulted in the present report which includes estimation of a quality criterion in soil for antimony.

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition
Authors: Bredsdorff, L. (Intern), Nielsen, E. (Intern)
Number of pages: 39
Publication date: 2015

Publication information
Place of publication: Copenhagen K
Publisher: Danish Environmental Protection Agency
ISBN (Electronic): 978-87-93352-41-4
Original language: English
Main Research Area: Technical/natural sciences
Antioxidant Activity of Seaweed Extracts: In Vitro Assays, Evaluation in 5 % Fish Oil-in-Water Emulsions and Characterization

In this study the antioxidant activity of absolute ethanol, 50 % ethanol and water extracts of two species of seaweeds, namely Fucus serratus and Polysiphonia fucoides, were evaluated both in in vitro assays and in 5 % fish oil-in-water (o/w) emulsions. The 50 % ethanolic extracts of P. fucoides showed higher antioxidant activity both in in vitro assays and in 5 % oil-in-water emulsion in the presence or absence of iron. In spite of the higher phenolic content and very good antioxidant activity in some of the in vitro assays, the absolute ethanol extracts of both the species showed a pro-oxidative tendency in 5 % fish oil-in-water emulsion in the presence or absence of iron. In order to investigate the reason for the higher antioxidant activity of 50 % ethanolic extracts of P. fucoides, these extracts were further fractionated into polyphenol-rich, protein-rich, polysaccharide-rich and low-molecular-weight fractions. These fractions were tested both in in vitro and in 5 % oil-in-water emulsions. The results of the present study showed that the main effect was due to the phenolic compounds. In conclusion, the 50 % ethanolic extracts of P. fucoides can be a potential source of natural antioxidants as these extracts have antioxidant activities similar to those of synthetic antioxidants such as BHT.

General information
State: Published
Organisations: National Food Institute, Division of Industrial Food Research
Authors: Farvin Habeullah, S. (Intern), Jacobsen, C. (Intern)
Number of pages: 17
Pages: 571-587
Publication date: 2015
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of the American Oil Chemists' Society
Volume: 92
Issue number: 4
ISSN (Print): 0003-021X
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.004 SJR 0.641
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.64 SJR 0.706 SNIP 0.916
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.678 SNIP 0.991 CiteScore 1.66
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.768 SNIP 1.053 CiteScore 1.68
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.812 SNIP 1.069 CiteScore 1.71
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.852 SNIP 1.233 CiteScore 1.81
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
The antioxidative effect of lipophilized caffeic acid was assessed in two different fish oil enriched food products: mayonnaise and milk. In both emulsion systems, caffeic acid esterified with fatty alcohols of different chain lengths (C1–C20) were better antioxidants than the original phenolic compound. The optimal chain length with respect to protection against oxidation was, however, different for the two food systems. Fish oil enriched mayonnaise with caffeates of medium alkyl chain length (butyl, octyl and dodecyl) added resulted in a better oxidative stability than caffeates with shorter (methyl) or longer (octadecyl) alkyl chains. Whereas in fish oil enriched milk emulsions the most effective caffeates were those with shorter alkyl chains (methyl and butyl) rather than the ones with medium and long chains (octyl, dodecyl, hexadecyl and eicosyl). These results demonstrate that there might be an optimum alkyl chain length for each phenolipid in each type of emulsion systems.
A perspective on the developmental toxicity of inhaled nanoparticles

This paper aimed to clarify whether maternal inhalation of engineered nanoparticles (NP) may constitute a hazard to pregnancy and fetal development, primarily based on experimental animal studies of NP and air pollution particles. Overall, it is plausible that NP may translocate from the respiratory tract to the placenta and fetus, but also that adverse effects may occur secondarily to maternal inflammatory responses. The limited database describes several organ systems in the offspring to be potentially sensitive to maternal inhalation of particles, but large uncertainties exist about the implications for embryo-fetal development and health later in life. Clearly, the potential for hazard remains to be characterized. Considering the increased production and application of nanomaterials and related consumer products a testing strategy for NP should be established. Due to large gaps in data, significant amounts of groundwork are warranted for a testing strategy to be established on a sound scientific basis.

General information

State: Published
Organisations: National Food Institute, National Research Center for Working Environment, University of Roma ‘Tor Vergata’, INRA Institut National de La Recherche Agronomique, National Institute of Public Health and the Environment, Institute of Occupational Medicine, Napier University, Inserm and University Grenoble-Alpes
Number of pages: 23
Pages: 118-140
Publication date: 2015
Main Research Area: Technical/natural sciences

Publication information

Journal: Reproductive Toxicology
Volume: 56
Issue number: SI
ISSN (Print): 0890-6238
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SNIP 0.761 SJR 0.846
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 2.92 SJR 1.078 SNIP 1.001
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.229 SNIP 1.102 CiteScore 3.36
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.274 SNIP 1.101 CiteScore 3.28
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.036 SNIP 1.061 CiteScore 2.91
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.198 SNIP 1.088 CiteScore 3.28
A Prospective Investigation of Graves' Disease and Selenium: Thyroid Hormones, Auto-Antibodies and Self-Rated Symptoms

Background: In Graves' thyrotoxicosis tachycardia, weight loss and mental symptoms are common. Recovery takes time and varies between patients. Treatment with methimazole reduces thyroid hormone levels. According to previous research, this reduction has been faster if selenium (Se) is added. Objective: The objective was to investigate whether supplementing the pharmacologic treatment with Se could change the immune mechanisms, hormone levels and/or depression and anxiety. Methods: We prospectively investigated 38 patients with initially untreated thyrotoxicosis by measuring the thyroid-stimulating hormone (TSH), free thyroxine (FT4), free triiodothyronine (FT3), thyroid receptor antibodies and thyroid peroxidase auto-antibodies before medication and at 6, 18 and 36 weeks after commencing treatment with methimazole and levo-thyroxine, with a randomized blinded oral administration of 200 µg Se/day or placebo. The selenoprotein P concentration was determined in plasma at inclusion and after 36 weeks. The patients were also assessed with questionnaires about depression, anxiety and self-rated symptoms before medication was started and after 36 weeks. Results: FT4 decreased more in the Se group at 18 weeks (14 vs. 17 pmol/l, p = 0.01) and also at 36 weeks (15 vs. 18 pmol/l, p = 0.01). The TSH increased more in the Se group at 18 weeks (0.05 vs. 0.02 mIU/l, p = 0.04). The depression and anxiety scores were similar in both groups. In the Se group, the depression rates correlated negatively with FT3 and positively with TSH. This was not seen in the placebo group. Conclusions: Se supplementation can enhance biochemical restoration of hyperthyroidism, but whether this could shorten clinical symptoms of thyrotoxicosis and reduce mental symptoms must be investigated further.© 2015 European Thyroid
Aquatic Bird Bornavirus 1 in Wild Geese, Denmark

To investigate aquatic bird bornavirus 1 in Europe, we examined 333 brains from hunter-killed geese in Denmark in 2014. Seven samples were positive by reverse transcription PCR and were 98.2%-99.8% identical; they were also 97.4%-98.1% identical to reference strains of aquatic bird bornavirus 1 from geese in North America.
Projects:

Clostridium botulinum and safe cheeses
The project aims to develop a mathematical model and a tool to reliably predict no-growth conditions for the important pathogenic microorganism Clostridium botulinum in spreadable cheeses during distribution at ambient temperature. This predictive tool will facilitate product formulation and innovation of safe spreadable cheeses. There is an urgent need to increase processing of excess milk in Denmark into new value-added products for export to growing markets outside Europe. Innovation is needed and the project contributes to flexible product development and reduced time-to-market for new spreadable cheeses. Studies of C. botulinum in food are costly and time consuming due to its formation of a very potent neuro-toxin. A new approach is applied and non-toxigenic mutants of C. botulinum are constructed within the present project and then used to develop a growth and growth-boundary model. The project includes two research groups with complementary skills and close collaboration with the Danish dairy sector.

National Food Institute
Research Group for Analytical and Predictive Microbiology
Period: 01/10/2018 → …
Number of participants: 1
Acronym: Cbot-PREDICTOR
Project participant:
Dalgaard, Paw (Intern)

Infectious Diseases and Whole Genome Sequencing
National Food Institute
Period: 01/06/2018 → 31/05/2021
Number of participants: 3
Phd Student:
Rebelo, Ana Rita Bastos (Intern)
Supervisor:
Bortolaia, Valeria (Intern)
Main Supervisor:
Aarestrup, Frank Møller (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

Reproductive effects and mechanisms-of-action of fetal exposure to azole fungicides
National Food Institute
Period: 01/06/2018 → 31/05/2021
Number of participants: 3
Phd Student:
Draskau, Monica Kam (Intern)
Supervisor:
Boberg, Julie (Intern)
Main Supervisor:
Svingen, Terje (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

Allergenicity of camel milk
National Food Institute
Alleviation of ulcerative colitis by application of new oral delivery systems for bacteria

National Food Institute
Period: 01/05/2018 → 30/04/2021
Number of participants: 3
Phd Student:
Bondegaard, Pi Westi (Intern)
Supervisor:
Bahl, Martin Iain (Intern)
Main Supervisor:
Licht, Tine Rask (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansierede - Virksomhed
Project: PhD

Application of advanced delivery systems for live bacteria to the gut environment

National Food Institute
Period: 01/05/2018 → 30/04/2021
Number of participants: 3
Phd Student:
Meyer Torp, Anders (Intern)
Supervisor:
Bahl, Martin Iain (Intern)
Main Supervisor:
Licht, Tine Rask (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

Reducing salt intake and optimizing sodium to potassium balance in families - Effectiveness and feasibility of a real-life based randomized controlled d intervention study

National Food Institute
Period: 01/02/2018 → 31/01/2021
Number of participants: 4
Phd Student:
Riis, Nanna Louise (Intern)
Supervisor:
Toft, Ulla Marie Nørgaard (Ekstern)
Trolle, Ellen (Intern)
Main Supervisor:
Ultra-Trace speciation analysis of chromium in foodstuff by high performance liquid chromatography coupled to inductively coupled plasma mass spectrometry using species specific isotope dilution

National Food Institute
Period: 01/02/2018 → 31/01/2021
Number of participants: 3
PhD Student:
Saraiva, Marina (Intern)
Supervisor:
Jitaru, Petru (Ekstern)
Main Supervisor:
Sloth, Jens Jørgen (Intern)

Effects of chemical exposure on Hedgehog signaling and development

National Food Institute
Research Group for Molecular and Reproductive Toxicology
Period: 29/01/2018 → 21/06/2018
Number of participants: 4
Project participant:
Blomberg, Anne Louise (Ekstern)
Intzilaki, Smaragda Elina (Ekstern)
Supervisor:
Taxvig, Camilla (Intern)
Main Supervisor:
Svingen, Terje (Intern)

Risk Benefit 4 EU

National Food Institute
Research Group for Risk-Benefit
Period: 17/01/2018 → 17/10/2019
Number of participants: 1
Acronym: RB¥EU
Project participant:
Jakobsen, Lea Sletting (Intern)

Development of a birch sap with extended shelf life for prevention and treatment of birch pollen allergy
The prevalence of allergic diseases is rising dramatically in both developed and developing countries, representing a major health problem and a burden to society. In particular, tree pollen allergies are estimated to affect approximately 40% of the population in the Northern Hemisphere, where birch pollen displays the greatest allergic potency. Moreover, 50-75% of birch pollen allergic patients also experience allergic symptoms upon consuming foods containing cross-reactive allergens. Current options to change the course of the disease and restore allergen-specific immune tolerance may be associated with adverse side effects. Therefore, innovative therapies to enhance the therapeutic efficacy and safety are needed. Across Scandinavia, many birch pollen allergy suffers have reported mitigation of their symptoms after drinking birch sap. However, there is no scientific evidence supporting the use of birch sap as a treatment of pollen allergy. The aim of this project is to develop new commercially available birch sap products to induce tolerance in birch pollen
allergic individuals. These products could be used as natural medicine/functional foods in the treatment of birch pollen allergy. To achieve this objective, we will:

1. Identify immune reactive allergens in birch sap and cross-reactive allergens in birch pollen and related foods.
2. Investigate the potential induction of oral tolerance to birch pollen by birch sap and consequently, the prophylactic efficacy against birch pollen allergy and cross-reactive food allergies.
3. The safety and efficacy of birch sap for the treatment of birch pollen allergy and related food allergies.

The outcome of this project could provide the foundation for developing new ways to treat millions of people worldwide suffering from birch pollen allergy in a safe and efficient manner.

National Food Institute
Research Group for Gut Microbiology and Immunology
Research Group for Microbial Food Safety
Birkesaft.dk

Physiologically Anchored Tools for Realistic nanOmaterial hazard aSsessment
PATROLS is an international project combining a team of academics, industrial scientists, government officials and risk assessors to deliver advanced and realistic tools and methods for nanomaterial safety assessment.

PATROLS will provide an innovative and effective set of laboratory techniques and computational tools to more reliably predict potential human and environmental hazards resulting from engineered nanomaterial (ENM) exposures. These tools will minimise the necessity of animal testing and will support future categorisation of ENMs in order to support safety frameworks.

National Food Institute
Research Group for Nano-Bio Science
Period: 01/01/2018 → 30/06/2022
Number of participants: 1
Acronym: PATROLS
Project participant:
Löschner, Katrin (Intern)

One health surRveillance Initiative on harmOnization of data collection and interpretatioN - EJP One Health

National Food Institute
Division of Risk Assessment and Nutrition
Period: 01/01/2018 → 31/12/2020
Number of participants: 1
Acronym: ORION
Project participant:
Ellis-Iversen, Johanne (Intern)

PROBIO - Bioencapsulation of Bioingredients
National Food Institute
Research Group for Nano-Bio Science
Research Group for Food Production Engineering
Period: 01/01/2018 → 01/01/2022
Number of participants: 5
Food, Health, Materials technology, encapsulation, Probiotika
Acronym: PROBIO
Project participant:
Mendes, Ana Carina Loureiro (Intern)
Sevilla Moreno, Jorge Alberto (Intern)
Stubbe, Peter Reimer (Intern)
Project Manager, organisational:
Bang-Berthelsen, Iben (Intern)
Project Manager, academic:
Chronakis, Ioannis S. (Intern)

Air-sampling: A Low-Cost Screening Tool in Biosecured Broiler Production
National Food Institute
Period: 01/01/2018 → 31/12/2020
Number of participants: 3
Phd Student:
Christensen, Julia (Intern)
Supervisor:
Vigre, Håkan (Intern)
Main Supervisor:
Hoorfar, Jeffrey (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Anden EU-finansiering
Project: PhD

Pig production without the use of antibiotics - impact on the pig resistome and microbiome
National Food Institute
Period: 01/01/2018 → 31/12/2020
Number of participants: 5
Phd Student:
Tams, Katrine Wegener (Intern)
Supervisor:
Angen, Øystein (Intern)
Folkesson, Anders (Intern)
Strube, Mikael Lenz (Intern)
Main Supervisor:
Pedersen, Karl (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

Surveillance of Network Effects in Antimicrobial Resistance Genes
National Food Institute
Period: 01/01/2018 → 31/12/2020
Number of participants: 3
Phd Student:
Röder, Timo (Intern)
Supervisor:
Petersen, Thomas Nordahl (Intern)
Main Supervisor:
Aarestrup, Frank Møller (Intern)

Financial sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

A search for novel antibiotic producing bacteria based on human gut microbiome data
National Food Institute
Period: 01/12/2017 → 30/11/2020
Number of participants: 3
PhD Student:
George, Jack (Intern)
Supervisor:
Licht, Tine Rask (Intern)
Main Supervisor:
Bahl, Martin Iain (Intern)

Financial sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

Health related effects of quinoa- impact on intestinal permeability and immune responses
National Food Institute
Period: 01/12/2017 → 30/11/2020
Number of participants: 4
PhD Student:
Ballegaard, Anne-Sofie Ravn (Intern)
Supervisor:
Pilegaard, Kirsten (Intern)
Rasmussen, Peter Have (Intern)
Main Supervisor:
Bøgh, Katrine Lindholm (Intern)

Financial sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU)
Project: PhD

Novel microalgae based ingredients
National Food Institute
Period: 01/12/2017 → 30/11/2020
Number of participants: 5
PhD Student:
Ljubic, Anita (Intern)
Supervisor:
Bysted, Anette (Intern)
Holdt, Susan Løvstad (Intern)
Jakobsen, Jette (Intern)
Main Supervisor:
Jacobsen, Charlotte (Intern)

Financial sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU)
Project: PhD
Production of therapeutic proteins in Lactococcus lactis

National Food Institute
Period: 01/12/2017 → 30/11/2020
Number of participants: 4
Phd Student:
Xiao, Hang (Intern)
Supervisor:
Bang-Berthelsen, Claus Heiner (Intern)
Solem, Christian (Intern)
Main Supervisor:
Jensen, Peter Ruhdal (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Stipendie fra udlandet
Project: PhD

Validation of using urban sewage for disease surveillance by investigating infectious disease agents and the resistome from ecological niches in Guang don, China using metagenomics

National Food Institute
Period: 01/12/2017 → 31/05/2018
Number of participants: 3
Phd Student:
Lindhard, Barbara við Breiða (Intern)
Supervisor:
Pamp, Sünje Johanna (Intern)
Main Supervisor:
Hendriksen, Rene S. (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU)
Project: PhD

PROVIDE - Protein valorization through informatics, hydrolysis, and separation

PROVIDE is a project to develop bioinformatics technology for the discovery of protein based food ingredients. Five enterprises and two universities collaborate with the aim to create the technology and develop new high value food and feed ingredients from protein sources that are currently under-utilized. We will use bioinformatics to predict and identify embedded peptides that can be released from proteins through hydrolysis, fermentation and separation. The targeted functionalities are antimicrobials, antioxidants, gelation, emulsifying and flavoring properties. Functional assays will be established and synthetic peptides will be used for validation. Release of the active peptides from the protein matrix will be obtained by enzymatic hydrolysis and fermentation. The participating companies utilize specific protein sources, mainly plantbased, and are united in the desire to develop novel high value food and feed functional ingredients through the proposed technology.

National Food Institute
Research Group for Bioactives – Analysis and Application
Research Group for Gut Microbiology and Immunology
Department of Bio and Health Informatics
AKV Langholt
CP Kelco ApS
KMC
Lihme Protein Solutions
Unibio A/S
Aalborg University
Period: 01/09/2017 → 31/08/2021
Number of participants: 7
peptides, by-products, bioinformatics, ingredients
Acronym: PROVIDE
Project participant:
Holdt, Susan Løvstad (Intern)
Jacobsen, Charlotte (Intern)
Hansen, Egon Bech (Intern)
Garcia Moreno, Pedro Jesús (Intern)
Lund, Ole (Intern)
Bang-Berthelsen, Iben (Intern)
Marcatili, Paolo (Intern)

**Evergreen methods for phylogeny**
National Food Institute
Period: 01/08/2017 → 31/07/2020
Number of participants: 3
Phd Student:
Szarvas, Judit (Intern)
Supervisor:
Aarestrup, Frank Møller (Intern)
Main Supervisor:
Lund, Ole (Intern)

**Financing sources**
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

**Typing and pheno typing based on direct sequencing of samples**
National Food Institute
Period: 01/07/2017 → 30/06/2020
Number of participants: 3
Phd Student:
Clausen, Philip Thomas Lankan Conradsen (Intern)
Supervisor:
Aarestrup, Frank Møller (Intern)
Main Supervisor:
Lund, Ole (Intern)

**Financing sources**
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

**KOMET-projektet (Test af energiforbrug og måling af kostindtag med to metoder)**
National Food Institute
Division of Risk Assessment and Nutrition
Period: 09/06/2017 → 15/10/2017
Number of participants: 1
Project participant:
Christensen, Julia (Intern)

Project
Improving the thermotolerance of the mesophilic starter
National Food Institute
Period: 01/06/2017 → 31/05/2020
Number of participants: 3
Phd Student:
Dorau, Robin (Ekstern)
Supervisor:
Jensen, Peter Ruhdal (Intern)
Main Supervisor:
Solem, Christian (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

Greenland seaweeds for human consumption
PhD project
National Food Institute
Research Group for Analytical and Predictive Microbiology
Research Group for Bioactives – Analysis and Application
Department of Civil Engineering
ARTEK, Section for Arctic Engineering and Sustainable Solutions
Period: 01/05/2017 → 30/04/2020
Number of participants: 5
Number of related Ph.D. students: 1
Phd Student:
Kreissig, Katharina Johanna (Intern)
Supervisor:
Jensen, Pernille Erland (Intern)
Holdt, Susan Levstad (Intern)
Jacobsen, Charlotte (Intern)
Main Supervisor:
Hansen, Lisbeth Truelstrup (Intern)
Project
Mechanistic modelling of heat and mass transfer in processing of solid and semi-solid foods

National Food Institute
Period: 01/05/2017 → 30/04/2020
Number of participants: 3
Phd Student: Kreissig, Katharina Johanna (Intern)
Supervisor: Jensen, Pernille Erland (Intern)
Main Supervisor: Hansen, Lisbeth Truelstrup (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Forskningsrådsfinansiering
Project: PhD

Danske tangressourcer i spil- til fødevarer, foder og som en håndsrækning til havmiljøet

WP leader of the food and feed safety issues

National Food Institute
Research Group for Bioactives – Analysis and Application
Period: 01/04/2017 → 31/03/2021
Number of participants: 1
Acronym: Tang.nu
Project participant: Holdt, Susan Løvstad (Intern)

Danish seaweed resources - for food, feed and as a helping hand to the marine environment (Tang.nu) (39442)
The overall goal of Tang.nu is to change the flow of nutrient from land to sea from a linear flow where excess nutrients are lost and causes problems with eutrophication, to a circular flow where cultivation and harvest of seaweed will contribute to recapture the nutrients and put them back into the bio-economical system on land.

Seaweed is a valuable resource presently used e.g. in production of food and feed products. Tang.nu will increase the pull and push mechanisms in the seaweed value chain. This will be done by supporting producers (public, commercial, private), and buyers (businesses (feed and food), agriculture, aquaculture, citizens) – partly by documenting the value of seaweed as a bioactive feed additive, and partly by gathering existing knowledge about seaweed legislation and composition and make it publicly assessable.

All part components of the project will be put together in an analysis and a documentation of seaweed cultivation and harvest as a tool to recirculate nutrients from the sea and back on land as a mean of a future sustainable use of bio-resources.

Tang.nu will deliver essential results for future legislation concerning food and feed safety and marine management and will furthermore add to groundwork for the establishment of a balanced and sustainable management of production systems at sea and on land.

This project is coordinated by Aarhus University and funded by the Velux Foundations.
National Food Institute
National Institute of Aquatic Resources
Danish Shellfish Centre
Aarhus University
Roskilde University
Kattegatcentret
Teknologisk Institut
Fødevarestyrelsen
SEGES, Danish Agriculture & Food Council,
Økologisk landsforening
Seaweed Societe
Multidyk
Nordisk Tang
Bisserup Havbrug
Havhaverne i Ebeltoft Vig

Fjordgaverne
Period: 01/04/2017 → 31/12/2020
Number of participants: 2
Research area: Shellfish and seaweed: Biology, production and management
Phd Student:
Schmedes, Peter Søndergaard (Intern)
Project Manager, academic:
Nielsen, Mette Møller (Intern)

Growing Food CPH
Øge antal af job og skabe vækst i region Hovedstaden gennem stimulering af entreprenørskab fra universiteterne i hovedstadsområdet indenfor fødevareområdet

National Food Institute
Period: 01/03/2017 → 29/02/2020
Number of participants: 4
Project participant:
Jensen, Henning Høgh (Intern)
Vierick, Nanna (Ekstern)
Kristensen, Niels Heine (Ekstern)
Mayland, Søren (Ekstern)

Optimization of antibiotic therapy in mink - MIC values and consumption

National Food Institute
Period: 01/03/2017 → 29/02/2020
Number of participants: 5
Phd Student:
Nikolaisen, Nanett Kvist (Intern)
Supervisor:
Chriél, Mariann (Intern)
Larsen, Peter Foged (Intern)
Struve, Tina (Intern)
Main Supervisor:
Pedersen, Karl (Intern)
Financing sources
Source: Internal funding (public)
Name of research programme: Industrial PhD
Project: PhD

Evaluate and Establish Surveillance program of Salmonella in Imported and domestic Poultry Meat in Jordan
National Food Institute
Period: 15/02/2017 → 14/02/2020
Number of participants: 3
Phd Student:
Hantash, Tariq (Ekstern)
Supervisor:
Alali, Walid (Ekstern)
Main Supervisor:
Vigre, Håkan (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Ansat eksternt
Project: PhD

Evaluate and Establish Surveillance program of Salmonella in Imported and domestic Poultry Meat in Jordan
National Food Institute
Period: 15/02/2017 → 14/05/2019
Number of participants: 3
Phd Student:
Hantash, Tariq (Ekstern)
Supervisor:
Alali, Walid (Ekstern)
Main Supervisor:
Vigre, Håkan (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Ansat eksternt
Project: PhD

EFSA . Pilot Project on Data Quality with DENMARK
Research Group for Diagnostic Engineering
Division of Food Microbiology
National Food Institute
Division of Risk Assessment and Nutrition
European Food Safety Authority
Period: 10/02/2017 → ...
Number of participants: 1
Project participant:
Christensen, Julia (Intern)
Project

Mussel farming—mitigation and protein source for organic husbandry (MUMIPRO) (39424)
The central MuMiPro vision is to boost sustainable mussel production in Danish coastal waters thereby meeting some of the most obvious national potentials for blue growth.

The overall objective of MuMiPro is to create a new way of growing mussels with a dual purpose: To create a new business area in Denmark by producing animal protein feed ingredients for organic husbandry and improve the marine environment by mitigating eutrophication effects through harvest of mussels.

MuMiPro consists of six work packages and involves 15 partners including mussel farmers, feed producers and research
institutions within mussel production, husbandry, feed production, organic production and environmental management.

The project is funded by Innovation Fund Denmark and is coordinated by DTU Aqua.

National Institute of Aquatic Resources
Danish Shellfish Centre
National Food Institute
Department of Animal Science, Aarhus University
Department of Bioscience, Aarhus University
Department of Environmental Science, Aarhus University
Department of Food Science, Aarhus University
Seafood Limfjord
Landbrug og Fødevarer FmbA, SEGES Økologi
NOFIMA
Association of Mussel Producers
Engredo ApS
Wittrup Seafood A/S
Udviklingscenter for Husdyr på Friland KS
Vilsund Blue A/S
Limfjorden Council
Danish Agro a.m.b.a.
Period: 15/01/2017 → 31/12/2020
Number of participants: 6
Research area: Shellfish and seaweed: Biology, production and management
Project participant:
Bak, Finn (Intern)
Nielsen, Niels-Peter (Intern)
Phd Student:
Taylor, Daniel (Intern)
Project Manager, academic:
Saurel, Camille (Intern)
Nielsen, Pernille (Intern)
Project Coordinator:
Petersen, Jens Kjerulf (Intern)
Project

Future risk assessment of chemicals (MIraculiX)
Development of Physiologically Based Kinetic (PBK) models for risk assessment of chemicals.

National Food Institute
Copenhagen Center for Health Technology
Research Group for Molecular Toxicology
Research Group for Reproductive Toxicology
Brunel University
Period: 02/01/2017 → 31/12/2018
Number of participants: 5
PBK modeling, Risk assessment
Project participant:
Bonomo, Silvia (Intern)
Project Manager, academic:
Taxvig, Camilla (Intern)
Activities:
Copenhagen Workshop on Endocrine Disrupters

**ALLEVIATE - A novel strategy for food allergy prevention and treatment**

Food allergy is an adverse effect to otherwise harmless proteins in the food, whereas oral tolerance is the default result from ingestion of food proteins. Food allergy is a major health problem of growing concern, affecting ~5-8% of young children and 2-4% of adults. No reliable strategy exists for prevention and treatment of food allergy, and strict avoidance of the offending food is presently the only viable management option. Living with food avoidance has a huge impact on the quality of life of food allergic patients, with daily fear of serious or even fatal reactions. The need for efficient methods for prevention and treatment is therefore evident and urgent.

The purpose of the project is to develop methods to prevent and treat food allergy using a novel strategy, recently invented. Our vision is to overcome limitations in current strategies for food allergy prevention and treatment; being efficient without inducing allergic reactions.

The specific goals of the project are:
1) To develop protein ingredients for a new generation of hypoallergenic (HA) infant formulas (IF) for cow’s milk allergy (CMA) prevention
2) To develop a drug candidate for use in immunotherapy (IT) for peanut allergy (PA) treatment

These products would have the capacity to enhance the quality of life for millions of patients in risk of developing CMA and of patients with an already established PA. The market potential is great for both product categories. In addition, the newly developed strategy may form the basis for prevention, treatment and diagnostic products targeting other food allergies.

**National Food Institute**
Research Group for Gut Microbiology and Immunology
Department of Chemistry
Organic Chemistry
Research Group for Microbial Biotechnology and Biorefining
Office for Innovation & Sector Services
Medical University of Vienna
University of Toronto
University of Leeds

Arla Foods Ingredients Group P/S
Period: 01/01/2017 → 31/12/2020
Number of participants: 9

Food Allergy, Immunotherapy, Infant formula, Allergy, Milk allergy, Peanut allergy

**Acronym:** ALLEVIATE

**Project participant:**
Madsen, Charlotte Bernhard (Intern)
Kryger, Karsten (Intern)
Qvortrup, Katrine (Intern)
Jensen, Peter Ruhdal (Intern)
Bang-Berthelsen, Claus Heiner (Intern)
Ottesen, Peter Conrad (Intern)
Sancho Vega, Ana Isabel (Intern)

**Project Manager, organisational:**
Bang-Berthelsen, Iben (Intern)

**Project Manager, academic:**
Bøgh, Katrine Lindholm (Intern)
PigLED - Optimal lighting system for pigs
Light and vitamin D are essential for human and animal well-being. In this project, researchers using specially developed LED lighting will reduce the mortality in piglets, improve the welfare of sows during gestation, and thus improve the pig farmer's economy.

The challenge of this project is to improve the statistics in pig production. Every year, approximately 9,000,000 piglets die during birth or before weaning - an alarmingly high figure, which is not compatible with sustainability or animal welfare. In addition, it costs about 1.8 billion Danish kroner in lost profits for the Danish pig producers.

Piglets need vitamin D. They are born with a low level of vitamin D and in the first three weeks the only receive the sow's milk, which contains minimal amounts of vitamin D. Vitamin D is often referred to as the sunshine vitamin, since animals and humans produce vitamin D in the skin. We cannot bring sunlight into the pig sheds, but we can develop a light source, which contains the portion of the sunlight which produces vitamin D in the skin of pigs.

For more information see attached document in Danish

National Food Institute
Research Group for Bioactives – Analysis and Application
Department of Photonics Engineering
Diode Lasers and LED Systems
University of Copenhagen
Kongsdal Multisite A/S
Photocat A7S
Period: 01/01/2017 → 30/09/2020
Number of participants: 3
Acronym: PigLED
Project participant:
Bang-Berthelsen, Iben (Intern)
Petersen, Paul Michael (Intern)
Project Coordinator:
Jakobsen, Jette (Intern)
Documents:
PigLED tekst til DTU Hjemmeside

Videreudvikling af Campylobacter smittekilderegnskabet
National Food Institute
Division of Risk Assessment and Nutrition
Fødevarestyrelsen
Period: 01/01/2017 → …
Number of participants: 1
Project participant:
Christensen, Julia (Intern)

Danish Seaweed Organisation
Platform for the Danish seaweed Companies to go on the export market
National Food Institute
Research Group for Bioactives – Analysis and Application
Period: 01/01/2017 → …
Number of participants: 1
Acronym: DSO
Project participant:
Holdt, Susan Løvstad (Intern)
inVALUABLE - Insect value chain in a circular bioeconomy

Food production has been estimated to contribute with approximately 20-30% of the environmental impact of EU-citizens. In addition, the UN’s Food and Agriculture Organization (FAO) estimates that the global food production must increase 70% by 2050 to feed the growing world population, highlighting the importance of generating new and sustainable protein sources. FAO has recently placed food production from insects on the global agenda due to several advantages, e.g. high nutritional value (40-60% protein), high production efficiency (>5x), low land (<10x) and water (<1,000x) requirements, and low climate impact (<1,000x) as compared to conventional livestock. Moreover, insects may also be a solution to sourcing non-GMO and organic animal protein. The vision of inVALUABLE is to create a sustainable resource-efficient industry for animal protein production based on insects. The partners span the entire value chain and include entrepreneurs, experts in biology (entomology and nutrition), biotech, automation, processing and food tech and -safety, as well as an international leading insect producer. This interaction of competences is key to lifting insect production to an industrial level. The project operates at an applied research level with focus on three main areas: 1) biological knowledge of the production organisms (e.g. production environment, dietary needs and health); 2) automation and monitoring of production; and 3) product documentation of safety, nutrition and health. The goal is that inVALUABLE, 3-5 years post-project, can facilitate Danish industrial insect production and be an enabler of new market opportunities for insects as feed and food and other high-value components, with an overall value of 200-300M DKK annually and creating 100-200 related jobs.

National Food Institute
Research Group for Microbial Food Safety
Danish Technological Institute
University of Copenhagen
Aarhus University
Proti-Farm R&D
Ausumgaard
ScrapTrans
AgroKom
Novozymes A/S
Hannemann Engineering
DryingMate

Period: 01/01/2017 → 31/12/2019
Number of participants: 2
Insects mealworm production processing, feed & food safety, microbiological risks, hazard analysis, HACCP
Acronym: inVALUABLE
Project participant:
Jensen, Annette Nygaard (Intern)
Baggesen, Dorte Lau (Intern)

Relations
Activities:
inVALUABLE kick-off meeting
Kick off workshop om dansk insektindustri
inVALUABLE project meeting
EAAP 2017 Annual Meeting: One-day insect seminar
Kick off workshop om dansk insektindustri
Netværksmøde i Dansk Insektnetværk
INSEKTKBH - Community møde
Safe production of mealworms
Documents:
inVALUABLE_Press-release-Nov 2016 DK

Developing a decision support tool for process optimization for fish product
National Food Institute
Period: 01/01/2017 → 31/12/2019
Number of participants: 4
Phd Student:
Jordbrekk Blikra, Marthe (Intern)
Supervisor:
Feyissa, Aberham Hailu (Intern)
Skipnes, Dagbjørn (Ekstern)
Main Supervisor:
Jessen, Flemming (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Ansat eksternt
Project: PhD

NOBLE - Non digestible oligosaccharides (NDOs) from food processing residues
The objective of the project is to use byproducts from the Brazilian food industry to develop non-digestible soluble fibers with specific health benefits for applications in food and feed. Non-digestible oligosaccharides (NDOs) have been established as food and feed supplements due to their beneficial effect on microbiota of the intestinal tract. NDOs vary in composition and structure depending on the source, and different NDOs also differ in their effect on the intestinal microbiota. We will take advantage of the specific properties of side streams from the Brazilian food industry to develop novel types of NDOs. We will use enzyme technology developed at Sao Paulo State University to produce the novel NDOs. The biological activity of the NDOs will be characterized by technology established and developed at the Technical University of Denmark. The research will be conducted in close collaboration with industrial partners and the project is expected to result in commercial applications that will bring food and feed with improved nutritional value on the market. The project will generate new bioactive food and feed ingredients from residues not currently utilized by the Brazilian food industry. The processing technology will be based on membrane reactors with immobilized enzymes. The technology will minimize generation of waste and minimize consumption of water and other resources. The technology developed represents in itself a major result of the project. We expect several of the NDOs developed in this project to be significantly different from currently available NDOs, due to the specific raw materials and due to our specific enzymes and process technology. The impact on human and animal health will be examined through state of the art microbiological and metagenomic analyses. In this aspect the project use nutrigenomics to analyze health aspects of novel ingredients.

For the participating universities and industries an important outcome will be a close collaboration around development of technology and products. The industries are expected to implement the research results without unnecessary delay, and the universities intend to continue and expand the collaboration around research and training of young scientists.

National Food Institute
Research Group for Gut Microbiology and Immunology
University of São Paulo
Period: 01/01/2017 → 30/06/2019
Number of participants: 2
oligosaccharides, enzymes
Acronym: NOBLE
Project ID: 5133-00006B
Project Manager, organisational:
Bang-Berthelsen, Iben (Intern)
Project Coordinator:
Hansen, Egon Bech (Intern)

Financing sources
Source: Public research council
Name of research programme: InnovationsFonden
Amount: 1,657,830.00 Danish Kroner
Year of approval: 2016
Project

NOPROBLEM - Novel tasty dairy products obtained through intelligent resource management
Diacetyl, an important contributor to the buttery aroma of many fermented dairy products, is formed by lactic acid bacteria present in the starter culture. Mesophilic starters are efficient producers of diacetyl, but are unsuited for production of certain harder cheeses, because of the high temperatures needed to attain cheese firmness. Such cheeses are made
using thermophilic starters, that unfortunately are poor diacetyl formers, and taste is thus compromised (pers. comm. Søren Lillevang, Arla Foods). Besides the butter flavour content, another important factor is butter flavour formation rate. There are several cheese products where butter flavour is formed very slowly, in the course of several weeks of storage, and for some dairy products, technical issues limit butter flavor formation. In the current project we wish to address these issues while at the same time create value from processed whey streams that currently are discarded as pig-feed. 1) We want to make the mesophilic starter more therмотolerant, so that it can be used for making harder cheese variants. 2) Produce diacetyl from whey side-streams which can be added to various dairy products/sold. One way to make the mesophilic starter more therмотolerant is through adaptive evolution, an approach we previously have used with great success (Chen et al., 2015), and which will be applied in this project as well. We have optimized one of the starter culture bacteria into being extremely efficient at producing diacetyl from sugar (Liu et al., 2016). To attain a rich buttery flavor in dairy products, less than <10 mg/kg is needed. Our strain can generate 5-10 g/l under non-optimized conditions. This strain as well as its non-GMO version (to be constructed) will be used in the current project.

National Food Institute
Research Group for Microbial Biotechnology and Biorefining

Arla Foods Ingredients Group P/S
Period: 01/01/2017 → 30/06/2020
Number of participants: 2
Acronym: NOPROBLEM

Project Manager, organisational:
Bang-Berthelsen, Iben (Intern)
Project Coordinator:
Solem, Christian (Intern)

Financing sources:
Source: Public research council
Name of research programme: Innovation Fund Denmark
Amount: 5,629,948.00 Danish Kroner
Year of approval: 2016

Nuutaq: New concept for production of cod in Greenland - Best-practice with focus on quality and sustainability

National Food Institute
Period: 01/01/2017 → 31/12/2019
Number of participants: 4
Phd Student:
Serensen, Jonas Steenholdt (Intern)
Supervisor:
Bæknaes, Niels (Intern)
Jessen, Flemming (Intern)
Main Supervisor:
Dalgaard, Paw (Intern)

Financing sources:
Source: Internal funding (public)
Name of research programme: Industrial PhD
Project: PhD

Optimization of flavour formation in hard cheeses

Hard cheeses are normally made using thermophilic starters because of the high cooking temperatures (>39°C) involved. Mesophilic starters cannot presently be used because the high temperature would affect the subsequent acidification and flavor formation. Thermophilic starters tolerate the high temperature, but are unable to produce some of the desirable flavor compounds produced by their mesophilic counterparts. In this project we wish to study whether this problem can be solved by changing process parameters and/or starter so that harder cheeses can be made using mesophilic starters.

National Food Institute
Research Group for Microbial Biotechnology and Biorefining
Arla Foods Ingredients Group P/S

Period: 01/01/2017 → 21/12/2019
Number of participants: 1
Project Coordinator:
Solem, Christian (Intern)

Financing sources
Source: Public research council
Name of research programme: The Danish Dairy Research Foundation
Amount: 2,824,000.00 Danish Kroner

Risikovurdering af planter og andre råvarer fra den danske natur i forhold til anvendelse som fødevarer samt videnskabelig og populær formidling af den indsamlede viden

National Food Institute
Research Group for Risk-Benefit
Division of Risk Assessment and Nutrition
Period: 31/12/2016 → 28/02/2018
Number of participants: 6
Project participants:
Pilegaard, Kirsten (Intern)
Ravn-Haren, Gitte (Intern)
Eriksen, Folmer Damsted (Intern)
Olesen, Pelle Thonning (Intern)
Egebjerg, Mikael Mandrup (Intern)
Bredsdorff, Lea (Intern)

Financing sources
Source: Other public support (public)
Name of research programme: Miljø- og Fødevareministeriet
Year of approval: 2016

Development of Strategies for Efficient Water Usage for Production of Safe Fresh and Ready-to-eat Seafood Products in Remote Communities

National Food Institute
Period: 01/12/2016 → 30/11/2019
Number of participants: 3
Phd Student:
Hvitved, Annemette (Intern)
Supervisor:
Jensen, Pernille Erland (Intern)
Main Supervisor:
Hansen, Lisbeth Truelstrup (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU)
Project: PhD

Generic open science data platform for surveillance, exposure assessment and risk analysis

National Food Institute
Period: 01/12/2016 → 10/02/2020
Number of participants: 5
Phd Student:
Backhaus, Liv Louise Victoria (Intern)
Supervisor:
Lund, Ole (Intern)
Pamp, Sünje Johanna (Intern)
Vigre, Håkan (Intern)
Main Supervisor:
Aarestrup, Frank Møller (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU)
Project: PhD

Mechanisms of action involved in chemically-induced effects on male reproductive health
National Food Institute
Period: 01/12/2016 → 30/11/2019
Number of participants: 3
Phd Student:
Schwartz, Camilla Victoria Lindgren (Intern)
Supervisor:
Svingen, Terje (Intern)
Main Supervisor:
Vinggaard, Anne Marie (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Forskningsrådsfinansiering
Project: PhD

Optimizing and refining 3D culturing of human stem cells for predictive toxicity
National Food Institute
Period: 01/12/2016 → 30/11/2019
Number of participants: 4
Phd Student:
Lauschke, Karin (Intern)
Supervisor:
Emnéus, Jenny (Intern)
Taxvig, Camilla (Intern)
Main Supervisor:
Vinggaard, Anne Marie (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU)
Project: PhD

Experimental project in physics and nanotechnology: Cryo SEM Characterization of Food NMS Containing PUFA
Center for Electron Nanoscopy
DTU Danchip
National Food Institute
Research Group for Bioactives – Analysis and Application
Research Group for Nano-Bio Science
Period: 09/09/2016 → 01/12/2016
Number of participants: 5
Acronym: 33525
Project participant:
Haaning, Katrine (Ekstern)
Bekæmpelse af ESBL producerende, colistin og multiresistente Salmonella og E. coli
National Food Institute
Research Group for Genomic Epidemiology
University of Copenhagen
Period: 01/09/2016 → 31/12/2016
Number of participants: 1
ESBL, colistin, phage
Project participant:
Bortolaia, Valeria (Intern)

Flavor Tailoring for Future Brewing: Unleashing the Yeast Diversity Potential
National Food Institute
Period: 01/09/2016 → 31/08/2019
Number of participants: 4
Phd Student:
Colomer, Marc Serra (Ekstern)
Supervisor:
Förster, Jochen (Intern)
Mortensen, Uffe Hasbro (Intern)
Main Supervisor:
Hobley, Timothy John (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Industrial PhD
Project: PhD

Comparison of ADDs used in VetStat with primary data on usage doses obtained at visits in 20 Danish pig herds
Master project
National Food Institute
Research Group for Genomic Epidemiology
Period: 01/08/2016 → 06/01/2017
Number of participants: 1
antimicrobial usage, VetStat, Epidemiology, pigs
Main Supervisor:
Hald, Tine (Intern)

Research stay with Dr. Mary Gilbert, Perfluorinated Chemicals and Brain Development: Interaction with the Thyroid Axis
Research stay with Dr. Mary Gilbert at the Toxicity Assessment Division, US Environmental Protection Agency, NC, U.S.
The research stay is a central part of my PhD studies and the expertise of Dr. Mary Gilbert within neurobiology is key to
the project by complementing my neurobehavioural studies. The research stay was, amongst others, supported by Society
for Endocrinology.
National Food Institute
Research Group for Reproductive Toxicology
Survival of Listeria monocytogenes in the food processing environment: Mechanisms and mitigation strategies

National Food Institute
Period: 15/06/2016 → 19/07/2019
Number of participants: 3
PhD Student:
Kragh, Martin Laage (Intern)
Supervisor:
Forslund, Anita (Intern)
Main Supervisor:
Hansen, Lisbeth Truelstrup (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU)
Project: PhD

Food Modelling
National Food Institute

Research Group for Food Production Engineering

Company
Period: 01/06/2016 → 31/05/2017
Number of participants: 2
Project participant:
Feyissa, Aberham Hailu (Intern)
Rabeler, Felix (Intern)

Improving bio-utilisation of marine algae as sustainable feed ingredients to increase efficiency and quality of aquaculture production

Global population growth and increase in living standards will push up the demand for fish-derived protein in the future. However, resource scarcity (feed, water and energy), environmental impacts, and changes in climate and growing conditions can seriously hamper aquaculture that supplies a significant proportion of human food. New sustainable protein and lipid sources and improved technologies to increase bio-availability of existing sources will be needed to ensure adequate supply of aquafeeds to ensure growth of aquaculture. On the other hand, the growth of the industry has caused environmental concerns. Interestingly, aquaculture effluents can be an excellent medium for algal growth, although they are not usually reused since they contain residual organic compounds, minerals and other micro-pollutants.

MARINALGAE4aqua is an innovative research project that targets the development of strategies to increase efficiency of important European farmed fish species (Atlantic salmon and European sea bass) and reduce the environmental impact using micro- & macro-algal biomass as feed ingredients by: I. Culturing marine algae under optimized technological processes to remove organic compounds and minerals from fish farm effluents, and producing high value products for aquafeeds while recycling nutrients; thus improving the water body quality and reducing the environmental impact. II. Identifying novel feed additives to improve fish digestive capacity and nutrient metabolism upon using the selected algae. III. Improving fish growth and end product quality, reducing time to slaughter and providing a safe and healthy food item with wide consumer acceptance. MARINALGAE4aqua aims to tackle the sustainability challenges of the aquafeed industry by developing cost-effective and resource-efficient alternatives to FM and FO by providing: a) efficient new processes to valorise selected marine algae that could reduce EU imports of protein and lipid sources and minimize over-exploitation of wild fish stocks, loss of biodiversity and environmental burden and b) high sensory quality, acceptable fish products that meet food safety standards and dietary needs for a healthy life. MARINALGAE4aqua will exploit cost-efficient and environmentally sustainable production and processing technologies to produce algal biomass suitable for inclusion in aquafeeds. MARINALGAE4aqua is innovative and cutting edge - it adopts a multidisciplinary approach, integrating molecular (genomics, proteomics) and traditional tools to address physiological, nutritional and environmental challenges in modern aquaculture – providing state-of-the-art knowledge to identify strategies to increase efficiency of farming important European fish species.
Sample preparation for screening analyses by high resolution mass spectrometry

National Food Institute
Period: 01/06/2016 → 31/05/2019
Number of participants: 3
PhD Student:
Eyring, Philipp (Intern)
Supervisor:
Smedsgaard, Jørn (Intern)
Main Supervisor:
Frandsen, Henrik Lauritz (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU)
Project: PhD

Screening of unknown compounds for food monitoring by high resolution mass spectrometry

National Food Institute
Period: 01/06/2016 → 31/05/2019
Number of participants: 3
PhD Student:
Wang, Tingting (Intern)
Supervisor:
Frandsen, Henrik Lauritz (Intern)
Main Supervisor:
Smedsgaard, Jørn (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU)
Project: PhD

Greater Copenhagen Food Innovation

CPH-Foods formål er at øge innovationsgraden og udvikle konkrete løsninger hos SMVer hovedsageligt i Region Sjælland. SMVerne vil blive støttet i at udvikle nye produkter, processer og koncepter, som vurderes at have en stærk kommersiel fremtid.

Projektet skal sikre, at innovation og vidensamarbejde bliver en integreret del af virksomhedens hverdag og strategi fremover.

CPH-Food udnytter partnernes forenede kompetencer i individuelt tilpassede og målrettede udviklingsforløb for innovations- og vækstorienterede SMVer. Dette for at skabe værdi for SMVerne og for fødevaresektoren generelt. CPH-Food vil herved bidrage til at skabe vækst og arbejdspadser på Sjælland.

National Food Institute
Period: 01/05/2016 → 31/10/2019
Number of participants: 5
Acronym: CPH FOOD
Project participant:
Olsen, Lone Ryg (Ekstern)
Proof of food authenticity by chemical methods

National Food Institute
Period: 01/05/2016 → 30/04/2019
Number of participants: 3
Phd Student:
Wilde, Amelie Sina (Intern)
Supervisor:
Fromberg, Arvid (Intern)
Main Supervisor:
Smedsgaard, Jørn (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU)
Project: PhD

Miniaturization of food safety analysis

National Food Institute
Period: 15/03/2016 → 14/03/2019
Number of participants: 3
Phd Student:
Zhai, Demi Shuang (Intern)
Supervisor:
Boisen, Anja (Intern)
Main Supervisor:
Smedsgaard, Jørn (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU)
Project: PhD

Literature survey on migration and risk assessment of nanoparticles from food contact materials

National Food Institute
Division of Risk Assessment and Nutrition
Research Group for Nano-Bio Science
Period: 01/03/2016 → 01/12/2016
Number of participants: 3
Project participant:
Pedersen, Gitte Alsing (Intern)
Jokar, Maryam (Intern)
Löschnner, Katrin (Intern)

COMPARE WG 1, Task 1.2: Development of a novel approach for food chain risk assessment based on NGS data

National Food Institute
Research Group for Genomic Epidemiology
Period: 01/02/2016 → 31/12/2018
Number of participants: 1
microbial risk assessment, whole genome sequencing, machine learning, listeria
Supervisor:
Hald, Tine (Intern)
Project

Novel methods to quantify health in benefit risk assessment. A case study on fish
National Food Institute
Period: 01/02/2016 → 31/01/2019
Number of participants: 4
Phd Student:
Persson, Inez Maria (Intern)
Supervisor:
Pires, Sara Monteiro (Intern)
Poulsen, Morten (Intern)
Main Supervisor:
Nauta, Maarten (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

Valorization of red seaweed biomasses towards future sustainability (VALSEA), Multiextraction of Bioactive Compounds from Macroalgae
National Food Institute
Period: 01/02/2016 → 02/05/2019
Number of participants: 3
Phd Student:
Naseri, Alireza (Intern)
Supervisor:
Holdt, Susan Løvstad (Intern)
Main Supervisor:
Jacobsen, Charlotte (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

Establishing Next Generation sequencing Ability for Genomic analysis in Europe.
National Food Institute
Research Group for Genomic Epidemiology
Period: 29/01/2016 → 29/01/2018
Number of participants: 1
Acronym: ENGAGE
Project ID: -GP/EFSA/AFSCO/2015/01
Project participant:
Hendriksen, Rene S. (Intern)

Relations
Activities:
EFSA ENGAGE
EFSA ENGAGE Workshop
Project
Optimization of processes, yield and biomass composition in large scale macroalgal cultivation in open ocean environments

National Food Institute
Period: 15/01/2016 → 14/01/2019
Number of participants: 4
Phd Student:
Grandorf Bak, Urd (Intern)
Supervisor:
Gregersen, Olavur (Ekstern)
Jacobsen, Charlotte (Intern)
Main Supervisor:
Holdt, Susan Løvstad (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Industrial PhD
Project: PhD

Fastsættelse af baggrunds niveau for total fluor i emballager af pap og papir
Til brug for FVST's fastsættelse af en vejledende national grænseværdi for total fluor i emballager af pap og papir skal niveauet af total fluor i sådanne materialer bestemmes

National Food Institute
Division of Risk Assessment and Nutrition
Period: 12/01/2016 → 31/12/2017
Number of participants: 1
Project participant:
Pedersen, Gitte Alsing (Intern)

Microbiota and cow's milk tolerance
Cow's milk allergy is a health problem of growing concern for which reason efficient strategies for the prevention is urgently needed. In recent years it has been demonstrated that the gut microbiota composition influences the development of allergy. However, our knowledge about how the microbiota composition influences the sensitising or tolerance inducing capacities of the food is only scarcely described. The objectives of this project are: (1) to increase our knowledge about the interplay between food proteins and the gut microbiota, and how this interplay impact on induction of cow's milk allergy versus tolerance, and (2) in a broader perspective to gain knowledge about mechanisms influenced by microbiota, which drives the immune system towards allergy or tolerance.

Intact whey, which is one fraction of cow's milk often used for infant formula, and enzymatic hydrolysed products hereof, used for hypoallergic infant formulas, will used as model protein ingredients. The interplay between whey-based ingredients and the gut microbiota will be investigated in in vitro fermentation studies based on faecal samples from food allergic and healthy infants, as well as in animal studies in which the gut microbiota is manipulated by antibiotics treatment. Microbial composition will be analysed by 16S rRNA gene sequencing in combination with quantitative real-time PCR. The allergy or tolerance inducing capacity of the different whey-based ingredients and the influence of the gut microbiota composition will be analysed by evaluating different serological and cell based end-points. Appropriate functional in vitro, in vivo and ex vivo assays will be applied to investigate the mechanism by which the gut microbiota and metabolites hereof impact on directing the immune system towards allergy or tolerance.

National Food Institute
Research Group for Gut Microbiology and Immunology
Arla Foods Ingredients Group P/S
Period: 01/01/2016 → 31/08/2019
Number of participants: 4
Milk allergy, tolerance, infant formulas, gut microbiota
Number of related Ph.D. students: 1
Project participant:
Graversen, Katrine (Intern)
Licht, Tine Rask (Intern)
Bahl, Martin Iain (Intern)
**Valorization of red seaweed biomasses towards future sustainability (VALSEA), Multiextraction of Bioactive Compounds from Macroalgae**

The aim of this applied research project is to better utilize the valuable compounds in seaweed and thereby achieve a higher return, since at present, Danish and international companies only extract specific stabilizing agents/ingredients from seaweed for use in various food and consumer products, and several valuable compounds go to waste. In this project the National Food Institute will use its expertise within seaweed research in cooperation with four Danish companies; CP Kelco, GEA Niro, Third Wave Nutrition and Nordisk Tang by Endelave. Not only carrageenan or furcellaran as single extraction, but a future multi-extraction of valuable proteins, natural food colours and antioxidants will turn waste into value, to be used in e.g. protein shakes. The research include the entire value chain from the extraction, drying of the extracted products such as protein, testing and application for ready products, and includes red seaweed species to be researched such as: Eucheuma spinosum, Furcellaria lumbricalis and Palmaria palmata for their different compositions and applications. DTU Food partners are Charlotte Jacobsen, Susan L. Holdt and Alireza Naseri

**National Food Institute**

**Research Group for Bioactives – Analysis and Application**

**Period:** 01/01/2016 → 31/12/2019

**Number of participants:** 3

**Acronym:** VALSEA

**Project participant:**

**Naseri, Alireza (Intern)**

**Project Manager, academic:**

**Jacobsen, Charlotte (Intern)**

**Project Coordinator:**

**Holdt, Susan Løvstad (Intern)**

**Relations**

**Related projects:**

Valorization of red seaweed biomasses towards future sustainability (VALSEA), Multiextraction of Bioactive Compounds from Macroalgae

**Global sewage surveillance project**

The project will serve as proof-of-concept for applying metagenomic approaches, which could initiate a global surveillance of human infectious diseases including antimicrobial resistance from sewage collected in major cities around the world to detect, control, prevent and predict human infectious diseases.

Along with The National Food Institute, DTU (WHO Collaborating Centre and European Union Reference Laboratory for Antimicrobial Resistance in Foodborne Pathogens), several other partners from COMPARE are involved in this joint study with WHO, including Erasmus MC, The Netherlands, and National Institute for Public Health and the Environment, RIVM (WHO Collaborating Centre for Risk Assessment of Pathogens in Water and Food).

**National Food Institute**

**Research Group for Genomic Epidemiology**

National Institute for Public Health and the Environment (RIVM)BilthovenThe Netherlands

**Erasmus Medical Center**

**World Health Organization**

**Period:** 01/01/2016 → …

**Number of participants:** 2

**Project participant:**

**Hendriksen, Rene S. (Intern)**

**Project Manager, organisational:**

**Aarestrup, Frank Møller (Intern)**

**Project**
Repportering af nationale overvågningsdata til den Europæiske Fødevaresikkerhedsautoritet, EFSA

National Food Institute
Division of Risk Assessment and Nutrition
Division of Epidemiology and Microbial Genomics
Fødevarestyrelsen
Landbrug og Fødevarer
SEGES Cattle
Danmarks Statistik
Period: 01/01/2016 → …
Number of participants: 1
Project participant:
Christensen, Julia (Intern)
Project

Annual Report on Zoonoses in Denmark

National Food Institute
Division of Risk Assessment and Nutrition
Division of Food Production Engineering
Section for Diagnostics and Scientific Advice
Division of Toxicology and Risk Assessment
Fødevarestyrelsen
Landbrug og Fødevarer
SEGES Cattle
Statens Serum Institut
Danmarks Statistik
SEGES Pig Research Center
Period: 01/01/2016 → …
Number of participants: 1
Project participant:
Christensen, Julia (Intern)
Project

Case by case -salmonella og campylobacter i DK og importeret kød

National Food Institute
Division of Risk Assessment and Nutrition
Period: 01/01/2016 → …
Number of participants: 1
Project participant:
Christensen, Julia (Intern)
Project

Metagenomic Approaches for Determining the Structure and Function of Complex Microbiomes

National Food Institute
Period: 01/01/2016 → 06/05/2019
Number of participants: 4
Phd Student:
Kirstahler, Philipp (Intern)
Supervisor:
Risk-benefit assessment of whole diet

National Food Institute
Period: 01/01/2016 → 31/12/2018
Number of participants: 5
Phd Student:
Thomsen, Sofie Theresa (Intern)
Supervisor:
Pires, Sara Monteiro (Intern)
Pires, Sara Monteiro (Intern)
Poulsen, Morten (Intern)
Main Supervisor:
Andersen, Rikke (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

Foodborne virus on surfaces of soft-fruit and kitchen environment. Efficacy and mechanism of viral inactivation by heat and steam-ultrasound

National Food Institute
Period: 15/12/2015 → 14/06/2019
Number of participants: 3
Phd Student:
Rajiuddin, Sheikh Md (Intern)
Supervisor:
Hansen, Tina Beck (Intern)
Main Supervisor:
Schultz, Anna Charlotte (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU)
Project: PhD

Microbiota and cow's milk tolerance

National Food Institute
Period: 15/12/2015 → 29/07/2019
Number of participants: 4
Phd Student:
Graversen, Katrine (Intern)
Supervisor:
Bahl, Martin Iain (Intern)
Licht, Tine Rask (Intern)
Main Supervisor:
Bøgh, Katrine Lindholm (Intern)

Financing sources
Lipid Oxidation in High Fat Omega-3 Delivery Emulsions

National Food Institute
Period: 01/12/2015 → 30/11/2018
Number of participants: 3
Phd Student:
Yesiltas, Betül (Intern)
Supervisor:
Sørensen, Ann-Dorit Moltke (Intern)
Main Supervisor:
Jacobsen, Charlotte (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

Tools for source attribution based on ngs data

National Food Institute
Period: 01/12/2015 → 30/11/2018
Number of participants: 4
Phd Student:
Munck, Nanna Sophia Mucha (Intern)
Supervisor:
de Knegt, Leonardo (Intern)
Leekitcharoenphon, Pimlapas (Intern)
Main Supervisor:
Hald, Tine (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

Biological Sample Preparation for Electron Microscopy

Special Topic Course
Center for Electron Nanoscopy
DTU Danchip
Department of Environmental Engineering
Urban Water Engineering
Department of Micro- and Nanotechnology
Center for Intelligent Drug Delivery and Sensing Using Microcontainers and Nanomechanics

Nanoprobes
Amphiphilic Polymers in Biological Sensing
National Food Institute
Research Group for Bioactives – Analysis and Application
Research Group for Nano-Bio Science
Period: 16/11/2015 → 20/11/2015
Number of participants: 6
Project participant:
**Biofuels of the future - Development of a Lactic Acid Bacteria platform for sustainable production of higher alcohols**

National Food Institute  
Period: 01/11/2015 → 31/12/2018  
Number of participants: 4  
Phd Student:  
Mar, Mette Jurlander (Intern)  
Supervisor:  
Kandasamy, Vijayalakshmi (Intern)  
Solem, Christian (Intern)  
Main Supervisor:  
Jensen, Peter Ruhdal (Intern)  

**Financing sources**  
Source: Internal funding (public)  
Name of research programme: Samfinansieret - Andet  
Project: PhD

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**Ecology and Epidemiology of Pathogens and Antimicrobial Resistance**

National Food Institute  
Period: 01/11/2015 → 31/03/2018  
Number of participants: 4  
Phd Student:  
Wimmer, Bettina (Intern)  
Supervisor:  
Aarestrup, Frank Møller (Intern)  
Pamp, Sünje Johanna (Intern)  
Main Supervisor:  
Vigre, Håkan (Intern)  

**Financing sources**  
Source: Internal funding (public)  
Name of research programme: Samfinansieret - Andet  
Project: PhD

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**Quantification of folate metabolites in food and potential biofortification strategies for future food products**

National Food Institute  
Period: 01/11/2015 → 31/10/2018  
Number of participants: 3  
Phd Student:  
Ložnjak, Petra (Intern)  
Supervisor:  
Bysted, Anette (Intern)  
Main Supervisor:  
Jakobsen, Jette (Intern)  

**Financing sources**  
Source: Internal funding (public)  
Name of research programme: Samfinansieret - Andet  
Project: PhD
Pilot project on the implementation of SSD2 in the frame of the electronic transmission of harmonised data collection of analytical results to EFSA, OC/EFSA/DATA/2015/02

The current call for tenders is a continuation of the previous one and aims to complete, extend and include an additional domain in the pilot implementation of SSD2 in order to facilitate the future adoption and implementation of SSD2 as a unique data model for different collections.

National Food Institute
Division of Risk Assessment and Nutrition
Research Group for Analytical Food Chemistry
Danish Veterinary and Food Administration
Period: 22/10/2015 → 22/04/2017
Number of participants: 4
Project participant:
Jensen, Louise Grønhøj Harbye (Intern)
Pedersen, Mikael (Intern)
Butters, Jytte (Intern)
Project Manager, organisational:
Andersen, Jens Hinge (Intern)

Relations
Related projects:
Transformation of non standard data files to the Standard Sample Description format, OC/EFSA/DCM/2013/03
Re-coding of the food descriptors of EFSA Chemical Occurrence Database and Food Consumption Database entries according to the FoodEx2 food classification and description system, NP/EFSA/DATA/2014/07
Pilot project on the implementation of SSD2 in the frame of the electronic transmission of the harmonised data collection of analytical results to EFSA, OC/EFSA/DCM/2013/05

Food allergy skin sensitisation

Allergic sensitisation to foods may occur in infancy without prior oral exposure to the offending food. This has led to the assumption that food allergy sensitisation may occur through alternative routes, such as via the skin. Recently, concern has been raised regarding the safety of use of cosmetic and personal care products containing food proteins and derivatives hereof, especially hydrolysed wheat proteins. However, little is known about the conditions necessary for proteins and their derivatives to sensitise via the skin. In this project we will develop an animal model for IgE mediated protein induced skin sensitisation. This will allow us to study the influences of: 1) protein/peptide sizes, 2) protein/peptide aggregation tendency, 3) matrices in which the proteins/peptides are present and 4) skin conditions, on the skin sensitising capacity of protein products. Intact wheat and different enzyme and acid hydrolysed wheat products, used in cosmetic and personal care products will be used as model proteins and applied on intact, damaged as well as inflamed skin, in order for examination of: 1) specific IgG1 and IgE antibody responses, according to: antibody levels, antibody avidity and cross reactivity by means of different ELISAs, 2) IgE functionality by means of in vivo skin test, 3) protein/peptide reactivity and cross-reactivity by means of immunoblotting, 4) proliferative responses of lymphocytes from the regional lymph nodes after stimulation with different wheat products, 5) cytokine responses of lymphocytes from regional lymph nodes after stimulation with different wheat products, and 6) histopathology of skin. With this project we anticipate to contribute with substantial knowledge to our understanding on how and why food proteins sensitise through the skin. This is important for the potential prevention of new cases of food allergy.

National Food Institute
Research Group for Gut Microbiology and Immunology
Period: 01/10/2015 → 31/03/2020
Number of participants: 1
Project participant:
Bøgh, Katrine Lindholm (Intern)

Financing sources
Source: Private funding (private)
Name of research programme: The Lundbeck Foundation
Amount: 2,100,000.00 Danish Kroner
Year of approval: 2015
Project
The gut microbiota as a sensitive indicator for biologically relevant residues of chemical pesticides in food produce exemplified by glyphosate (Roundup®)

National Food Institute
Research Group for Gut Microbiology and Immunology

Aarhus University
Period: 01/10/2015 → 30/09/2017
Number of participants: 2
Acronym: PestiGUT
Project participant:
Bahl, Martin Iain (Intern)
Licht, Tine Rask (Intern)

Detection of Pathogens and Antimicrobial Resistance in Microbiomes

National Food Institute
Period: 01/10/2015 → 31/03/2019
Number of participants: 4
Phd Student:
Poulsen, Casper Sahl (Intern)
Supervisor:
Kaas, Rolf Sommer (Intern)
Pamp, Sünje Johanna (Intern)
Main Supervisor:
Aarestrup, Frank Møller (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

Interactions Between the Microbiome and Host Immune System

National Food Institute
Period: 01/10/2015 → 30/09/2018
Number of participants: 5
Phd Student:
Masche, Anna Cäcilia (Intern)
Supervisor:
Aarestrup, Frank Møller (Intern)
Lund, Ole (Intern)
Müller, Klaus Gottlob (Ekstern)
Main Supervisor:
Pamp, Sünje Johanna (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

Development of omega-3 nanodelivery systems using electrospinning processing

Functional foods containing omega-3 lipids, which have approved health claims by EFSA, have resulted in one of the fastest-growing food product categories in Europe. However, to successfully develop foods enriched with omega-3 PUFA, lipid oxidation of these highly unsaturated fatty acids must be prevented in order to avoid both the loss of nutritional value and the formation of unpleasant off-flavors. Omega-3 PUFA can be added to foods as neat oils or as a “delivery system” such as microencapsulated oil powders and oil-in-water emulsions. Nevertheless, delivery of omega-3 lipids in the form of emulsions reduces the oxidative stability of omega-3 PUFA in some
products. Furthermore, microencapsulates are less suitable for liquid or semi-liquid foods than emulsified omega-3 oils due to handling/mixing issues. Therefore, the development of alternative omega-3 PUFA delivery systems, which are easy to disperse and which will lead to improved oxidative stability of omega-3 enriched food products, is urgently required. One of the more promising delivery systems can be functional nanomicrostructures obtained by electrospinning technology, which is possible to up-scale. In light of the above, the aim of this research project is to develop advanced omega-3 delivery systems such as electrospun nano-microstructures. To this end, the specific objectives are:

1) Development of physically and oxidatively stable nano-microstructures with omega-3 PUFA and natural antioxidants using electrospinning processing.
2) Production of food enriched with the nano-microstructures having appropriate structural-functional properties and being oxidatively stable.

The success of the research proposed will lead to an important advance in the protection of omega-3 PUFA against oxidation when incorporated into food. Thus, the knowledge generated by this study has the potential to being exploited by companies devoted to the production of functional foods containing omega-3 lipids.

National Food Institute

Research Group for Bioactives – Analysis and Application

Research Group for Nano-Bio Science

Division of Industrial Food Research

Period: 24/08/2015 → 24/08/2017

Number of participants: 3

Acronym: ELECTRONANOMEGA

Project participant:
Garcia Moreno, Pedro Jesús (Intern)
Supervisor:
Chronakis, Ioannis S. (Intern)
Main Supervisor:
Jacobsen, Charlotte (Intern)

Relations

Related projects:
Experimental project in physics and nanotechnology: Cryo SEM Characterization of Food NMS Containing PUFA
Biological Sample Preparation for Electron Microscopy

Publications:
Use of Electrohydrodynamic Processing for Encapsulation of Sensitive Bioactive Compounds and Applications in Food
Physicochemical characterization and oxidative stability of fish oil-loaded electrosprayed capsules: Combined use of whey protein and carbohydrates as wall materials
Development of fish oil-loaded nano-microcapsules by co-axial electrospraying: physical characterization and oxidative stability
Oxidative stability of pullulan electrospun fibers containing fish oil
Protein-polysaccharide Mixtures as Wall Material in Fish Oil-loaded Nano-microcapsules Obtained by Electrospraying
Development of carbohydrate-based nano-microstructures loaded with fish oil by using electrohydrodynamic processing
Oxidative stability of pullulan nanofibers loaded with fish oil: effect of oil content and antioxidants addition
Oxidative Stability of Nano-Microstructures containing fish oil
Encapsulation of fish oil in nanofibers by emulsion electrospinning: Physical characterization and oxidative stability
Production of omega-3 nanodelivery systems by emulsion electrospinning
Oxidative stability of electrospun nanofibers loaded with fish oil

Predictive food microbiology tool for risk assessment and documentation of food safety

PhD-project funded by Danish Dairy Research Foundation and the Danish Veterinary and Food Administration.

National Food Institute
Research Group for Microbial Food Safety and Quality
Period: 01/08/2015 → 31/07/2018
Number of participants: 2
Project participant:
Martinez Rios, Veronica (Intern)
Dalgaard, Paw (Intern)

TangMatch International
Preparing the Danish SME's for meeting the International Seaweed World at the 22nd International Seaweed Symposium (ISS) in Copenhagen, June, 2016. This included a matchmaking session with B2B at the ISS

National Food Institute
Research Group for Bioactives – Analysis and Application
Period: 01/08/2015 → 31/07/2016
Number of participants: 1
Acronym: TangMatch 2
Project participant:
Holdt, Susan Løvstad (Intern)

Predictive food microbiology - new models for safety and quality assessment of a broad range of dairy products
National Food Institute
Period: 01/08/2015 → 18/03/2019
Number of participants: 3
Phd Student:
Martinez Rios, Veronica (Intern)
Supervisor:
Smedsgaard, Jørn (Intern)
Main Supervisor:
Dalgaard, Paw (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

FoodNetwork 2015-16: Videreudvikling af test på åbent udstyr
Milepæle:
1. Udvalg af udstyr og materialer til test i samarbejde deltagende virksomheder
2. Revision og tilpasning af test fra første fase
3. Udførelse af test på udvalgt udstyr, del 1-3
4. Opstilling af forsøgsprotokol
5. Intern validering af protokol
6. Seminar for industrien med præsentation af resultater
7. Præsentation af resultater til EHEDG Working Group med henblik på præsentation på EHEDG World Congress 2016

National Food Institute
Research Group for Microbial Food Safety and Quality
Research Group for Food Production Engineering
Institute for Product Development
Staalcentrum
Blücher Metal A/S
Foodsafe A/S
Haas-Meincke A/S
Period: 01/07/2015 → 30/06/2016
Number of participants: 3
Acronym: FoodNetwork15-16
Project participant:
Wirtanen, Gun Linnea (Intern)
Holm, Lissi (Intern)
Thrane, René (Intern)

Project

Interreg Food Nordic Nordic
Øge samarbejdet mellem fødevare-aktørerne i Norden samt skabe et partnerskab der kan agere i Europæisk regi

National Food Institute
Period: 01/07/2015 → 31/07/2017
Number of participants: 2
Food Systems in Europe, Innovation Systems, Entreprenørskab, Talent development
Number of related Ph.D. students: 0
Project participant:
Jensen, Henning Høgh (Intern)
Nellemann, Christine (Intern)

Financing sources
Source: EU research programme (public)
Name of research programme: Interreg
Year of approval: 2016

Symposium on Gut Microbiota and Host Metabolic Health
The idea with the symposium is to invite four esteemed foreign speakers within the field of Gut Microbiota and Metabolic Health, who can thereby inspire and interact with Danish senior researchers as well as young Danish scientists. Additionally, the symposium will be used as a platform to disseminate the new results from the 3G Center and related research. This will contribute to the continuous development of Danish research as a major international player within this field of science.

National Food Institute
Research Group for Gut Microbiology and Immunology
Research Group for Genomic Epidemiology
Spanish National Research Council
Louvain Drug Research Institute
Wageningen IMARES
Cornell University
Period: 01/07/2015 → 30/06/2017
Number of participants: 3
gut, microbiota, diabetes
Acronym: Novo_Gut Symposium
Project Manager, organisational:
Skiby, Jeffrey Edward (Intern)
Bang-Berthelsen, Iben (Intern)
Project Coordinator:
Licht, Tine Rask (Intern)

Financing sources
Source: Private funding (private)
Name of research programme: Novo Nordisk fonden
Amount: 130.00 Danish Kroner
Year of approval: 2015
A novel strategy for hypoallergenic infant formulas
PoC project
National Food Institute
Research Group for Gut Microbiology and Immunology
Period: 01/05/2015 → 30/06/2016
Number of participants: 2
Project participant:
Kryger, Karsten (Intern)
Project Manager, academic:
Bagh, Katrine Lindholm (Intern)

Identifying health outcomes of Salmonella, Campylobacter and Verocitotoxinogenic E. coli (STEC) infections
The aim of this study is to estimate the risks of complications and long-term sequelae due to infection by selected foodborne pathogens. The specific objectives are:
• To identify all health outcomes potentially associated with infection with selected pathogens, and
• To estimate the probability of occurrence of each health outcome following infection with selected foodborne pathogens.
To achieve these, we will make use of the extensive health registries available in Denmark and analyse epidemiological evidence for each pathogen. A large cohort study will be conducted for each pathogen. The results will be used to produce outcome trees for these pathogens, which will inform Danish burden of foodborne disease estimations.

Burden of Disease
National Food Institute
Division of Epidemiology and Microbial Genomics
Statens Serum Institut
Period: 01/05/2015 → 01/10/2015
Number of participants: 1
Foodborne diseases, Burden of Disease, Health outcomes, Cohort study
Project Manager, organisational:
Pires, Sara Monteiro (Intern)

Nanodelivery systems for urine bladder tissue engineering applications
Grant giver: The Danish Council for Independent Research | Technology and Production Sciences
Instrument: DFF-Individuelt postdocstipendium med Sapere Aude 1
Research Group for Nano-Bio Science
Technical University of Denmark
Period: 01/03/2015 → 31/08/2017
Number of participants: 4
Project participant:
Fossum, Magdalena (Ekstern)
Hilborn, Jons (Ekstern)
Project Manager, academic:
Chronakis, Ioannis S. (Intern)
Project applicant:
Ajalloueian, Fatemeh (Intern)

Relations
Parent project:
Functional Biopolymer Nanostructures for Bioengineering Applications

Functional Biopolymer Nanostructures for Bioengineering Applications
National Food Institute
Research Group for Nano-Bio Science
**Functional Biopolymer Nanostructures for Bioengineering Applications**

National Food Institute  
Period: 01/02/2015 → 30/04/2018  
Number of participants: 6  
Phd Student:  
Shekarforoush, Elhamalsadat (Intern)  
Supervisor:  
Mendes, Ana Carina Loureiro (Intern)  
Main Supervisor:  
Chronakis, Ioannis S. (Intern)  
Examiner:  
Mohammadifar, Mohammad Amin (Intern)  
Douglas, Timothy E.L. (Ekstern)  
Yang, Mingshi (Ekstern)

**Financing sources**  
Source: Internal funding (public)  
Name of research programme: Privatist  
Project: PhD

**Sustainable technologies for optimization of resources and quality in shrimp production**

Peeling of shrimp is a challenge to the industry and the mechanisms involved in shell loosening are unknown. Today a storage period of several days is required before the shrimp can be peeled with a satisfactory yield and with only few shell remains. Using non-thermal technologies as high pressure, microwaves, ultrasound, and treatment with enzymes the aim of the project is to optimize the shell loosening process facilitating peeling as fast as possible after catch.

National Food Institute  
Research Group for Food Production Engineering  
Research Group for Analytical and Predictive Microbiology  
Period: 01/01/2015 → 30/06/2018  
Number of participants: 4  
Acronym: TECHSHELL  
Project participant:  
Jessen, Flemming (Intern)  
Gringer, Nina (Intern)  
Dalgaard, Paw (Intern)  
Koukou, Ioulia (Intern)

**Mapping Campylobacter infection in organic broilers - (Kortlægning af smitte med Campylobacter hos økologiske slagtekyllinger)**

Campylobacteriosis in humans is a continuous health problem for the Danish society. The infection is often foodborne, and broiler meat is considered to be the largest single source to human disease. There are currently no methods to control Campylobacter in organic, free range chickens.

The project will describe the introduction and spread of Campylobacter in organic broilers and to the extent possible to relate the occurrence to production practices as well as to infection pressure from the surrounding environment. The
knowledge gained in the project will form the basis for recommending procedures on how organic producers can reduce the risk of Campylobacter in broiler chickens free range, given the ecological principles and rules. The project will also provide the first samples (Campylobacter isolates and organic material) in a sample collection to support future research projects for typing, sequencing, epidemiological studies, source attribution modelling, studies of intestinal flora and antibiotic resistance.

The main objective of the study is to describe Campylobacter infection in organic, free range broiler flocks and building a sample collection with unique organic material for use in future research projects. The project is funded by Fonden for økologisk landbrug.

Danish description:
Kortlægning af smitte med Campylobacter hos økologiske slagtekyllinger
Campylobacteriose hos mennesker er et vedvarende stort og aktuelt sundhedsproblem for det danske samfund. Smitten er ofte fødevarebåren, og kyllingekød er den fødevare der tilægges størst betydning i smitten af mennesker. Der findes pt ikke metoder til at bekæmpe Campylobacter i udegående kyllinger.

National Food Institute
Division of Epidemiology and Microbial Genomics
Økologisk landsforening
Videcenter for landbrug (SEGES)
Fonden for økologisk landbrug
Period: 01/01/2015 → 30/06/2016
Number of participants: 1
Project Manager, academic: Boysen, Louise (Intern)

Financing sources
Source: Other public support (public)
Name of research programme: Fonden for økologisk landbrug
Web address: http://www.oekologifonden.dk/Tilskud_fra_fonden.aspx
Amount: 369,000.00 Danish Kroner
Project

Quantification of exposure to AMR through different transmission routes from animals to humans
This project is part of the EU Consortium “Ecology from Farm to Fork Of microbial drug Resistance and Transmission” (EEFORT). Our work package (WP7) will focus on the development of two source attribution approaches for antimicrobial resistance determinants.

The first approach will estimate the relative exposure to AMR determinants through various transmission routes. This comparative exposure assessment model aims at representing the overall EU population by including data from a representative set of countries, and will include farm and retail data from various food transmission routes such as pork, chicken, turkey, veal and fish.

The second model will use a microbial subtyping approach and will be developed to estimate the relative importance of food animals, pets and environmental sources for the exposure to AMR determinants in occupational risk groups constituted by people working in farms and slaughterhouses. The source-attribution model will be based on the comparison of bacterial genetic profiles found in the various sources with the ones found in humans based on DNA sequence data. Sources will include food-production animals (broilers and pigs), environmental routes and direct contact with pets in farms. The output of this model will be the number of humans that have been exposed to AMR determinants through each source.

The EFFORT project will provide scientific evidence and high quality data that will inform decision makers, the scientific community and other stakeholders about the consequences of Anti-Microbial Resistance (AMR) in the food chain, in relation to animal health and welfare, food safety and economic aspects.

Source attribution of antimicrobial resistance determinants.
Source attribution of Campylobacter in the Nordic countries
Campylobacter is the most significant bacterial cause of food-borne infections in the Nordic countries, in Europe and many countries worldwide. Source attribution modelling is used to identify the major sources of human illness. Existing models for Campylobacter source attribution are based on a comparison of the distribution of subtypes (MLST) in human cases and different reservoirs e.g. broilers and cattle.
This Nordic project brings together existing knowledge on source attribution modelling and data on Campylobacter subtypes in animals, food and humans from Sweden, Norway, Finland, and Denmark. The aim is to study differences in subtype distribution and the potential of a multi-country attribution model.
This is a joint Nordic project which intends to increase our understanding of Campylobacter epidemiology and identify the need for adaptation of models to handle the input of multi-country data. Furthermore, we would like to propose a recommendation for future harmonized sampling to satisfy the data need for presenting an estimate for the source
The project partners include people from SVA in Sweden, NVI in Norway, Evira in Finland, and DTU in Denmark. The project is funded by Nordisk Arbejdsgruppe for Mikrobiologi, Dyrehelse og Dyrevelfærd (NMDD).

**Global Decision Support Initiative**
Holistic approach to decision analysis considering both risk and sustainability

**Analytical methodology for chemical screening and analyses in food surveillance**

**Effekdevaluering af skolemadsanbefalinger**

**A tiered strategy for risk assessment of mixtures of multiple chemicals**
Division of Risk Assessment and Nutrition  
Period: 01/01/2015 → 31/12/2019  
Number of participants: 2  
Acronym: EUROMIX  
Project participant:  
Petersen, Annette (Intern)  
Jensen, Bodil Hamborg (Intern)

**G/R vand: Mikrobiologisk risikoklassificering af genindvundet og recirkuleret vand på mejerivirksomheder**
National Food Institute  
Division of Food Microbiology  
Period: 01/01/2015 → 31/12/2015  
Number of participants: 2  
Acronym: G/R vand  
Project participant:  
Hansen, Sisse Wagtberg (Intern)  
Project Manager, organisational:  
Boel, Jeppe (Intern)

**Infektionsevnen af Salmonella Typhimurium DT41 i rugeægshøner og slagtekyllinger**
National Food Institute  
Division of Food Microbiology  
Period: 01/01/2015 → 31/12/2015  
Number of participants: 5  
Acronym: Infektion STm DT41  
Project participant:  
Nordentoft, Steen (Intern)  
Birk, Tina (Intern)  
Jensen, Hans Ulrik (Ekstern)  
Zakarias, Claus (Ekstern)  
Project Manager, academic:  
Aabo, Søren (Intern)

**Financing sources**  
Source: Other public support (public)  
Name of research programme: Fjerkræafgiftsfonden  
Amount: 868,000.00 Danish Kroner

**Application of human stem cells for predicting human safety of chemicals**
National Food Institute  
Period: 15/12/2014 → 14/07/2019  
Number of participants: 4  
Phd Student:  
Ramskov Tetzlaff, Cecilie Nethe (Intern)  
Supervisor:  
Svingen, Terje (Intern)  
Vinggaard, Anne Marie (Intern)  
Main Supervisor:  
Taxvig, Camilla (Intern)

**Financing sources**  
Source: Internal funding (public)  
Name of research programme: Samfinansieret - Andet  
Project: PhD
Healthy Kids are involved kids

National Food Institute
Period: 15/12/2014 → 06/04/2018
Number of participants: 9
Phd Student:
Stjernqvist, Nanna Wurr (Intern)
Supervisor:
Jensen, Bjarne Bruun (Ekstern)
Maindal, Helle Terkildsen (Ekstern)
Sabinsky, Marianne (Intern)
Tetens, Inge (Intern)
Main Supervisor:
Trolle, Ellen (Intern)
Examiner:
Andersen, Rikke (Intern)
Andersen, Pernille Tanggaard (Ekstern)
Løhre, Audhild (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansierede - Virksomhed
Project: PhD

Next-generation sequencing and meta-genomics for detection, identification, characterisation and molecular epidemiology of microorganisms in drinking water used for irrigation

National Food Institute
Period: 15/12/2014 → 14/03/2018
Number of participants: 7
Phd Student:
Hellmér, Maria (Intern)
Supervisor:
Aarestrup, Frank Møller (Intern)
Löfström, Charlotta (Intern)
Main Supervisor:
Schultz, Anna Charlotte (Intern)
Examiner:
Hendriksen, Rene S. (Intern)
Dalsgaard, Anders (Ekstern)
Simonsson, Magnus (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Forskningsrådsfinansiering
Project: PhD

Risk assessment of the use of reclaimed or recycled water in The Danish dairy industry

National Food Institute
Period: 15/12/2014 → 31/01/2017
Number of participants: 3
Phd Student:
Hansen, Sisse Wagtberg (Intern)
Supervisor:
Boel, Jeppe (Intern)
Main Supervisor:
Aabo, Søren (Intern)
**Financing sources**
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

**Collaborative Management Platform for Detection and Analyses of (Re-) Emerging and Foodborne Outbreaks in Europe**
COMPARE aims to harness the rapid advances in molecular technology to improve identification and mitigation of emerging infectious diseases and foodborne outbreaks

- National Food Institute
- Research Group for Genomic Epidemiology
- Erasmus University Medical Centre
- Statens Serum Institut
- Friedrich Loeffler Institute
- Agence nationale de la sécurité sanitaire, alimentation, environnement et travail
- Robert Koch Institute
- European Molecular Biology Laboratory
- Istituto Superiore di Sanita
- National Institute of Public Health and the Environment
- Animal and Plant Health Agency
- University of Edinburgh
- Universitaetsklinikum Bonn (UK-Bonn)
- Universiteit van Amsterdam
- Universiteit Antwerpen
- Artemis One Health Research
- University of Cambridge
- Stiftung Tierarztliche Hochschule Hannover
- Universidad de Castilla-La Mancha
- Fondation Merieux
- Aristotelio Panepistimio Thessalonikis
- IFREMER
- Erasmus Universiteit
- Australian National University
- Magyar Tudomanyos Akademia Wigner Fizikai Kutatokozpont
- Civic Consulting
- Responisble Technology
- Università di Bologna
- Leibniz-Institut DSMZ
- Wellcome Trust Sanger Institute

**Period:** 01/12/2014 → 30/11/2019
**Number of participants:** 3
**Acronym:** COMPARE

**Number of related Ph.D. students:** 1
**Contact person:**
Carlsson, Susanne (Intern)  
Project Manager, organisational:  
Skiby, Jeffrey Edward (Intern)  
Project Coordinator:  
Aarestrup, Frank Møller (Intern)  

Financing sources  
Source: EU research programme (public)  
Name of research programme: Horizon 2020  
Amount: 20,800,000.00 Euro  
Year of approval: 2014  

Relations  
Publications:  
Meta-genomic analysis of toilet waste from long distance flights; a step towards global surveillance of infectious diseases and antimicrobial resistance  
Emergence of a Clonal Lineage of Multidrug-Resistant ESBL-Producing Salmonella Infantis Transmitted from Broilers and Broiler Meat to Humans in Italy between 2011 and 2014  
Spatiotemporal Analysis of the Genetic Diversity of Seal Influenza A(H10N7) Virus, Northwestern Europe  
A Bacterial Analysis Platform: An Integrated System for Analysing Bacterial Whole Genome Sequencing Data for Clinical Diagnostics and Surveillance  
Two listeria outbreaks caused by smoked fish consumption-using whole-genome sequencing for outbreak investigations  
Benchmarking of methods for identification of antimicrobial resistance genes in bacterial whole genome data  

Quantification and risk assessment of unknown contaminants migrating from Food Contact Materials  
PhD project by Eelco Pieke  
National Food Institute  
Period: 01/12/2014 → 30/11/2017  
Number of participants: 3  
Project ID: 12976  
Phd Student:  
Pieke, Eelco Nicolaas (Intern)  
Supervisor:  
Trier, Xenia (Intern)  
Main Supervisor:  
Granby, Kit (Intern)  

Assessment of developmental toxicity of a perfluorinated compound in rats - with focus on endocrine disruption and mixture effects  
National Food Institute  
Period: 01/12/2014 → 21/06/2018  
Number of participants: 4  
Phd Student:  
Ramhøj, Louise (Intern)  
Supervisor:  
Hass, Ulla (Intern)  
Madsen, Charlotte Bernhard (Intern)  
Main Supervisor:  
Petersen, Marta Axelstad (Intern)  

Financing sources  
Source: Internal funding (public)  
Name of research programme: Samfinansieret - Andet  
Project: PhD
Bioconversion of Lignocellulose to Free Fatty Acids Using Yeast
National Food Institute
Period: 01/12/2014 → 01/12/2018
Number of participants: 4
Phd Student:
Suo, Fan (Intern)
Supervisor:
Dantoft, Shruti Harnal (Intern)
Pedersen, Per Amstrup (Ekstern)
Main Supervisor:
Jensen, Peter Ruhdal (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Stipendie fra udlandet
Project: PhD

Identification and risk assessment of unknown contaminants migrating from Food Contact Materials
National Food Institute
Period: 01/12/2014 → 16/05/2018
Number of participants: 6
Phd Student:
Pieke, Eelco Nicolaas (Intern)
Supervisor:
Smedsgaard, Jørn (Intern)
Main Supervisor:
Granby, Kit (Intern)
Examiner:
Vinggaard, Anne Marie (Intern)
Grob, Koni (Ekstern)
Nielsen, Nikoline Juul (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU)
Project: PhD

INNO-MT vandgenbrug: Udvikling af innovativt teknologikoncept til rensning og genbrug af procesvand i mejeriindustrien
National Food Institute
Division of Food Microbiology
Period: 01/12/2014 → …
Number of participants: 4
Acronym: INNO-MT vandgenbrug
Project participant:
Boel, Jeppe (Intern)
Holst, Hans Henrik (Ekstern)
Klausen, Morten Møller (Ekstern)
Project Coordinator:
Skjølstrup, Jens (Ekstern)

MetaWater: New metagenomics and molecular based tools for European scale identification and control of emergent microbial contaminants in irrigation water
The METAWATER consortium comprises 7 partners and a high number of collaborating companies and regulatory agencies. The skills base provided in the consortium offers experience in all disciplines associated with water and food-related diseases. The partner institutions are: In Spain, three partners, Rosina Girones, Universitat de Barcelona (coordinator), Maria José Figueras, Universitat Rovira i Virgili and José Luis Alonso Universidad Politècnica de Valencia (funded by MINECO); in Denmark (funded by DSF), Charlotta Löfström, Technical University of Denmark; in Cyprus (funded by RPF), Georgios T. Papageorgiou, State General Laboratory; and in Germany (funded by BMBF) two partners:
Christian Höller, Bavarian Health and Food Safety Authority, and Michael Seidel, Technische Universität München. The overall aim of the project is to develop global scale tools for the rapid evaluation of the role of irrigation water in the transmission of existing, new and emerging pathogens in the population. The diverse sources of irrigation water used in the European countries (river, ground water, distribution water and reclaimed water) will be characterized analyzing critical points and the treatment processes testing bacterial and new viral indicators, cyanobacterial toxins and existing, new and emerging water-borne microbiological risks. Using high-throughput sequencing techniques we will characterize the population of human viruses, emerging pathogenic bacteria including antibiotic-resistant bacteria and protozoa. The project will define sources of fecal contamination, and treatment effectiveness and will use metagenomics and molecular technologies, integrated sample treatment and new bioinformatic tools. The project will produce: internationally harmonized protocols, and a global data base of pathogens in irrigation water in Europe, and will provide a better understanding of the risks associated to irrigation water in the different European regions with the aim to protect the consumer’s health enabling the implementation of necessary measures for the production of safe food, preventing epidemics and producing scientific bases to create an European/national regulation.

National Food Institute
Division of Food Microbiology
University of Barcelona
Universitat Rovira i Virgili
Universidad Politecnica de Valencia
State General Laboratory
Bavarian Health and Food Safety Authority
Technical University of Munich
Period: 01/12/2014 → …
Number of participants: 4
metagenomics, water, Analytical methods, sequencing
Acronym: MetaWater
Project participant:
Bang-Berthelsen, Iben (Intern)
Hellmér, Maria (Intern)
Löfström, Charlotte (Intern)
Schultz, Anna Charlotte (Intern)

Financing sources
Source: EU research programme (public)
Name of research programme: Water JPI
Amount: 500,000.00 Euro
Project

R & D manager Ocean Rainforest Sp/F
National Food Institute
Division of Industrial Food Research
Period: 15/11/2014 → 31/05/2015
Number of participants: 1
Project participant:
Grandorf Bak, Urd (Intern)

Identification and quantification of antimicrobial and antioxidant peptides formed during processing of nitrite cured cooked pork products (IQ-Pork)
National Food Institute
Period: 15/11/2014 → 15/05/2018
Number of participants: 8
Phd Student:
Pedersen, Sabrine Tauber (Intern)
Supervisor:
Baron, Caroline P. (Intern)
Duedahl-Olesen, Lene (Intern)
Koch, Anette Granly (Ekstern)

Main Supervisor:
Jessen, Flemming (Intern)

Examiner:
Granby, Kit (Intern)
Carrascal, Jorge Ruiz (Ekstern)
Karlssoon, Anders H. (Ekstern)

**Financing sources**
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

**Mechanisms-of-action of effects caused by anti-androgenic compounds on fetal rat testis development**
Combination of 15 + 30 ECTS points for a Masters project.

National Food Institute
Division of Toxicology and Risk Assessment
Number of participants: 3
Project participant:
Anastasiadou, Anastasia (Ekstern)
Supervisor:
Vinggaard, Anne Marie (Intern)
Svingen, Terje (Intern)

**Fødevarestrukturælle effekter på bakteriers varmetolerance**
Kandidatspeciale, samarbejde med Fødevareinstituttet

Center for Electron Nanoscopy
DTU Danchip
National Food Institute
Division of Food Microbiology
Period: 10/11/2014 → 01/06/2015
Number of participants: 3
Supervisor:
Mateiu, Ramona Valentina (Intern)
Main Supervisor:
Hansen, Tina Beck (Intern)
Project applicant:
Rontogiannis, Sokratis (Ekstern)

**Undersøgelse af tarm mikrobiota hos mink med henblik på identifikation af probiotika egnet til forebyggelse og behandling af sygdomsproblemer hos mink**

National Food Institute
Division of Food Microbiology
University of Copenhagen
Period: 01/11/2014 → 31/10/2015
Number of participants: 1
Acronym: MinkGut
Number of related Ph.D. students: 0
Project participant:
Bahl, Martin Iain (Intern)
Financing sources
Source: Private funding (private)
Name of research programme: Dansk Pelsdyravlerforenings Forskningsfond
Project

High value protein products in seaweed
The overall aim of the project is to develop new technologies that will ensure full utilization of the seaweed raw materials used for carrageenan production. More specifically, the aim is to develop new technologies to extract proteins from the seaweed either before or after extraction of carrageenan. Different mechanical and enzymatic technologies will be evaluated. The protein composition and the quality of the carrageenan fraction after extraction of proteins will be determined. The process will be scaled up to pilot scale if promising results are obtained in lab scale

National Food Institute
Research Group for Bioactives – Analysis and Application
Research Group for Food Production Engineering
Period: 20/10/2014 → 31/01/2016
Number of participants: 5
Acronym: HIT
Project participant:
Jacobsen, Charlotte (Intern)
Holdt, Susan Løvstad (Intern)
Naseri, Alireza (Intern)
Kryger, Karsten (Intern)
Jessen, Flemming (Intern)

Financing sources
Source: Private funding (private)
Name of research programme: KP Pedersen og Hustru Fond
Amount: 800,000.00 Danish Kroner
Project

Udvikling af en iED liste - En liste over mistænkte hormonforstyrrende stoffer
By use of a number of QSAR ED models around 70,000 REACH substances are screened. The predictions are combined with other knowledge on effects and use to make lists over suspected endocrine disrupting effects. The lists can be used by Danish EPA in their prioritisation of substances for further evaluation of ED effects under REACH

National Food Institute
Research Group for Molecular Toxicology
Period: 01/10/2014 → 31/12/2014
Number of participants: 2
Project participant:
Nikolov, Nikolai Georgiev (Intern)
Project Manager, academic:
Wedebye, Eva Bay (Intern)

Financing sources
Source: Public research council
Name of research programme: EPA
Amount: 200,000.00 Danish Kroner
Project

Rapid methods for determination of enzyme activity and degree of ripeness - herring (pelagic)
In this Norwegian project on alternative production of matjes (herring) the National Food Institute participates on a part concerning protein changes occurring in the herring muscle during the ripening process. By 2D-gel based proteome analysis we will identify these changing proteins in order to define candidate protein markers for establishment of a process control system and also to create knowledge of the ripening process at the molecular level.

National Food Institute
Division of Industrial Food Research
Period: 01/10/2014 → 31/05/2015  
Number of participants: 4  
Project participant:  
Christensen, Line Bach (Ekstern)  
Skåra, Ragnhild (Ekstern)  
Jessen, Flemming (Intern)  
Project Manager, academic:  
Skåra, Torstein (Ekstern)  

Financing sources  
Source: Public research council  
Name of research programme: Fiskeri- og havbruksnæringens forskningsfond (FHE), Norge  
Web address: http://www.fhf.no/about-fhf/  
Amount: 356,059.00 Danish Kroner  
Documents:  
Rapport 37-2015 - Proteomanalyse_to-dimensjoanl gelelektroforese av Nordsjøsild i forhold til modningstid (2)  

Tang og mikroalge dyrkning i lab  
National Food Institute  
Period: 02/09/2014 → 28/02/2015  
Number of participants: 1  
Project participant:  
Grandorf Bak, Urd (Intern)  

TANGMATCH  
National Food Institute  
Research Group for Bioactives – Analysis and Application  
Division of Risk Assessment and Nutrition  
Period: 01/09/2014 → 31/08/2015  
Number of participants: 4  
Acronym: TANGMATCH  
Project participant:  
Holdt, Susan Løvstad (Intern)  
Grandorf Bak, Urd (Intern)  
Kryger, Karsten (Intern)  
Jarlbæk, Henrik (Intern)  

Financing sources  
Source: Private funding (private)  
Name of research programme: KP Pedersen og Hustru Fond  
Amount: 323,000.00 Danish Kroner  

Re-coding of the food descriptors of EFSA Chemical Occurrence Database and Food Consumption Database entries according to the FoodEx2 food classification and description system, NP/EFSA/DATA/2014/07  
The proposed contract is aimed at supporting EFSA in relation to the operational implementation of FoodEx2. The dataset includes approximately 8,200 total entries, 7,900 from the chemical occurrence database and 300 from the comprehensive food consumption database. Both datasets originate from Denmark and may contain in all or part of the entries information in national language. Two major tasks are foreseen:  
1. Converting the food descriptors in Danish national dataset from the Comprehensive food consumption database, including the FoodEx1 code and other food information fields, into the proper FoodEx2 codes.  
2. Converting the food descriptors in Danish national dataset from the Chemical occurrence database, including the FoodEx1 code and other food information fields, into the proper FoodEx2 codes.  

National Food Institute  
Division of Food Chemistry
European Food Safety Authority
Period: 01/09/2014 → 01/07/2015
Number of participants: 2
FoodEx2
Project participant:
Jensen, Louise Grønhøj Hørbye (Intern)
Andersen, Jens Hinge (Intern)
Project

Tang-Match
National Food Institute
Period: 01/09/2014 → 28/02/2015
Number of participants: 1
Project participant:
Grandorf Bak, Urd (Intern)
Project

Identification and quantification of antimicrobial and antioxidant compounds formed during processing of nitrite cured cooked pork products
The aim of this project is to identify protein and peptides with antimicrobial and antioxidant activities that are formed during nitrite curing of cooked meat products and identify processing factors that are important in their formation in order to optimize and minimize the addition of nitrite in cured meat products.
National Food Institute
Division of Industrial Food Research
Period: 01/09/2014 → 31/08/2017
Number of participants: 1
Acronym: IQMeat
Project Manager, academic:
Baron, Caroline P. (Intern)
Project

Food-based solutions for optimal vitamin D nutrition and health
National Food Institute
Period: 01/09/2014 → 23/08/2018
Number of participants: 7
Phd Student:
Grønborg, Ida Marie (Intern)
Supervisor:
Andersen, Elisabeth Wreford (Intern)
Tetens, Inge (Intern)
Main Supervisor:
Andersen, Rikke (Intern)
Examiner:
Ravn-Haren, Gitte (Intern)
Meyer, Haakon E. (Ekstern)
Rejnmark, Lars (Ekstern)
Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

Ekstraktion af glycoprotein fra tang
The project is based on a patent application regarding a new technology for extraction of glycoproteins with antioxidative properties from brown seaweed. The aim of the project is to upscale the technology and to evaluate whether it can be used on red seaweed, too. Furthermore, the antioxidative activity of the glycoprotein will be evaluated in selected food and skin care products.
An improved physical understanding of the production of extruded fish feed will enable an optimized raw material utilization

Metal or plastic pipes, snackfoods and animal feeds are all products which are possible to manufacture by extrusion. The increased popularity of extruders over the years can be explained by their versatility and productivity (Riaz, 2000; Guy, 2001; Hydraulicsonline.co.uk, 2012). Also, the ability to sell voluminous air-interlarded breakfast products and the low processing costs of the extrudates are properties of interest in terms of marketing and finance (Chessari & Sellahewa, 2001; Guy, 2001). Extruders are characterized by their continuous nature, making it theoretically possible to fabricate infinite solids. However, the production will practically be limited by lack of raw materials or incomplete knowledge of how to adjust the input variables. Even though extrusion is a multivariate phenomenon and the understanding of the interactions between the raw materials, the processing within the barrel of the extruder, and the extrudate have been developed during the recent years, the models are often built on empirical data and confined to specific set-ups (Riaz, 2000; Guy, 2001; Cheng & Friis, 2010). The recipe for fish feed is complex, and the raw materials vary with season and market prices. Changing one ingredient is known to influence important characteristics of the final extrudate (Moraru & Kokini, 2003). Besides the nutritional value of the feed, its physical properties are important as well: An unintended size of the extruded and pelletized feed is known to adversely affect the growth of the fish (Ljungqvist et al., 2011), and uncontrolled feed densities influence its willingness to sink and the amount of lipid possible to add through coating (Kraugerud et al., 2011). Company relevance: Controlling the extrusion process makes intended adjustments of input variables possible. From previous work and the master’s thesis work performed by the candidate in corporation with BioMar A/S, the parameters and mechanisms of importance for description of extrusions are well-known. However, to control and optimize extrusion processes, an understanding and measuring of the involved physical mechanisms and their interplay are crucial. Company relevance: Optimized extrusion processes ensure better utilization of raw materials. Some salmonid species show problems when pellets dissolve quickly in their stomach and release nutrients in the stomach cavity where muscle activity can force this soup out of the mouth again which is today known as fat belching because the fat part will float to the surface and be very visual. Other salmonid species have the opposite problem where the pellets are difficult to dissolve resulting in malabsorption and poor feed performance. Understanding the underlying physicochemical processes inducing the different degrees of pellet dissolving ensures optimized feed performance. Company relevance: Enhanced pellet quality and feed performance are clear competitive advantages. • References

National Food Institute
Division of Toxicology and Risk Assessment
Division of Industrial Food Research
BioMar A/S
Period: 01/08/2014 → 31/07/2017
Number of participants: 3
Fish feed, Extrusion, Physical parameters
Acronym: ImProFeed
Number of related Ph.D. students: 1
Project participant:
Dethlefsen, Markus Wied (Intern)
Supervisor:
Feyissa, Aberham Hailu (Intern)
Main Supervisor:
Nielsen, Michael Engelbrecht (Intern)
Financing sources
Source: Other public support (public)
Name of research programme: InnovationsFonden
Amount: 1,019,000.00 Danish Kroner
Year of approval: 2014
Project

An improved physical understanding of the production of extruded fish feed will enable an optimized raw material utilization (ImProFeed)

National Food Institute
Period: 01/08/2014 → 05/12/2017
Number of participants: 8
Phd Student:
Dethlefsen, Markus Wied (Intern)
Supervisor:
Feyissa, Aberham Hailu (Intern)
Hjermitslev, Niels Harthøj (Ekstern)
Nielsen, Michael Engelbrecht (Intern)
Main Supervisor:
Jørgensen, Bo Munk (Intern)
Examiner:
Chronakis, Ioannis S. (Intern)
Colovic, Radmilo (Ekstern)
Kristensen, Jakob Broberg (Ekstern)
Financing sources
Source: Internal funding (public)
Name of research programme: Industrial PhD

Relations
Publications:
Die Hard - improving the physical quality of extruded fish feed pellets
Project: PhD

Pilot project on the implementation of SSD2 in the frame of the electronic transmission of the harmonised data collection of analytical results to EFSA, OC/EFSA/DCM/2013/05
The purpose of this procurement procedure is to award a direct contract for testing whether the SSD2 is a suitable and effective tool for the reporting data to EFSA in different data collection domains, extending the functionality of the current...
Endocrine disrupting effects of PFCs: in vitro profiling and effect in rats exposed during development to a PFC plus/minus background exposure to a mixture of known endocrine disrupters

Perfluorinated compounds (PFC) are a diverse group of synthetically produced compounds, with the unique ability to repel water as well as oil - a property making them ideal for multiple purposes in a variety of consumer and industrial products. PFCs have been measured in the environment, as well as in human blood, urine and milk. Due to their long half-life in humans, there is a risk that exposure to these compounds can cause adverse effects. However, except for perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS), there is a large data gap regarding toxicological information on PFCs. The specific aims of this project are to

• Perform a broad toxicological in vitro profiling of various PFCs to pinpoint critical endocrine activities
• Knowledge building with regards to existing in vitro and in vivo data on endocrine and reproductive toxicity effects of PFCs to be used for selecting the specific PFC and for the planning of dose levels and endpoints for in vivo studies
• Investigate endocrine disrupting effects of developmental exposure to a PFC in experimental animal studies. The focus is adverse effects early and late in life, mixture effects, markers for adverse outcome pathways, as well as potential for non-monotonic dose response and low dose effects
• Provide knowledge relevant for evaluating the current principles for risk assessment of endocrine disrupters with regards to mixture effects, non-monotonic dose-response and low dose effects.

The results of the in vitro profiling of endocrine activity of PFCs is expected to be of value for regulatory considerations on the need for in vivo studies as well as regulatory considerations on how to group PFCs for cumulative risk assessment. The new in vivo data on effects and mode of action of the tested PFC will be of major importance for risk assessment for the specific PFC as well as for this class of compounds in general. If the PFC induces endocrine disrupting effects during development at low doses, this may - together with the critical persistency of PFCs in humans – highlight the need for more PFC studies, and also be an important knowledge with regards to considerations of regulatory actions. The study of potential mixture effects of the PFC with a mixture of known endocrine disrupters is expected to provide further knowledge of relevance for regulatory considerations of grouping of substances for cumulative risk assessment.

National Food Institute
Research Group for Reproductive Toxicology
Do the elderly get ill because they keep ready-to-eat foods for too long?

Keeping ready-to-eat foods at too high temperatures in the home of elderly people can result in fatal infections with Listeria monocytogenes.

The Danish Ellab Fondation has granted DKK 100,000 for mapping of typical transport and storage conditions (times and temperatures) for ready-to-eat foods in order to look into this. Modelling techniques applying predictive microbial models and quantitative risk assessment will be used.

National Food Institute
Division of Food Microbiology
Period: 01/06/2014 → 30/09/2015
Number of participants: 3
Acronym: Food kept too long
Project participant:
Andersen, Jens Kirk (Intern)
Møller, Cleide Oliveira de Almeida (Intern)
Project Manager, organisational:
Hansen, Tina Beck (Intern)

Financing sources
Source: Private funding (private)
Name of research programme: Ellab Fondation
Amount: 100,000.00 Danish Kroner
Project

Bliver ældre mennesker syge fordi de gemmer maden for længe?

National Food Institute
Division of Food Microbiology
Period: 01/06/2014 → 30/09/2015
Number of participants: 3
Project participant:
Andersen, Jens Kirk (Intern)
Møller, Cleide Oliveira de Almeida (Intern)
Project Manager, organisational:
Hansen, Tina Beck (Intern)
Project
Bliver ældre mennesker syge fordi de gemmer maden for længe?

National Food Institute

Division of Food Microbiology
Period: 01/06/2014 → 30/09/2015
Number of participants: 3
Acronym: Mad gemt for længe
Project participant:
Møller, Cleide Oliveira de Almeida (Intern)
Andersen, Jens Kirk (Intern)
Project Manager, academic:
Hansen, Tina Beck (Intern)

Financing sources
Source: Private funding (private)
Name of research programme: Ellab Fonden
Amount: 100,000.00 Danish Kroner

EURL-AR: EU Reference Laboratory – Antimicrobial Resistance
The National Food Institute was in 2006 appointed EU Reference Laboratory for antimicrobial resistance (EURL-AR) by the European Commission. It is the responsibility of the EURL-AR to provide scientific advice to the Commission on matters in relation to antimicrobial resistance.
In particular it is the responsibility of the EURL-AR to provide scientific advice in relation to the organisation, implementation and evaluation of monitoring schemes for antimicrobial resistance.

National Food Institute
Research Group for Genomic Epidemiology
Period: 01/06/2014 → 31/12/2014
Number of participants: 5
EURL-AR, EU Reference Laboratory, Antimicrobial Resistance, EU Reference Laboratory
Project participant:
Hendriksen, Rene S. (Intern)
Karlsmose Pedersen, Susanne (Intern)
Cavaco, Lina (Intern)
Other:
Carlsson, Susanne (Intern)
Project Manager, academic:
Aarestrup, Frank Møller (Intern)

Financing sources
Source: EU research programme (public)
Name of research programme: European Commision
Amount: 517,000.00 Euro

Relations
Activities:
EU conference " farmers and Veterinarians together to tackle antimicrobial resistance"
European Union Reference Laboratory, Antimicrobial Resistance – Annual Workshop
The EURLs directors meeting
EURL-AR Training Course: Methods required by The EU Legislation (2013/652/Eu)
Antimicrobial resistance and susceptibility testing, definitions and methods
The 6th AMR EFSA Network meeting

Lactic Acid Bacteria as cell factories
National Food Institute
Period: 01/06/2014 → 30/09/2017
Number of participants: 6
Phd Student:
Lysine production in Gram-positive bacteria

National Food Institute
Period: 01/06/2014 → 17/02/2015
Number of participants: 3
Phd Student:
Grishkova, Maria (Intern)
Supervisor:
Solem, Christian (Intern)
Main Supervisor:
Jensen, Peter Ruhdal (Intern)
Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU)
Project: PhD

4th International Vitamin Conference

At the 3rd IVC in Washington DC 12-15 May a Steering and Scientific Committee were assessed to be responsible for the discussion and progression to conduct the 4th IVC in Copenhagen in May 2016. IVCs forms a forum for people who have a strong interest in one or more of the 13 vitamins. An IVC covers vitamins horizontally, and brings producers, nutritionist, analyst and regulators together. For all vitamins the task is to quantify the total content in our foods, identify the beneficial effect, and assess the optimal dietary intake to obtain a long and healthy life. A specialist in one of the vitamins may learn from a specialist in other vitamins. And producers, nutritionist, analyst, regulators, and policy makers will benefit to know the recent progress achieved by colleagues in other fields.

National Food Institute
Division of Food Chemistry
Period: 15/05/2014 → 31/12/2016
Number of participants: 10
Acronym: IVC2016
Project participant:
Bügel, Susanne (Ekstern)
Obeid, Rima (Ekstern)
Gregory, Jess (Ekstern)
Piironen, Vieno (Ekstern)
Booth, Sarah (Ekstern)
Campos-Gimenez, Esther (Ekstern)
Eggersdorfer, Manfred (Ekstern)
Olmedilla-Alonso, Begoña (Ekstern)
Arcot, Jayashree (Ekstern)
Project Manager, organisational:
Jakobsen, Jette (Intern)
Project
New analytical process programs- and technologies for optimisation of acid marinated herring production

National Food Institute
Period: 01/05/2014 → 17/05/2018
Number of participants: 8
Phd Student:
Laub-Ekgreen, Maria Helbo (Intern)
Supervisor:
Frosch, Stina (Intern)
Jørgensen, Bo Munk (Intern)
Martinez Lopez, Brais (Intern)
Main Supervisor:
Jessen, Flemming (Intern)
Examiner:
Jacobsen, Charlotte (Intern)
Rustad, Turid (Ekstern)
Szymczak, Mariusz (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

Helhedssyn på nødder

National Food Institute
Division of Nutrition
Division of Toxicology and Risk Assessment
Division of Food Chemistry
Period: 10/04/2014 → …
Number of participants: 4
Project participant:
Mejborn, Heddie (Intern)
Poulsen, Morten (Intern)
Olesen, Pelle Thonning (Intern)
Jørgensen, Kevin (Intern)

Biogeography of Pathogens: Unveiling their Diversity, Distribution, and Function in Space and Time

National Food Institute
Division of Epidemiology and Microbial Genomics
Period: 01/04/2014 → 31/03/2015
Number of participants: 2
Microbial Biogeography, Microbial Ecology, Metagenomics, Staphylococcus aureus
Project participant:
Aarestrup, Frank Møller (Intern)
Project applicant:
Pamp, Sünje Johanna (Intern)

Financing sources
Source: Private funding (private)
Name of research programme: Carlsbergfondet
Project
Udvikling og konstruktion af udstyr til måling af energioverførsel i bageovne samt forsøgsudstyr til elektrisk modstandsoptørmning af faste fødevarer

National Food Institute
Research Group for Food Production Engineering
Period: 01/04/2014 → 31/12/2014
Number of participants: 1
Project participant: Adler-Nissen, Jens (Intern)

Financing sources
Source: Private funding (private)
Name of research programme: Ellab-fonden
Amount: 75,000.00 Danish Kroner

Pilotprojekt for udvikling af direkte fiskeri efter strandkrabber til foderproduktion.

National Food Institute
Research Group for Food Production Engineering
Period: 01/04/2014 → 30/04/2015
Number of participants: 2
Project participant: Jørgensen, Bo Munk (Intern)
Cold, Ulrik (Intern)

Financing sources
Source: EU research programme (public)
Name of research programme: “Fælles initiativer inden for fiskeri- og akvakultursektoren” under “Den Europæiske Fiskerifond”
Amount: 2,187,442.00 Danish Kroner

Proof of Business opportunity with FluidChip at Danæg Products A/S
Danæg has an urgent need to compensate for varying egg quality that is due to varying conditions such as the age of the hen, the age of the egg, time of year, feed or geographical location of the farm. Because of the non-uniform quality of the eggs, the company currently faces a considerably production waste in the production of their processed egg product “long eggs”. To reduce production costs and maintain its market position Danæg needs to reduce this production waste. Activities in the project will follow three tracks:
- A customization of the FluidChip to optimize its sensitivity in distinguishing between varying qualities of raw egg.
- Incorporation of a self-cleaning capability to avoid fouling. This is important to make the apparatus long-time functional.
- Building and testing an off-line prototype. After successful testing, the apparatus is implemented in-line directly in the production facility and will constantly monitor egg quality.

The technological objectives are to develop the apparatus towards in-line analysis at at production site and to develop a self-cleaning function that will ensure long-time functionality. This is crucial not only for the implementation of the FluidChip at Danæg, but for all future in-line monitoring of fluidic properties of other fluids. This is the first time the FluidChip will be developed for use in food production. We will prove that the apparatus can be implemented as a production-monitoring tool as referred to in the project-title. It is the intention that this technology will be the backbone in a future start up. We will in this project prove that the FluidChip is commercially viable. The implementation made possible with this GAP-project will be a “lighthouse example” to convince other mass market manufacturers in the food and biotechnology industry. This GAP-project does not represent the full commercial potential of the FluidChip. But it proves that the technology is able to meet a need of an industrial manufacturer. The project is crucial in the commercialization of the apparatus. Showing the long-term and in-line functionality of the FluidChip will be the most important steps in proving that the FluidChip is a commercially viable technology.

National Food Institute
Research Group for Food Production Engineering
Period: 01/04/2014 → 30/09/2014
Number of participants: 1
Acronym: FluidChip
Project participant:
Frosch, Stina (Intern)

**Financing sources**
Source: Other public support (public)
Name of research programme: DTUs GAP funding
Amount: 381,241.00 Danish Kroner

**Kostundersøgelse blandt små børn i Danmark, 2014-2015**
National Food Institute
Division of Nutrition
Holbæk Hospital
The Danish National Centre for Social Research
Period: 01/04/2014 → 31/03/2015
Number of participants: 4
Project participant:
Ejlerskov, Katrine Tschentscher (Intern)
Ege, Majken (Intern)
Nielsen, Trine Holmgaard (Intern)
Project Manager, academic:
Trolle, Ellen (Intern)

**Whole genome sequencing (WGS) for surveillance and outbreak investigations of Listeria monocytogenes**
National Food Institute
Division of Food Microbiology
Statens Serum Institut
Fødevarestyrelsen
Period: 01/04/2014 → 01/08/2015
Number of participants: 3
Project participant:
Baggesen, Dorte Lau (Intern)
Serensen, Gitte (Intern)
Project Manager, academic:
Löfström, Charlotte (Intern)

**Relations**
Activities:
Whole genome sequencing of foodborne Listeria in Denmark: Pilot project for implementation in routine surveillance

**Protein production in Gram-positive bacteria under adverse conditions**
National Food Institute
Period: 01/04/2014 → 30/09/2017
Number of participants: 6
Phd Student:
Vestergaard, Mike (Intern)
Supervisor:
Solem, Christian (Intern)
Main Supervisor:
Jensen, Peter Ruhdal (Intern)
Examiner:
Bang, Dang Duong (Intern)
Jönsson, Häkan N. (Ekstern)
Recovery of high value Proteins from Serum by innovative direct Capture techniques

The extraction of biopharmaceuticals from natural sources often employs overly complicated antiquated procedures. The downstream processing of serum is a case in point; it comprises large numbers of steps of low purification power and consequently delivers poor overall product yields.

Parallel advances in magnetic separation equipment and approaches to manufacture magnetic affinity particles, funded through several national and EU funded projects lay the foundations for the proposed work. Using magnetic bioseparation techniques, the consortium will seek to replace outdated organic solvent based fractionation methods, which can inflict serious damage on especially prone protein targets.

In ProSeCa, our combined expertise will be applied to the production of protein based veterinary medicines from horse sera, centring on harmonious integrated use of: highly selective magnetic adsorbents manufactured via: (i) chemical; (ii) biological; and (iii) mixed ‘biological/chemical’ routes; with a fully automated and cGMP compliant magnetic separator.

Vitamin D biofortified food - development of products and quantification of content of vitamin D

Metabolomic Analysis of Marine Algae Associated With Harmful Algal Blooms Using Mass Spectrometry
National Food Institute
Period: 01/02/2014 → 30/09/2017
Number of participants: 7
Phd Student:
Andersen, Aaron John Christian (Intern)
Supervisor:
Jørgensen, Kevin (Intern)
Nielsen, Kristian Fog (Intern)
Main Supervisor:
Larsen, Thomas Ostenfeld (Intern)
Examiner:
Duus, Jens Øllgaard (Intern)
Fretté, Xavier (Ekstern)
Pinto Junior, Emani (Ekstern)

**Financing sources**
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

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**Quality manual for producing Laminaria species for the Asian market**

National Food Institute
Division of Industrial Food Research
Period: 31/01/2014 → 01/10/2014
Number of participants: 1
Project participant:
Holdt, Susan Løvstad (Intern)

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**Udvikling af bæredygtige innovative fødevareingredienser på basis af ørredrestprodukter**

National Food Institute
Division of Industrial Food Research
Division of Food Chemistry
Period: 01/01/2014 → 31/12/2015
Number of participants: 11
Acronym: DANFomega
Project participant:
Nouard, Marie-Louise (Intern)
Nielsen, Henrik Hauch (Intern)
Sloth, Jens Jørgen (Intern)
Rasmussen, Rie Romme (Intern)
Berner, Lis (Intern)
Vu, Thi Thu Trang (Intern)
Hansen, Erik D. (Ekstern)
Ørum, Poul (Ekstern)
Barlach, Anders (Ekstern)
Project Manager, organisational:
Honoré, Lone (Ekstern)
Project Manager, academic:
Jacobsen, Charlotte (Intern)

**Financing sources**
Source: Public research programme (public)
Name of research programme: Grønt Udviklings- og DemonstrationsProgram (GUDP)
Amount: 10,940,907.00 Danish Kroner
Year of approval: 2014
Improving Allergy Risk Assessment Strategy for new food proteins
The main objective of the Action is to build an interdisciplinary European network of scientists with a broad range of expertise to discuss new ideas for more and innovative predictive models and approaches to improve the current allergenicity risk assessment strategy of proteins from novel or modified foods. This should lead to the transfer of scientific advances to European food companies to develop safe products, advise food safety authorities on better risk assessment and influence public opinion on the safety of novel sustainable food.

National Food Institute
Division of Toxicology and Risk Assessment
TNO, Netherlands
Vienna University of Technology
Novozymes A/S
National Institute for Agronomic Research
Paul-Ehrlich-Institut
University of Athens

Unilever
Period: 01/01/2014 → 31/12/2017
Number of participants: 3
Acronym: ImpARAS
Project participant:
Bøgh, Katrine Lindholm (Intern)
Madsen, Charlotte Bernhard (Intern)

Project Manager, organisational:
Verhoeckx, Kitty (Ekstern)

Nye, analytiske dokumenterede mær-udbytteskabende proces programmer og -teknologier for konsumsild
National Food Institute
Research Group for Food Production Engineering
Period: 01/01/2014 → 31/12/2016
Number of participants: 1
Acronym: NADMU
Project participant:
Frosch, Stina (Intern)

Financing sources
Source: Public research council
Name of research programme: Ministeriet for Fødevarer, Landbrug & Fiskeri, NaturErhvervstyrelsen, Grønt Udviklings- og Demonstrationsprogram (GUDP)
Amount: 3,872,379.00 Danish Kroner

Udvikling af bæredygtige innovative fødevareingredienser på basis af ørredrestprodukter
National Food Institute
Research Group for Bioactives – Analysis and Application
Research Group for Food Production Engineering
Research Group for Nano-Bio Science
Period: 01/01/2014 → 31/12/2015
Number of participants: 12
Acronym: DANFOMEGA
Project participant:
Barlach, Anders (Ekstern)
**Attribution of human cases of salmonellosis to different animal reservoirs of the food chain in Denmark**

In recent history, Salmonella has been the second most common cause of bacterial foodborne infections in Denmark, with 1,136 cases reported in 2013. During the last three decades, broilers, pigs and laying hens have been ascribed the role of main reservoirs for this pathogen in different time periods, thus demanding different control strategies in the food chain. In order to identify the main food-animal sources of human salmonellosis, Denmark has since 1995 relied on the routine application of a source attribution model.

The source attribution model uses a microbial subtyping approach to attribute cases to their animal reservoirs, i.e., it compares the number of human cases caused by different Salmonella subtypes with the distribution of the same subtypes isolated from various food-animal sources, also taking into account the differences in consumption of the meats/eggs included in the model.

The data required for the model are collected through national surveillance and monitoring programs involving food authorities, the food industry and national reference laboratories for animal and human samples, requiring a well-structured network which has been developed during the last two decades.

Traditionally, the model has used data on serotypes, phage types and antimicrobial resistance profiles of Salmonella isolates. Starting in 2014, molecular methods will be used for subtyping of Salmonella Enteritidis and Salmonella Typhimurium.

Results are published yearly in the Annual Report on Zoonoses in Denmark.

**Allergenic versus tolerogenic characteristics of cow's milk hydrolysates**

Cow's milk allergy is a growing problem in the Western world, where it affects up to 2.5% of all infants. Currently, the only accepted and safe management of food allergy is exclusion of all offending foods from the diet. However for infants with cow's milk allergy or infants with an increased risk for development of cow's milk allergy, special infant formulas based on hydrolysed cow's milk proteins are available. Extensively hydrolysed infant formulas are used primarily for children with an already diagnosed cow's milk allergy (secondary prevention), whereas partially hydrolysed infant formulas are used primarily for infants predisposed for developing cow's milk allergy (primary prevention). However, our knowledge about which characteristics of cow’s milk proteins that contributes to the development of allergy and which contributes to the prevention of allergy are very scarce. In order to establish knowledge-based strategies for production of new and improved
hypo-allergenic infant formulas, we therefore need thorough studies investigating which properties of milk proteins that
direct the immune system towards allergy and which that direct the immune system towards tolerance (primary or
secondary prevention). Such studies must be conducted in animal models of food allergy.
The main objective of this project is to investigate and characterise the properties of cow’s milk based hydrolysates
contributing to sensitisation (allergy induction) and the properties that prevents allergy by the induction of tolerance.
The project aims to establish two new animal models based on our own colony of Brown Norway rats to study: (1)
induction of tolerance in non-allergic subjects (primary prevention) and (2) induction of tolerance in already sensitised
subjects (secondary prevention). These models will together with our well-established model for examination of sensitising
(allergy inducing) capacity of food proteins and their breakdown products form the basis for studying the properties of
cow’s milk based hydrolysates contributing to allergy versus tolerance induction. A total of four extensively and four
partially hydrolysed cow’s milk protein products will be tested in the three animal models. These hydrolysates will differ
from each other in: (1) degree of hydrolysis, (2) peptide composition, (3) complex formation, (4) residual intact proteins
and (5) starting material. Collectively this will allow us to provide knowledge for establishment of new and improved infant
formulas for allergy prevention.
Project year 1 will focus on and end up with establishment of the two new animal models for testing of tolerance and
project year 2 will focus on and end up with a panel of tests for ability of hydrolysates to induce allergy, primary prevention
or secondary prevention. Results from this project will at first be presented at international conferences and at the latest in
2016 be published in Danish as well as in internationally peer-reviewed journals.

National Food Institute
Division of Toxicology and Risk Assessment
Arla Foods Ingredients Group P/S
Period: 01/01/2014 → 31/12/2016
Number of participants: 2
Acronym: Mælkehydrolysater og allergi
Project participant:
Madsen, Charlotte Bernhard (Intern)
Project Manager, organisational:
Bagh, Katrine Lindholm (Intern)

Photo-catalytic nano-membranes for waste water treatment system in the dairy industry
In Denmark and in most other country, the dairy industry has grown in size and number of companies. Denmark is among
the top 5 nations in the export of dairy products.

Dairy Industries produce wastewater during pasteurization and homogenization of milk, and during the production of dairy
products (butter, cream, cheese, etc). The wastewater makes the dairy industry one of the most polluting industries, not
only because of the volume of wastewater generated, but also by virtue of its wastewater character. On average 2.5 liters
of wastewater is generated per liter of milk produced, but the amount can be as high as 10 liters of water per liter of milk.

The purpose of this project is to develop innovative cost-effective membranes, consisting of a photocatalytic active
material for use in the treatment process of wastewater from the dairy industry. These nano-membranes will only use a
photoactive semiconductor and a suitable light source for the purification process, and thus will not form other metabolites
to the environment than CO2 and H2O.

National Food Institute
Division of Industrial Food Research
Period: 01/01/2014 → 31/12/2015
Number of participants: 5
Project participant:
Chronakis, Ioannis S. (Intern)
Barakat, Nasser (Ekstern)
Yong, Kim Hak (Ekstern)
Thomsen, Peter (Ekstern)
Project Manager, organisational:
Kanjwal, Muzafar Ahmad (Intern)

Analyse af medicinanvendelse i slægtekyllingsbesætninger
National Food Institute
**Division of Epidemiology and Microbial Genomics**

Period: 01/01/2014 → 31/12/2014  
Number of participants: 4  
Project participant:  
Borck Høg, Birgitte (Intern)  
Roland Pedersen, Jacob (Ekstern)  
Johannsen, Peter (Ekstern)  
Project Manager, academic:  
Jensen, Vibeke Frækjær (Intern)  

**Project**  
Development of seafood products with improved human health effects, sensory quality and food safety  
Collaboration between DTU Food and Royal Greenland Seafood Ltd.  
Funded by Danish Food Industry Agency (GUDP).  

**National Food Institute**  
**Division of Industrial Food Research**  
Royal Greenland Seafood Ltd  
Period: 01/01/2014 → 31/12/2016  
Number of participants: 3  
Acronym: GUDP-LAV-SALT  
Project participant:  
Dalgaard, Paw (Intern)  
Mejlholm, Ole (Intern)  
Devitt, Tina Dahl (Intern)  

**Project**  
Fotoaktive nano-membraner til rensning af spildevand i mejerindustrien  
National Food Institute  
Division of Industrial Food Research  
Period: 01/01/2014 → 31/12/2015  
Number of participants: 5  
Project participant:  
Chronakis, Ioannis S. (Intern)  
Barakat, Nasser (Ekstern)  
Hak Yong, Kim (Ekstern)  
Thomsen, Peter (Ekstern)  
Project Manager, organisational:  
Kanjwal, Muzafar Ahmad (Intern)  

**Financing sources**  
Source: Public research council  
Name of research programme: Det Frie Forskningsråd | Teknologi og produktion  
Amount: 2,390,400.00 Danish Kroner  

**Project**  
Lipid oxidation in skin care products  
National Food Institute  
Period: 01/01/2014 → 16/05/2018  
Number of participants: 7  
Phd Student:  
Thomsen, Birgitte Raagaard (Intern)  
Supervisor:  
Hyldig, Grethe (Intern)  
Taylor, Richard (Ekstern)  
Main Supervisor:
Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansierede - Virksomhed
Project: PhD

Vandeffektive mejerier: et partnerskab på vejen mod det vandløse mejeri
Description only in Danish
National Food Institute
Division of Food Microbiology
DHI Denmark
Arla Foods
Them mejeri
Thise mejeri
Mammen mejeri
Nørager mejeri
Landbrug og Fødevarer
Fødevarestyrelsen
Dansk Erhverv
Dansk Naturfredningsforening
DSS
Krüger A/S
Grundfos A/S
Kamstrup A/S
Ecolab
Novozymes A/S
Vestforsyning
Period: 16/12/2013 → 31/12/2015
Number of participants: 2
Acronym: Vandeffektive mejerier
Project participant:
Bang-Berthelsen, Iben (Intern)
Supervisor:
Dybdahl, Marianne (Intern)

Development and validation of QSAR models for mechanisms related to endocrine disruption
National Food Institute
Period: 15/12/2013 → 30/08/2017
Number of participants: 8
Phd Student:
Abildgaard Rosenberg, Sine (Intern)
Supervisor:
Dybdahl, Marianne (Intern)
Development and application of QSAR models for mechanisms related to endocrine disruption.

Project: PhD

Ernærings- og kvalitetsmæssige aspekter af økologisk omlægning i offentlige storkøkkener

National Food Institute
Period: 15/12/2013 → 07/06/2019
Number of participants: 4
Phd Student:
Tørsleff, Ellen Hyldgaard (Intern)
Supervisor:
Tetens, Inge (Intern)
Trolle, Ellen (Intern)
Main Supervisor:
Lassen, Anne Dahl (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet

Fetal exposure to tobacco smoking and diabetes - what are the cardio-metabolic consequences for the offspring?

National Food Institute
Period: 15/12/2013 → 04/07/2019
Number of participants: 5
Phd Student:
Bach Kampmann, Freja (Intern)
Supervisor:
Tetens, Inge (Intern)
Tetens, Inge (Intern)
Vaaq, Allan (Ekstern)
Main Supervisor:
Pires, Sara Monteiro (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

Genomic antimicrobial resistance, prediction of functionality, resistance gene mobility and zoonotic relevance

National Food Institute
Period: 15/12/2013 → 16/05/2018
Number of participants: 7
Phd Student:
Munk, Patrick (Intern)
Supervisor:
Agerø, Yvonne (Intern)
Vigre, Håkan (Intern)
Main Supervisor:
Aarestrup, Frank Møller (Intern)
Examiner:
Bahl, Martin Iain (Intern)
Hansen, Lars H. (Ekstern)
Schaik, Willem van (Ekstern)

**Financing sources**
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

Implementation of next-generation sequencing for characterization and molecular epidemiology of foodborne zoonotic bacteria

National Food Institute
Period: 15/12/2013 → 01/02/2018
Number of participants: 5
Phd Student:
Hintzmann, Ann-Sofie (Intern)
Supervisor:
Aarestrup, Frank Møller (Intern)
Löfström, Charlotta (Intern)
Torpdahl, Mia (Ekstern)
Main Supervisor:
Hendriksen, Rene S. (Intern)

**Financing sources**
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU)
Project: PhD

Use of next-generation sequencing and meta-genomics for detection, identification, characterization and molecular epidemiology of primarily foodborne virus

National Food Institute
Period: 15/12/2013 → 05/12/2017
Number of participants: 7
Phd Student:
Hjelmsø, Mathis Hjort (Intern)
Supervisor:
Lund, Ole (Intern)
Schultz, Anna Charlotte (Intern)
Main Supervisor:
Aarestrup, Frank Møller (Intern)
Examiner:
Aabo, Søren (Intern)
Fischer, Thea Kølsen (Ekstern)
Koopmans, Marion P. G. (Ekstern)

**Financing sources**
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD
Ecology from Farm to Fork Of microbial drug Resistance and Transmission
The EFFORT project is part of the EU Consortium "Ecology from Farm to Fork Of microbial drug Resistance and Transmission". Work package 7 (WP7) will focus on the development of two source attribution approaches for antimicrobial resistance determinants. The first approach will estimate the relative exposure to AMR determinants through various transmission routes through a comparative exposure assessment model. It will aim at representing the overall EU population by including data from a representative set of countries, and will include farm and retail data from various food transmission routes such as pork, chicken, turkey, veal and fish. The second approach will consist on using a source-attribution model based on microbial subtyping data and will be developed to estimate the relative importance of food animals, pets and environmental sources for the exposure to AMR determinants in occupational risk groups constituted by people working in farms and slaughterhouses. This model will compare bacterial genetic profiles found in the various sources with the ones found in humans based on DNA sequence data. Sources will include food-production animals (broilers and pigs), environmental routes and direct contact with pets in farms. The EFFORT project will provide scientific evidence and high quality data that will inform decision makers, the scientific community and other stakeholders about the consequences of Anti-Microbial Resistance (AMR) in the food chain, in relation to animal health and welfare, food safety and economic aspects.

Work package 7 - Quantification of exposure to AMR through different transmission routes from animals to humans.

National Food Institute
Division of Epidemiology and Microbial Genomics
Period: 01/12/2013 → 31/12/2018
Number of participants: 1
Acronym: EFFORT
Project participant:
Ribeiro Duarte, Ana Sofia (Intern)

Relations
Activities:
5th Nordic One Health Conference

NanoBioEngineering of BioInspired BioPolymers
Chitosans, chitin-derived polysaccharides varying in their degree of polymerisation (DP), degree of acetylation (DA), and pattern of acetylation (PA), have been considered one of the most versatile and promising biopolymers due to its set of remarkable physico-chemical properties along with a wide range of biological functionalities. However their economic potential is far from being exploited due to i) problems with reproducibility of biological activities as today’s chitosans are rather poorly defined mixtures, and ii) the threat of allergen contamination from their typical animal origin. The Nano3Bio project will overcome these hurdles to market entry and penetration by producing in vitro and in vivo defined oligo- and polymers with controlled, tailor-made DP, DA, and PA.

DTU contribution: The bioinspired chitosans will be formulated into nanostructures such as nanogels, nanofibers, nanoparticles to impart novel properties. Further those will be bench-marked against their conventional counterparts in a variety of cell based assays and routine industrial tests for biomedical markets.

Main targets: Anti-Bacterial, Anti-Fungal, Anti-Tumor
Wound-Healing
Drug and Gene delivery
Food and other Bioengineering applications

National Food Institute
Division of Industrial Food Research
Westfälische Wilhelms-Universität Münster
Universiteit Gent
Institut Quimic de Sarria
KTH - Royal Institute of Technology
Centre National de la Recherche Scientifique
Technical University of Denmark
Ruprecht-Karls Universität
University of Hyderabad
European Union Reference Laboratory
Cosphatec GmbH
Bio Base Europe Pilot Plant
Greenaltech SL
Greendelta GmbH
2-O LCA Consultants APS
ARTES Biotechnology GmbH
Lyon Ingenierie Projects
CARE SENSE Consulting
Beemo
Heppe Medical Chitosan GmbH
Enantia SL

Perseus bvba
Period: 01/12/2013 → 31/12/2017
Number of participants: 2
Chitosan, Biotechnology, Biomaterials
Acronym: Nano3Bio
Project participant:
Chronakis, Ioannis S. (Intern)
Mendes, Ana Carina Loureiro (Intern)

Financing sources
Source: EU research programme (public)
Name of research programme: FP7 EU
Amount: 491,111.00 Euro

Relations
Activities:
International Conference of the European Chitin Society
Nanotec2016
COST MP1206- Electrospinning of Chitosan
The Fiber Society 2016
Documents:
Press Release Kick-off Nano3Bio

EFFORT: Ecology from farm to fork of microbial drug resistance and transmission
EFFORT will study the complex epidemiology and ecology of antimicrobial resistance and the interactions between bacterial communities, commensals and pathogens in animals, the food chain and the environment. This will be conducted by a combination of epidemiological and ecological studies using newly developed molecular and bio-informatics technologies. EFFORT will include an exposure assessment of humans from animal and environmental sources. The ecological studies on isolates will be verified by in vitro and in vivo studies. Moreover, real-life intervention studies will be conducted with the aim to reduce the use of antimicrobials in veterinary practice. Focus will be on understanding the eco-epidemiology of antimicrobial resistance from animal origin and based on this, predicting and limiting the future evolution and exposure to humans of the most clinically important resistance by synthesising different sources of information in our prediction models.

Through its results, the EFFORT research will provide scientific evidence and high quality data that will inform decision makers, the scientific community and other stakeholders about the consequences of AMR in the food chain, in relation to animal health and welfare, food safety and economic aspects. These results can be used to support political decisions and to prioritise risk management options along the food chain.
National Food Institute

Research Group for Genomic Epidemiology

Period: 01/12/2013 → 30/11/2018

Number of participants: 4

EFFORT, Ecology, from farm to fork, microbial drug resistance, transmission

Project participant:

Hald, Tine (Intern)
Knudsen, Berith Elkær (Intern)

Other:

Carlsson, Susanne (Intern)

Project Manager, academic:

Aarestrup, Frank Møller (Intern)

Financing sources

Source: EU research programme (public)

Name of research programme: EU FP7

Amount: 1,450,568.00 Euro

Project

Development of an integrated approach based on validated and standardized methods to support the implementation of the EC recommendation for a definition of nanomaterial

Nanotechnology is a key enabling technology. Still existing uncertainties concerning EHS need to be addressed to explore the full potential of this new technology. One challenge consists in the development of methods that reliably identify, characterize and quantify nanomaterials (NM) both as substance and in various products and matrices. The European Commission has recently recommended a definition of NM as reference to determine whether an unknown material can be considered as ‘nanomaterial’ (2011/696/EU). The proposed NanoDefine project will explicitly address this question. A consortium of European top RTD performers, metrology institutes and nanomaterials and instrument manufacturers has been established to mobilize the critical mass of expertise required to support the implementation of the definition. Based on a comprehensive evaluation of existing methodologies and a rigorous intra-lab and inter-lab comparison, validated measurement methods and instruments will be developed that are robust, readily implementable, cost-effective and capable to reliably measure the size of particles in the range of 1–100 nm, with different shapes, coatings and for the widest possible range of materials, in various complex media and products. Case studies will assess their applicability for various sectors, including food/feed, cosmetics etc. One major outcome of the project will be the establishment of an integrated tiered approach including validated rapid screening methods (tier 1) and validated in depth methods (tier 2), with a user manual to guide end-users, such as manufacturers, regulatory bodies and contract laboratories, to implement the developed methodology. NanoDefine will be strongly linked to main standardization bodies, such as CEN, ISO and OECD, by actively participating in TCs and WGs, and by proposing specific ISO/CEN work items, to integrate the developed and validated methodology into the current standardization work.

WP2 leadership

National Food Institute
Division of Food Chemistry
Research Group for Nano-Bio Science
RIKILT
Centrum voor Onderzoek in Diergeneeskunde en Agrochemie
Swiss Federal Institute of Aquatic Science and Technology
European Commission - Joint Research Center

University of Vienna

Period: 01/11/2013 → 30/10/2017

Number of participants: 2

Acronym: NanoDefine

Project participant:

Löschner, Katrin (Intern)
Correia, Manuel (Intern)

Relations

Activities:
Sampling and sample preparation is critical both for substances and products.

**Project**

**Development of methods and standards supporting the implementation of the Commission recommendation for a definition of nanomaterial**

NanoDefine brings together a 29-partner strong consortium of top European RTD performers, metrology institutes, and nanomaterials and instruments manufacturers to address the uncertainties surrounding what is and isn’t a nanomaterial.

Based on a comprehensive evaluation of existing methodologies and rigorous intra-and inter-lab comparisons, validated measurement methods and instruments will be developed that are robust, readily implementable, cost-effective and capable to reliably measure the size of particles in the range of 1-100 nm, with different shapes, coatings and for the widest possible range of materials, in various complex media and products. Case studies will assess their applicability for various selected sectors.

A major outcome of the project will be the development of a decision framework and a classification procedure based on a two-tiered set of rigorously validated methods - The NanoDefiner e-tool.

NanoDefine will closely collaborate with affiliated NanoSafety Cluster projects, standardisation bodies and EHS, RTD and metrology initiatives.

National Food Institute

Division of Food Chemistry

Stichting Dienst Landbouwkundig Onderzoek

NordMiljö

European Commission - Joint Research Center

Universität Wien

Bundesinstitut für Risikobewertung

Eidgenoessische Anstalt fur Wasserversorgung Abwasserreinigung und Gewaesserschutz

Commissariat a l'Energie Atomique

Dresden University of Technology

Centrum voor Onderzoek in Diergeneeskunde en Agrochemie

University of Birmingham

Fachhochschule Dortmund

Bundesanstalt für Materialforschung und Prüfung

Deutsches Institut für Normung EV

BASF

Clariant Produkte GmbH

SOLVAY SA

MBN Nanomaterialia SPA

L'Oreal SA

NanoSight Ltd

RAMEM SA

Superon GmbH

Thermo Fisher Scientific

Eurofins Wej Contaminants GmbH
Institute of Nanotechnology
Nanotechnology Industries Association AISBL
Verband der Mineralfarbenindustrie EV
Cosmetics Europe – The Personal Care Association

Laboratoire National d’Essais
Period: 01/11/2013 → 31/10/2017
Number of participants: 2
Project participant:
Larsen, Erik Huusfeldt (Intern)
Löschner, Katrin (Ekstern)

Project

Micro -algae biomass as an alternative resource for fishmeal and fish oil in the production of fish feed
National Food Institute
Period: 01/11/2013 → 15/03/2017
Number of participants: 6
Phd Student:
Safafar, Hamed (Intern)

Supervisor:
Møller, Per (Intern)

Main Supervisor:
Jacobsen, Charlotte (Intern)

Examiner:
Jørgensen, Bo Munk (Intern)
Barbosa, Maria (Ekstern)
Hansen, Per Juel (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet

Relations
Publications:
Micro -algae biomass as an alternative resource for fishmeal and fish oil in the production of fish feed
Project: PhD

ODIN-Biofortification and analysis of vitamin D
National Food Institute
Division of Food Chemistry
Period: 01/11/2013 → 31/10/2017
Number of participants: 2
Acronym: ODIN-K
Number of related Ph.D. students: 1
Project participant:
Jakobsen, Jette (Intern)
Jäpelt, Rie Bak (Intern)

Project

The epidemiology of zoonotic antimicrobial resistance in animal production
National Food Institute
Period: 15/10/2013 → 12/03/2018
Number of participants: 7
Phd Student:
Dalhoff Andersen, Vibe (Intern)
Supervisor:
Agerø, Yvonne (Intern)
de Knegt, Leonardo (Intern)
Main Supervisor:
Vigre, Håkan (Intern)
Examiner:
Hald, Tine (Intern)
Dalsgaard, Anders (Ekstern)
Emanuelson, Ulf (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Offentlig finansiering
Project: PhD

Development of filtering technologies for microalgae and sustainable high quality feed for fry (FIMAFY) (39115)
There is an urgent need for alternative resources to fishmeal and fish oil for the production of fish feed to the aquaculture industry. The resource problem is due to a combination of the rapid growth of the aquaculture, and the fact that catches of fish for the feed industry is stagnating.

The idea to use microalgae as fish feed originated from an on-going EU-project, which aims at demonstrating that algae can be grown on process water from the industry.

The partners in the project will develop, test and demonstrate new technologies for harvesting and refining microalgae. The project will develop a technology to open the cell walls of the microalgae in order to make it possible to extract micro- and macronutrients for use as an alternative resource to fish oil and fishmeal in the production of fish feed for the aquaculture industry.

The project is coordinated by the National Food Institute, Technical University of Denmark.

The project is funded by the Danish Ministry of Food, Agriculture and Fisheries through the Green Development and Demonstration Program (GUDP).

National Institute of Aquatic Resources
Section for Aquaculture
National Food Institute
BioMar A/S
LiqTech International A/S
IFAU
Ecolipids A/S
Period: 01/10/2013 → 31/03/2017
Number of participants: 2
Research area: Aquaculture
Project participant:
Höglund, Erik (Intern)
Project Manager, organisational:
Lund, Ivar (Intern)

Development of a QSAR database for identification of hazardous properties of chemicals with inadequate testing data
Predictions for mutagenicity for more than 600,000 chemicals performed in a battery of mutagenicity models for a number of both in vitro and in vivo genotoxicity endpoints. For each endpoint the structure set will be predicted in three different software systems and an overall battery call is made. This call will be included in the database. All the applied models in three systems will be documented in the so-called QMRF (QSAR Model Reporting Format).

National Food Institute
Research Group for Molecular Toxicology
Metagenome Kit: An advanced laboratory and software solution for end-to-end diagnostic and typing of foodborne pathogenic gut bacteria

The aim is to build an efficient and easy-to-use analysis tool for diagnostics, typing and epidemiological analysis of pathogenic gut bacteria. The future diagnosis of pathogenic bacteria is expected to migrate towards molecular methods that provide a simple diagnosis, but do not provide a bacterial isolate. The isolate is essential for further analysis of the bacteria, e.g., to track the source of infection and to test for antibiotic resistance. Hence, there is a need for new methods that use the advantages of the latest techniques to diagnose, but also to generate the required detailed knowledge of the bacteria.

The project aims to replace the current cumbersome and culture-based method with a one-step, user-friendly analysis tool. DNA extraction methods will be developed so that DNA can be purified directly from complex samples and sequenced. Subsequently, the presence, type and characteristics of the disease-causing bacteria will be determined in a single bioinformatic analysis. The tool will also result in reduced analysis time that will benefit patients and tracking of the source of infection.

National Food Institute
Division of Food Microbiology
Statens Serum Institut
Qiagen Aarhus
DNA Diagnostic A/S

Next generation sequencing, Salmonella, Campylobacter, Diagnostics, Typing
Acronym: Metagenome Kit
Project participant:
Baggesen, Dorte Lau (Intern)
Hoorfar, Jeffrey (Intern)
Josefsen, Mathilde Hasseldam (Intern)
Christensen, Julia (Intern)
Andersen, Sandra Christine (Intern)
Project Manager, organisational:
Bang-Berthelsen, Iben (Intern)

Relations
Activities:
Stability of Salmonella and Campylobacter DNA in human and veterinary fecal samples preserved and stored at different conditions (Journal)
Molekylære- og sekventeringsmetoder i fødevaresikkerhed. Master afhandling.
Optimering af prøveforberedelse til metagenom analyse
Documents:
Levnedsmiddelbladet_082013
Project

Financing sources
Source: Public research council
Name of research programme: EPA
Amount: 280,000.00 Danish Kroner
Project
Anbefalinger for daginstitutionskost - Opdatering af ernæringsmæssige anbefalinger for frokost samt udvikling af anbefalinger for mellemmåltider

National Food Institute

Division of Nutrition
Period: 01/10/2013 → 01/03/2015
Number of participants: 3
Project participant:
Christensen, Lene Møller (Intern)
Sabinsky, Marianne (Intern)
Trolle, Ellen (Intern)

Project

Migration of bisphenol A from polycarbonate plastic (PC) of different qualities
The survey was decided by the Danish EPA with the aim to study the potential correlation between quality and chemical composition of PC on release of BPA from the material. The study was performed at the Technical University of Denmark in cooperation between DTU National Food Institute and DTU Danish Polymer Centre, Department of Chemical and Biochemical Engineering.

National Food Institute
Division of Risk Assessment and Nutrition
Department of Chemical and Biochemical Engineering
The Danish Polymer Centre

Environmental Protection Agency
Period: 01/10/2013 → 01/05/2015
Number of participants: 3
Project participant:
Petersen, Jens Højslev (Intern)
Hvilsted, Søren (Intern)
Project Manager, academic:
Pedersen, Gitte Alsing (Intern)

Project

Metagenome kit: An advanced laboratory and software solution for end-to-end diagnostic and typing of foodborne pathogenic gut bacteria.

National Food Institute
Period: 01/10/2013 → 20/12/2017
Number of participants: 8
Phd Student:
Andersen, Sandra Christine (Intern)
Supervisor:
Kiil, Kristoffer (Intern)
Kiil, Kristoffer (Intern)
Main Supervisor:
Hoorfar, Jeffrey (Intern)
Examiner:
Jensen, Lars Bogø (Intern)
Jensen, Lars Bogø (Intern)
Dallman, Tim (Ekstern)
Dallman, Tim (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD
**Microbiota and Metabolic Diseases - Dietary Intervention studies in humans**

National Food Institute  
**Period:** 01/10/2013 → 30/09/2014  
**Number of participants:** 4  
**Phd Student:** Carvalho, Vera (Intern)  
**Supervisor:** Gupta, Ramneek (Intern)  
**Licht, Tine Rask (Intern)**  
**Main Supervisor:** Bahl, Martin Iain (Intern)  

**Financing sources**  
**Source:** Internal funding (public)  
**Name of research programme:** Institut stipendie (DTU) Samf.  
**Project:** PhD  

**Transformation of non standard data files to the Standard Sample Description format, OC/EFSA/DCM/2013/03**  
The volume of chemical occurrence data received by EFSA has grown and the scope of the data collection activity has been broadened to include a continuous call for chemical occurrence data, as well as ad hoc calls on occurrence of food additives and food contact materials. DTU Food assist the EFSA DCM Unit on the transformation of non-standard files (mainly available as MS Excel files) received by EFSA to SSD format.

**National Food Institute**  
**Division of Food Chemistry**  
**Period:** 23/09/2013 → 23/09/2017  
**Number of participants:** 3  
**Food Safety Data Management**  
**Project participant:** Jensen, Louise Grønhøj Harbye (Intern)  
**Jørgensen, Kevin (Intern)**  
**Project Manager, organisational:** Andersen, Jens Hinge (Intern)  

**Estimating the burden of disease associated with the formation of harmful components during heat-treatment of meats**  
Heat-treatment of meat using traditional procedures such as frying, barbecuing and smoking can lead to the formation of several harmful components, such as carcinogens, including heterocyclic aromatic amines (HCA) and polycyclic aromatic hydrocarbons (PAH). Epidemiological studies have shown an increased risk of different types of cancer after the consumption of meat prepared with different cooking practices. Nonetheless, there is currently limited information on individual’s intake of these compounds, and no knowledge on their contribution to the disease burden of different types of cancer.

The aim of this project is to estimate the burden of disease due to the intake of chemical components formed during processing of meats in the Danish population. The specific objectives are:

1) To estimate the exposure of these compounds through consumption of all types of meats (beef, chicken, pork, lamb, game, fish) processed by different methods (barbecuing, frying and smoking) in the Danish population.  
2) To develop health-outcome trees for the specified hazards, i.e. defining all potential health outcomes following exposure, as well as the probability of their occurrence. This includes the establishment of a dose response relationship.  
3) To estimate the burden of disease in the population associated to exposure to these hazards through consumption of processed meats using disability adjusted life years (DALYs) as metrics.

This project is integrated in the Danish Initiative to Estimate the Burden of Food-Associated Diseases.

**National Food Institute**  
**Division of Epidemiology and Microbial Genomics**  
**Period:** 01/09/2013 → 14/12/2014  
**Number of participants:** 1  
**Burden of Disease, Chemical Hazards, DALYs**  
**Project Manager, organisational:**
PrimeGerm: Effects and consequences of neonatal gut community perturbation by antibiotics

The extreme success of antibiotics for treatment of infectious diseases has caused increased attention towards non-infectious so called life-style diseases including type 2 diabetes, obesity and inflammatory bowel diseases. Although the etiology of these diseases is not fully understood, they are inevitably linked to host-microbe interactions driven by the dynamics of the naturally occurring microbial gut community.

Modulation of this microbiota by exposure to specific antibiotics, especially during early life, is known to disrupt the natural balance of the fine-tuned microbial ecosystem, which may lead to adverse physiological effects later in life including increased risk of obesity.

We will investigate specific effects of different classes of commonly used antibiotics on the developing gut microbiota of neonate mice and further determine effects on gut permeability and host metabolic parameters. This will provide valuable new insight for risk assessment of antibiotics.

National Food Institute
Division of Food Microbiology
Period: 01/09/2013 → 31/08/2016
Number of participants: 4
Acronym: PrimeGerm
Number of related Ph.D. students: 1
Project participant:
Tulstrup, Monica Vera-Lise (Intern)
Licht, Tine Rask (Intern)
Other:
Skiby, Jeffrey Edward (Intern)
Project Manager, academic:
Bahl, Martin Iain (Intern)

Financing sources
Source: Public research council
Name of research programme: Danish Council for Independent Research, Technology and Production Sciences

Development of the Human Gut Microbiota during Early Life

National Food Institute
Period: 01/09/2013 → 31/01/2018
Number of participants: 6
Phd Student: Laursen, Martin Frederik (Intern)
Supervisor: Bahl, Martin Iain (Intern)
Main Supervisor: Licht, Tine Rask (Intern)
Examiner: Jelsbak, Lars (Intern)
Kristiansen, Karsten (Ekstern)
O'Toole, Paul William (Ekstern)

**Financing sources**
Source: Internal funding (public)
Name of research programme: Forskningsrådsfinansiering
Project: PhD

**Effect biomarkers for endocrine disrupting chemicals**
National Food Institute
Period: 01/09/2013 → 08/02/2017
Number of participants: 8
Phd Student: Johansson, Hanna Katarina Lilith (Intern)
Supervisor: Boberg, Julie (Intern)
Svingen, Terje (Intern)
Main Supervisor: Vinggaard, Anne Marie (Intern)
Examiner: Madsen, Charlotte Bernhard (Intern)
Madsen, Charlotte Bernhard (Intern)
Mazaud-Guittot, Séverine (Ekstern)
Mazaud-Guittot, Séverine (Ekstern)

**Financing sources**
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet

**Relations**
Publications:
Environmental chemicals and their effects on female reproductive health: Searching for molecular mechanisms and effect biomarkers
Project: PhD

**Effects and consequences of neonatal gut community perturbation by antibiotics**
National Food Institute
Period: 01/09/2013 → 24/07/2018
Number of participants: 6
Phd Student: Tulstrup, Monica Vera-Lise (Intern)
Supervisor: Licht, Tine Rask (Intern)
Main Supervisor: Bahl, Martin Iain (Intern)
Examiner: Jensen, Lars Bogø (Intern)
Cotter, Paul D. (Ekstern)
Financing sources
Source: Internal funding (public)
Name of research programme: Forskningsrådsfinansiering
Project: PhD

Microbiota Analyses for Disclosing Potential Pathogen Growth in Food
National Food Institute
Period: 01/09/2013 → 25/10/2017
Number of participants: 7
PhD Student:
Buschhardt, Tasja (Intern)
Supervisor:
Bahl, Martin Iain (Intern)
Hansen, Tina Beck (Intern)
Main Supervisor:
Aabo, Søren (Intern)
Examiner:
Hoorfar, Jeffrey (Intern)
Baranyi, József (Ekstern)
Nielsen, Dennis Sandris (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Forskningsrådsfinansiering
Project: PhD

ProbiComp: Probiotics in childhood
Young children suffer from many infections especially after they start day care resulting in approximately 700,000 days of parental leave in Denmark per year. There is evidence that probiotics can reduce the incidence and severity of acute diarrhoea, atopic eczema and possibly respiratory tract infections most likely through acceleration of the immune system development.

In ProbiComp, we will test the effect of treatment with a probiotic strain (vs a placebo) in children attending day care. The primary outcome in the study will be the number of days of absence from day care due to infections, but also a number of secondary outcomes will be measured.

The role of DTU Food in ProbiComp is to test the effect of the probiotic treatment on the intestinal microbiota, since this is believed to be connected e.g. to risk of allergies and infections.

National Food Institute
Division of Food Microbiology
Copenhagen University Hospital
University of Bergen
Odense University Hospital
Institute of Food and Resource Economics
Chr. Hansen A/S
Period: 01/09/2013 → 31/12/2016
Number of participants: 4
Project participant:
Licht, Tine Rask (Intern)
Laursen, Martin Frederik (Intern)
Bahl, Martin Iain (Intern)
Project Manager, organisational:
Michaelsen, Kim Fleicher (Ekstern)
Project
**PANDA - Persistent health effects caused by widely used pesticides with antiandrogenic activity**

**Background:**
More and more epidemiological and animal studies indicate that pesticide exposure can contribute to disturbance in the development of the male reproductive system. The effects include malformed genitalia, impaired sperm quality, as well as testicular- and prostate cancer. The development of the male phenotype is fully dependent on the influence of androgens formed in the unborn fetus.

Animal studies have shown that several pesticides are able to interfere with the androgenic action in the male fetus, either by blocking the androgen receptor or by reducing androgen production. We have, using an in-house developed computer model, predicted that 8% of all existing chemicals have the ability to block the androgen receptor, indicating that we have only seen the tip of the iceberg. In addition, we have using cell experiments recently found that a number of new pesticides are able to effectively block the androgen receptor. These pesticides are commonly used, and among those with the highest risk of human exposure.

In this project a new approach, including cell-based studies addressing anti-androgenic mechanisms, and computer modeling of physiologically-based kinetics (PBK), will be applied of selecting 3 out of 11 pesticides for further study of adverse effects on the male reproductive system. For this a rat model based on in utero exposure and subsequent studies of the male offspring for various defects, hormonal and epigenetic changes, and precursors of prostate cancer will be used. The goal of the project is to provide new knowledge on the potential effects of commonly used pesticides on the unborn fetus, leading to permanent health effects.

Two overall purposes will be fulfilled with this project: 1) To generate new knowledge for human risk assessment of specific pesticides which may form the basis for new risk management initiatives by the authorities and 2) To generate knowledge about the applicability of alternative test methods such as in vitro studies and PBK modeling that may form the basis for suggesting new testing strategies and requirements for pesticides.

The following specific hypotheses will be addressed:
1. A generic PBK model which includes the fetal compartment is capable of covering the ‘chemical space’ of anti-androgens
2. Our PBK model screening tool will be valuable for prioritizing antiandrogenic agents for in vivo testing, when only in vitro assay data are available
3. Pesticides identified as having potent anti-androgenic effects in vitro and evaluated as being able to reach the fetus will display anti-androgenic activities in vivo
4. Persistent epigenetic effects in terms of DNA methylation will be induced in adult rat offspring after perinatal exposure to a male developmental toxicant
5. Perinatal programming by exposure to anti-androgenic pesticides can induce persistent changes in the prostate, thus predisposing the gland to elevated cancer risks.

**National Food Institute**

**Division of Toxicology and Risk Assessment**

**Division of Food Chemistry**
**Period:** 01/08/2013 → 31/05/2016
**Number of participants:** 6
**Acronym:** PANDA
**Project participant:**
- Taxvig, Camilla (Intern)
- Pedersen, Mikael (Intern)
- Kortenkamp, Andreas (Ekstern)
- Boberg, Julie (Intern)
- Svingen, Terje (Intern)
**Project Manager, academic:**
- Vinggaard, Anne Marie (Intern)

**Financing sources**
**Source:** Public research council
**Name of research programme:** Danish Environmental Protection Agency (EPA)
**Web address:** http://eng.mst.dk/
**Amount:** 3,480,381.00 Danish Kroner

**Meat and colorectal cancer**
To investigate the effect of minced red meat on the microflora and inflammation in Abcb1a knockout and wild type mice

**National Food Institute**
Persistent health effects caused by widely used pesticides with antiandrogenic activity

Background:
More and more epidemiological and animal studies indicate that pesticide exposure can contribute to disturbance in the development of the male reproductive system. The effects include malformed genitalia, impaired sperm quality, as well as testicular- and prostate cancer. The development of the male phenotype is fully dependent on the influence of androgens formed in the unborn fetus. Animal studies have shown that several pesticides are able to interfere with the androgenic action in the male fetus, either by blocking the androgen receptor or by reducing androgen production. We have, using an in-house developed computer model, predicted that 8% of all existing chemicals have the ability to block the androgen receptor, indicating that we have only seen the tip of the iceberg. In addition, we have using cell experiments recently found that a number of new pesticides are able to effectively block the androgen receptor. These pesticides are commonly used, and among those with the highest risk of human exposure. In this project a new approach, including cell-based studies addressing anti-androgenic mechanisms, and computer modeling of physiologically-based kinetics (PBK), will be applied of selecting 3 out of 11 pesticides for further study of adverse effects on the male reproductive system. For this a rat model based on in utero exposure and subsequent studies of the male offspring for various defects, hormonal and epigenetic changes, and precursors of prostate cancer will be used. The goal of the project is to provide new knowledge on the potential effects of commonly used pesticides on the unborn fetus, leading to permanent health effects.

Two overall purposes will be fulfilled with this project: 1) To generate new knowledge for human risk assessment of specific pesticides which may form the basis for new risk management initiatives by the authorities and 2) To generate knowledge about the applicability of alternative test methods such as in vitro studies and PBK modeling that may form the basis for suggesting new testing strategies and requirements for pesticides.

The following specific hypotheses will be addressed:
1. A generic PBK model which includes the fetal compartment is capable of covering the ‘chemical space’ of anti-androgens
2. Our PBK model screening tool will be valuable for prioritizing antiandrogenic agents for in vivo testing, when only in vitro assay data are available
3. Pesticides identified as having potent anti-androgenic effects in vitro and evaluated as being able to reach the fetus will display anti-androgenic activities in vivo
4. Persistent epigenetic effects in terms of DNA methylation will be induced in adult rat offspring after perinatal exposure to a male developmental toxicant
5. Perinatal programming by exposure to anti-androgenic pesticides can induce persistent changes in the prostate, thus predisposing the gland to elevated cancer risks

National Food Institute

Research Group for Molecular Toxicology

Research Group for Analytical Food Chemistry

Research Group for Reproductive Toxicology

Period: 01/08/2013 → 31/05/2016
Number of participants: 6
Acronym: PANDA
Project participant:
Vinggaard, Anne Marie (Intern)
Taxvig, Camilla (Intern)
Pedersen, Mikael (Intern)
Kortenkamp, Andreas (Ekstern)
Boberg, Julie (Intern)
Svingen, Terje (Intern)

**Financing sources**
Source: Public research council
Name of research programme: Danish Environmental Protection Agency (EPA)
Amount: 3,480,381.00 Danish Kroner
Project

**Development of new diagnostic technologies**
National Food Institute
Period: 01/08/2013 → 22/12/2016
Number of participants: 7
Phd Student:
Chin, Wai Hoe (Intern)
Supervisor:
Sun, Yi (Intern)
Wolff, Anders (Intern)
Main Supervisor:
Bang, Dang Duong (Intern)
Examiner:
Jensen, Peter Ruhdal (Intern)
Ingmer, Hanne (Ekstern)
Sjöback, Robert (Ekstern)

**Financing sources**
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

**Association between exposure to airborne norovirus and gastroenteritis (Aerosol exposure)**
Background
Workers at wastewater treatment plants (WWTPs) frequently report episodes of acute gastroenteritis. It has previously been shown that WWTP workers are exposed to high levels of airborne human norovirus. It is believed that virus particles and endotoxin is inhaled and subsequently swallowed to reach the intestine. However, whether there is a direct link between this exposure and the increased risk of acute gastroenteritis has not been established. In the present study, we will examine the relation between exposure to airborne aerosolized pathogens and acute gastroenteritis among sewer workers in a prospective cohort design using identification, quantification and phylogenetic analyses of pathogens in air and human stools from symptomatic and asymptomatic WWTP workers. Airborne exposure to norovirus and other enteric viruses as well as bacterial endotoxins will be studied, and modern technology such as sequencing and bioinformatics will be employed. The study is unique in its cross-disciplinary collaborative platform, which involves both working environment, food and environmental virology, and human medical viral molecular epidemiology. The present project will contribute with new important knowledge on the transmission routes of norovirus and the extent of occupational exposure to airborne norovirus. It will be investigated whether exposure to airborne norovirus is a contributing cause of the acute gastroenteritis reported among workers at WWTPs. The results are expected to provide knowledge to facilitate the use of proper interventions to reduce risk of illness following aerosolized viral exposure.

Objective
The overall objectives of this project is to investigate whether and to what extent exposure to airborne bacterial endotoxin, and to human norovirus, sapovirus or rotavirus contributes to the over-representation of gastrointestinal problems, which is known to occur among workers at wastewater treatment plants. During the project we will characterize the exposure of workers to these agents, identify the sources of exposure, and thereby provide the requirements for protecting workers from the most problematic work processes. Ultimately this will lead to reduced frequency of gastrointestinal symptoms among workers at wastewater treatment plants.

**Project financing**
Research and Innovation -
Danish Council for Independent Research
National Food Institute
Division of Food Microbiology
**REINSURE: Revolutionizing Infectious disease surveillance**

National Food Institute

Research Group for Genomic Epidemiology

Department of Systems Biology

DHI

Period: 30/05/2013 → 29/05/2017

Number of participants: 3

Project participant:

Bergmark, Lasse (Intern)

Other:

Carlsson, Susanne (Intern)

Project Manager, academic:

Aarestrup, Frank Møller (Intern)

**Financing sources**

Source: Private funding (private)

Name of research programme: Villum Fonden

Web address: [link](http://villumfonden.dk/C12576AB0041A865/0/4C05C456014EDFD5C1256E9F00371B87?OpenDocument)

Amount: 4,980,551.00 Danish Kroner

**Burden of disease of infections by Salmonella, Campylobacter and Verocitotoxinogenic E. coli**

The main purpose of this project is to estimate the burden of foodborne disease associated with Salmonella, Campylobacter and Verocitotoxinogenic E. coli (STEC) in Denmark. We will use Disability Adjusted Life Years (DALYs) as a health metric, which will allow us to compare diseases according to their public health impact in the population.

Additionally, this project will be used to develop a framework for estimating the BoD of other foodborne pathogens (in following projects).

This project is integrated in the Danish Initiative to Estimate the Burden of Food-Associated Diseases.

National Food Institute

Division of Epidemiology and Microbial Genomics

Statens Serum Institut

Period: 01/05/2013 → 31/12/2020

Number of participants: 1

**Burden of Disease, Foodborne diseases, DALYs**

Acronym: VTEC

Project Manager, academic:

Pires, Sara Monteiro (Intern)

Project
Characterisation of the tribological and rheological properties between mucin/mucus and viscoelastic food systems

National Food Institute
Period: 01/05/2013 → 30/08/2017
Number of participants: 7
Phd Student:
Celebioglu, Hilal Yilmaz (Intern)
Supervisor:
Lee, Seunghwan (Intern)
Lee, Seunghwan (Intern)
Main Supervisor:
Chronakis, Ioannis S. (Intern)
Examiner:
Mohammadifar, Mohammad Amin (Intern)
Mackie, Alan Robert (Ekstern)
Sotres, Javier (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Stipendie fra udlandet

Relations
Publications:
Investigation of the molecular level interactions between mucins and food proteins: Spectroscopic, tribological and rheological studies
Project: PhD

Praksis for fremstilling af kødprodukter
National Food Institute
Research Group for Food Production Engineering
Period: 01/04/2013 → 30/11/2014
Number of participants: 1
Project participant:
Adler-Nissen, Jens (Intern)

Biological Foundation for the Safety Classification of Engineered Nanomaterials (ENM): Systems Biology Approaches to Understand Interactions of ENM with Living Organisms and the Environment
Partner in WP 3
National Food Institute
Division of Food Chemistry
Research Group for Nano-Bio Science
Period: 01/04/2013 → 31/03/2017
Number of participants: 2
Acronym: NanoSolutions
Project participant:
Löschner, Katrin (Intern)
Correia, Manuel (Intern)

Relations
Activities:
NANOSOLUTIONS - NanoMILE Workshop
Solutions to Practical Challenges in Developing Procedures for Nanoparticle Characterization and Toxicological Testing
Project

SMARTDETECT: A portable system for rapid nucleic acid based detection of pathogens
The objectives of the SMARTDETECT project are focused on development of a new portable LOC platform suitable for “Point of Testing” of food borne pathogens in the food processing industry, initially in a large commercial pork producing
company. The LOC will be able to detect multiple pathogens at one time by integrating two newly developed molecular
detection methodologies, i.e. Solid Phase PCR (SP-PCR) and Supercritical Angle Fluorescence (SAF). Furthermore – in
order to simplify the LOC design, reduce the cost of LOC fabrication and make it suitable for industrial mass production
scale - a new PCR approach ("Direct PCR") without the need for nucleic acid (DNA/RNA) isolation and purification in the
sample preparation step will be developed and integrated within the SMARTDETECT system.

National Food Institute
Division of Food Microbiology
Department of Micro- and Nanotechnology
Scandinavian Micro Biodevice ApS
Danish Crown A/S
Dianova
Period: 01/03/2013 → 29/02/2016
Number of participants: 5
Acronym: SMARTDETECT
Project participant:
Bang, Dang Duong (Intern)
Bang-Berthelsen, Iben (Intern)
Wolff, Anders (Intern)
Sun, Yi (Intern)
Other:
Skiby, Jeffrey Edward (Intern)

Financing sources
Source: Public research council
Name of research programme: The Danish National Advanced Technology Foundation
Project

Integrated Approaches to Food Allergen and Allergy Risk Management
The project will

a. investigate how maternal diet and infant feeding practices (including weaning) modulate the patterns and prevalence of
allergies across Europe.
b. Establish risk factors for the development of severe reactions to food and identify associated biomarkers
c. Develop a clinically-validated tiered risk assessment and evidence-based risk management approach for food allergens
for allergens in the food chain
d. Develop clinically-relevant multi-analyte methods of analysis suited to allergen management across the food chain

DTU FOOD is actively involved in c. where we work with intake data for food allergy risk assessment and models for risk
assessment together with DTU Compute

National Food Institute
Division of Toxicology and Risk Assessment
Division of Nutrition
Department of Applied Mathematics and Computer Science
Statistics and Data Analysis
Period: 01/03/2013 → 28/02/2017
Number of participants: 4
Acronym: iFAAM
Project participant:
Madsen, Charlotte Bernhard (Intern)
Christensen, Tue (Intern)
Brockhoff, Per B. (Intern)
Project Manager, academic:
Mills, Clare (Ekstern)
Aquavalens: Protecting the health of Europeans by improving methods for the detection of pathogens in drinking water and water used in food preparation

New research approaches are needed to enable rapid determination of the pathogen load of European drinking water sources and supply systems used for food processing and preparation, human consumption and drinking. The new approaches should be based on molecular methods and complement the current time-consuming microbiological techniques, which are based on the cultivation of indicator bacteria. Highly standardised methods are essential, validated with certified molecular reference material. The approaches will need to address the issue of inhibition of molecular methods and assess the significance of any positive detection. The combination of molecular techniques with electronic sensors will also be investigated. The new techniques will result in detailed insight into the pathogen load, the hygienic quality and the specific microbial strains (viruses, bacteria, protozoa) responsible for outbreaks of waterborne infections. They will lead to better understanding of the sources, infectivity and virulence of these strains. The efficacy of the new techniques has to be demonstrated. AQUAVALENS is centred on the concept of developing suitable platforms that harness the advances in new molecular techniques to permit the routine detection of waterborne pathogens and improve the provision of hygienically safe water for drinking and food production that is appropriate for large and small systems throughout Europe. Whilst in recent years there has been considerable developments, especially in molecular technology, very few systems are available that meet the needs of water providers. Consequently, and unless it proves essential, rather than necessarily develop new technologies, the key focus will be to adopt and, where appropriate, adapt existing technologies to develop these detection systems.
ECSafeSEAFOOD. Priority environmental contaminants in seafood: safety assessment, impact and public perception

Seafood has been recognised as a high-quality, healthy and safe food type and is one of the most important food commodities consumed worldwide. However, seafood, like other types of food, can also be a source of harmful environmental contaminants with potential to impact on human health.

ECSafeSEAFOOD will assess food safety issues related to priority contaminants present in seafood as a result of environmental contamination (including those originating from harmful algal blooms and those associated with marine litter) and evaluate their impact on public health. ECSafeSEAFOOD will provide scientific evidence to serve as a basis for further development of common food safety, public health and environmental policies and measures, by seeking to establish a quantitative link between the contamination of the marine environment and that of seafood.

www.ecsafeseafood.eu

National Food Institute
Division of Food Chemistry
National Institute of Aquatic Resources
Section for Aquaculture

Relations
Activities:
Arsenic compounds in foodstuffs – recent developments in speciation analysis and food safety assessment
Effects of industrial processing on regulated and emerging contaminant levels in seafood

Priority environmental contaminants in seafood: Safety assessment, impact and public perception (ECSafeSEAFOOD) (39039)

Seafood has been recognized as a high-quality, healthy and safe food type and is one of the most important food commodities consumed worldwide. However, seafood, like other types of food, can also be a source of harmful environmental contaminants with potential to impact on human health.

The research objectives of ECSafeSEAFOOD have been formulated from the research questions addressed in the specific objectives of the European research programme topic on building a Knowledge-Based Bio-Economy (KBBE.2012.2.4-01: Contaminants in seafood and their impact on public health (The Ocean of Tomorrow)). This topic aims to assess food safety issues related to priority contaminants present in seafood as a result of environmental contamination, including those originating from harmful algal blooms and those associated with marine litter and evaluate their impact on public health.
health. ECsafeSEAFOOD will provide scientific evidence to serve as a basis for further development of common food safety, public health and environmental policies and measures, by seeking to establish a quantitative link between the contamination of the marine environment and that of seafood.

The specific objectives of the ECsafeSEAFOOD project include:
- Monitor the presence of priority environmental contaminants in the environment and seafood and prioritise those that are real hazards for human health.
- Quantify the transfer of relevant priority environmental contaminants between the environment and seafood, taking into account the effect of climate change.
- Study the effect of processing/cooking on the behaviour of priority contaminants in seafood.
- Understand the public health impacts of these chemical hazards, through toxicological characterisation in realistic conditions.
- Perform risk assessment to measure the potential impact of seafood contaminants on public health, using in-depth probabilistic exposure tools.
- Develop mitigation measures for risk managers, such as an online tool for different stakeholders, guidelines, phycoremediation (the use of algae to remove pollutants) and processing.
- Develop, validate and provide new, easy and fast tools to assess the presence of environmental contaminants in seafood.
- Confirm/refine the European Maximum Reference Levels in seafood for contaminants that are real hazards and for which no legislation exists or information is still insufficient.

DTU Aqua participates in the project by performing feeding trials using contaminated feed for Atlantic salmon and seabass respectively. Furthermore, the project also investigates potential effects of microplastic incorporated into feed pellets, on accumulation and elimination of the selected priority contaminants. The feeding trials consist of a 12 week to 15 week accumulation period for seabass and salmon respectively and a 8 week depuration period where all groups are fed control feed. The results obtained from the trail will be the used to develop mathematical models estimating accumulation and elimination of priority contaminants in filet.

The project is coordinated by Portuguese Institute of Sea and Atmosphere (IPMA), Portugal.

This project is funded by EU, Framework Programme 7.

National Institute of Aquatic Resources
Section for Aquaculture
National Food Institute
Portuguese Institute for the Sea and Atmosphere
AZTI-Tecnalia
University of Maribor
Ghent University
National Veterinary Institute
Catalan Institute for Water Research
Institute for Agricultural and Fisheries Research
University of Porto
Institute of Research and Technology in Food and Agriculture
Hortimare Projects & Consultancy BV
Wageningen IMARES
TecnaTox. “Rovira i Virgili” University
Aeiforia Srl
AquaTT
Agency for Marine Research and Valorisation
Polyintell
Dan Salmon
Period: 15/02/2013 → 15/02/2017
Number of participants: 3
Quality improvement of krill oil and other krill products

National Food Institute
Division of Industrial Food Research
Period: 01/02/2013 → 31/12/2015
Number of participants: 2
Project participant:
Lu, Henna Fung Sieng (Intern)
Jacobsen, Charlotte (Intern)

The role of dairy products in future healthy and sustainable diets

The project aims at modeling Danish dietary patterns following the food based dietary guidelines from 2013 and the Nordic Nutrition Recommendations 2012, and at the same time are optimized with regard to the climate impact in terms of the Carbon Footprint (CO2 equivalents) of the diets.
The project will describe the combination of foods of these future sustainable diets, especially focusing on the role of various dairy products.

National Food Institute
Division of Risk Assessment and Nutrition
Research Group for Risk-Benefit
Period: 01/01/2013 → 31/12/2014
Number of participants: 6
Project participant:
Trolle, Ellen (Intern)
Knudsen, Vibeke Klidegaard (Intern)
Thorsen, Anne Vibeke (Intern)
Christensen, Tue (Intern)
Ygil, Karin Hess (Intern)
Mogensen, Lisbeth (Ekstern)

Financing sources
Source: Private funding (private)
Name of research programme: The Danish Dairy Research Foundation
Amount: 960,000.00 Danish Kroner

Development and validation of toxicological test methods for assessment of endocrine disrupting effects of chemicals with focus on development of OECD test guidelines

The focus for the project is:
1. OECD-guideline work: Enhancement of existing regulatory in vivo test methods (OECD TG414, TG 421/422 and TG 443) with regards to detection of endocrine disrupting chemicals
2. Method development related to detection of endocrine disrupters in the new OECD Test Guideline Extended One-generation Study (TG 443) with focus on mammary gland development and females
3. Method development related to thyroid toxicants with focus on human relevance of effects on hormone levels in rats and the implications for brain development in animals and humans.

National Food Institute
Research Group for Reproductive Toxicology
Research Group for Molecular Toxicology
Salmonella source attribution using molecular typing data

The Danish Salmonella source attribution model uses a microbial subtyping approach to attribute cases to their animal reservoirs, i.e., it compares the number of human cases caused by different Salmonella subtypes with the distribution of the same subtypes isolated from various food-animal sources, also taking into account the differences in consumption of the meats/eggs included in the model.

Molecular typing methods are increasingly used to subtype foodborne pathogens isolated through animal, food and public health surveillance. In particular, MLVA (Multiple-Locus Variable number tandem repeat Analysis) is routinely used to subtype Salmonella isolates in Denmark. These methods are expected to replace phenotypic methods in the near future.

Using molecular data for source attribution is challenging for several reasons, mostly related to a difficult balance between specificity of the method and the required discrimination power for source attribution.

The objectives of this project are to evaluate how MLVA-based data performs in different source attribution approaches, to identify the most appropriate method for routine Salmonella source attribution, and to assess the utility of its results for the decision-making process in Denmark.

National Food Institute
Division of Epidemiology and Microbial Genomics
Statens Serum Institut

Development of models for assessing the disease burden for chemical compounds and nutritional factors in the Danish population

The overall aim of the project is to estimate the burden of foodborne disease in Denmark due to chemicals and suboptimal diets. Specifically it is investigated how existing toxicological and epidemiological data on chemicals and nutritional factors can be utilized in the quantitative estimation of burden of disease. Exposure to acrylamide through foods and low consumption of fruits and vegetables will be used as case-studies.

National Food Institute
Division of Toxicology and Risk Assessment

Phd Student:
Jakobsen, Lea Sletting (Intern)
Main Supervisor:
Poulsen, Morten (Intern)
Meat-Cross-Con: Meat safety - An innovative modelling approach to evaluate microbial pathogen transfer and cross contamination from farm to fork

Spread of pathogens in the meat chain constitutes a major food safety concern as enteropathogens in animals brought to slaughter contaminate process equipment and carcass surfaces, and cross contaminate non-contaminated meat in the meat processing line. Also, temperatures can exceed cooling chain demands and cause growth of pathogens. To adjust processes and to perform adequate cleaning regimens in the most effective way, the industry needs tools that enable them to identify the critical handling procedures and process equipment. We therefore aim to develop novel bacterial cross contamination models for the slaughter process (pigs) and the handling of selected meat products (beef). We combine laboratory experiments and field studies to explore the magnitude and the nature of cross contamination. We hypothesize that it is possible to quantify cross contamination of meat conferred by specific processes or equipment. This will be done by studying 1) transfer of Salmonella and Listeria monocytogenes between meat samples and between meat and equipment 2) the changes in the microbial population (microbiota) on carcasses and on meat products passing specific process steps. The latter approach is an extension of microbiota analysis used for source tracking. We also hypothesize that a microbiota analysis will be able to reflect whether bacterial growth has taken place. 16S-RNA gene pyrosequencing will be used for the study of systematic changes microbiota. The collaboration between Brazil and Denmark has the potential to significantly impact hygiene intervention, and support a harmonised quality assurance and risk management by industry and public authorities in the two countries and internationally.
Whole genome based diagnostics and investigations
The advancement of genome technologies holds great promise for improving the quality and speed of public health laboratory investigations, and for decreasing their cost. The latest genome DNA sequencers are now suitable for routine use in public health laboratories and may replace conventional culture-based and molecular bacterial methods for laboratory diagnosis. Especially in low income areas this might create new options, and enable laboratories in developing countries to “leapfrog”, avoiding the development of very costly and often insufficient laboratory systems similar to those that are implemented in OECD countries where separate specialist testing capacities exist for each of the many microbiological families. The problem is the need of very specialized knowledge, computation and tools to analyze the data generated in a standardized and comparable way and provide plain language reports to the primary care users. Such tools are developed or under development in a web-accessible format at DTU. In the project the latest sequencing technology is made available in a diagnostic laboratory in Tanzania and combined with analytic facilities at one of the world’s largest bioinformatic centers at DTU. Two PhD-students from Tanzania are being educated in sequencing technology and use this on routine diagnostic samples. To ensure dissemination to other countries in the region and provide capacity Building, Kilimanjaro Clinical Research Institute (KCRI) at the Kilimanjaro Christian Medical Centre is used as a focal point for WHO GFN training courses.

National Food Institute
Research Group for Genomic Epidemiology
Department of Systems Biology
Center for Biological Sequence Analysis
University of Copenhagen
Kilimanjaro Christian Medical Centre
Period: 01/01/2013 → 31/12/2016
Number of participants: 5
Epidemiology, Health, Infections, Vaccines, Research
Contact person:
Hammer, Vibeke Dybdahl (Intern)
Project participant:
Hasman, Henrik (Intern)
Lund, Ole (Intern)
Other:
Carlsson, Susanne (Intern)
Project Coordinator:
Aarestrup, Frank Møller (Intern)

Financing sources
Source: Public research programme (public)
Name of research programme: Danida
Web address: http://drp.dfcentre.com/
Amount: 8,639,400.00 Danish Kroner
Year of approval: 2012

Development of models for assessing the disease burden from chemical compounds and nutritional factors in the Danish population
National Food Institute
Period: 15/12/2012 → 05/12/2017
Number of participants: 7
Phd Student:
Jakobsen, Lea Sletting (Intern)
Supervisor:
Nauta, Maarten (Intern)
Pires, Sara Monteiro (Intern)
Main Supervisor:
Poulsen, Morten (Intern)
Examiner:
Nielsen, Elsa Ebbesen (Intern)
Devlesschauwer, Brecht (Ekstern)
Petersen, Kim (Ekstern)
Intestinal Microbial Metabolomics
National Food Institute
Period: 15/12/2012 → 21/04/2016
Number of participants: 7
Phd Student:
Roager, Henrik Munch (Intern)
Supervisor:
Skov, Thomas Hjort (Intern)
Smedsgaard, Jørn (Intern)
Main Supervisor:
Licht, Tine Rask (Intern)
Examiner:
Sommer, Morten Otto Alexander (Intern)
Dragsted, Lars Ove (Ekstern)
Kleerebezem, Michiel (Ekstern)

Metabolic optimization of Corynebacterium glutamicum for enhanced lysine production
National Food Institute
Period: 15/12/2012 → 21/04/2016
Number of participants: 6
Phd Student:
Wang, Zhihao (Intern)
Supervisor:
Jensen, Peter Ruhdal (Intern)
Main Supervisor:
Solem, Christian (Intern)
Examiner:
Hobley, Timothy John (Intern)
Kalinowski, Jörn (Ekstern)
Mijakovic, Ivan (Intern)

FishFermPlus EU project
FishFermPlus targets to support the economic viability and resource-efficiency of SMEs in fish/seafood value chains. Under-utilised, high-quality raw materials from capture fishery and aquaculture production (e.g. homogenised fish flesh from fillet production) will be used for a novel fermentation process with higher cost-efficiency and a more simple implementation than previous mere extraction/purification methods. Instead of isolating components, FishFermPlus will generate multifunctional, fish-derived ingredients which will deliver in particular antilisterial/antimicrobial activity and flavour enhancing or texturising properties. SMEs will generate income from the by-product valorisation and the marketing of safe, naturally processed high-quality fish and seafood products with prolonged shelf-life, better palatability and thus higher consumer acceptance.

This will be achieved by a concerted applied research programme involving 2 RTDs and 4 SME companies from 3 European countries who are dedicated to

- develop a bioprocessing method under optimal fermentation conditions and process control
- tailor adequate downstream processing to stabilise the processed materials and their functionality
- apply the ingredients for a fish product range that achieves additional product-safety (assessed via viable counts, challenge tests, risk modeling), prolonged shelf-life (microbial, sensory) and high consumer acceptance (preference & concept testing)
- critically assess and to disseminate the positive impact of the project results and their contribution to the sustainable use of scarce aquatic resources and current waste minimization strategies.

The main work in DTU Food is to study predictive microbiology models for growth, microbial interaction & biogenic amine formation for predicting and describing un/desirable changes, which will bring valuable results for microbial risk assessment on the novel fermented fish products.

National Food Institute
Division of Industrial Food Research
ISI Food Protection APS
ttz Bremerhaven
Quality Food & Products GmbH
Period: 01/12/2012 → 30/11/2014
Number of participants: 2
FishFermPlus
Acronym: FP7-SME
Project participant:
Duan, Zhi (Intern)
Dalgaard, Paw (Intern)
Project

Haramaya Camel Dairy
Milk production is the primary purpose of camel husbandry. Secondary purposes are meat production and transportation. The number of camels in the world ammounts to about 24 million, of which 89% are one-humped (Camelus dromedarius) and the remaining 11% are two-humped (Camelus bactrianus) camels (FAOSTAT, 2010). Ethiopia is estimated to have the third largest camel herd in the world after Somalia and Sudan. The number of camels in Ethiopia is estimated to 2.4 million of the dromedary type (FAOSTAT, 2009).

Although the total global production of camel milk equals half the Danish milk production it plays very little significance in the global economy, and the FAO statistics does not list any other camel dairy products than fresh whole milk. There is thus a great potential for initiating a significant value generation in countries struggling with poverty and droughts. As the primary production is already established, what is needed is to establish an infrastructure and to develop locally suitable dairy products in order to create a camel dairy industry. Dairy products based on camel milk can, however, not be developed just by technology transfer as camel milk differs more from bovine milk than milk from the four true ruminants (cows, buffaloes, sheep and goats) differ from each other.

With this project we will conduct the research needed for product development and establish the necessary scientific capacity at Haramaya University in eastern Ethiopia to support infrastructure and product development locally.

National Food Institute
Research Group for Gut Microbiology and Immunology
University of Copenhagen
Haramaya University
Chr. Hansen A/S
Period: 01/12/2012 → 31/12/2017
Number of participants: 5
Project participant:
Qvist, Professor Karsten B. (Ekstern)
Ibsen, Professor Richard (Ekstern)
Kæstel, Associate professor Pernille (Ekstern)
Guya, Associate professor Mitiku Eshetu (Ekstern)
Project Manager, academic:
Hansen, Egon Bech (Intern)
Production of organic acids in Gram - positive bacteria

National Food Institute
Period: 01/12/2012 → 04/08/2018
Number of participants: 3
Phd Student:
Shen, Jing (Intern)
Supervisor:
Jensen, Peter Ruhdal (Intern)
Main Supervisor:
Solem, Christian (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU)
Project: PhD

Modelling and predicting the effect of food structure on growth and survival of Listeria monocytogenes in dairy products

Postdoc.-project i collaboration between the Predictive Microbiology group at DTU Food and Arla Foods. Funded by the Danish National Advanced Technology Foundation (Højteknologifonden).

National Food Institute
Division of Industrial Food Research
Research Group for Microbial Food Safety and Quality
Period: 15/11/2012 → 15/04/2016
Number of participants: 2
Project participant:
Rosshaug, Per Sand (Intern)
Dalgaard, Paw (Intern)

Financing sources
Source: Public research council
Name of research programme: Danish National Advanced Technology Foundation
Project

Engineering Strategies for improving the convenience food production- industry Case

National Food Institute
Period: 15/11/2012 → 21/04/2016
Number of participants: 7
Phd Student:
Pedersen, Søren Juhl (Intern)
Supervisor:
Kulahci, Murat (Intern)
Vining, G. Geoffrey (Ekstern)
Main Supervisor:
Frosch, Stina (Intern)
Examiner:
Jørgensen, Bo Munk (Intern)
Christensen, Lars Bager (Intern)
Vanhatalo, Erik (Ekstern)
Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

Preserving the positive health effects in innovative pelagic fish products through the value chain
The project aims to investigate potential changes in well documented and tentative health promoting compounds present in raw herring and mackerel throughout processing operations like salting, marinating and canning. With the intention to maximize the healthiness of the end products, the same investigation will be carried out during novel/modernized versions of these processes where e.g. the amount of salt has been reduced, the thermal regimes of the canning process has been modified and natural antioxidants have been added.

National Food Institute
Research Group for Bioactives – Analysis and Application
Period: 01/11/2012 → 01/08/2015
Number of participants: 1
Acronym: ProHealthPelagic
Project participant:
Hyldig, Grethe (Intern)

Financing sources
Source: Other public support (public)
Name of research programme: The Research Council in Norway
Amount: 5,090,000.00 Norwegian Krone
Project

Ecology-driven drug discovery: A novel approach for enhancing chemical diversity from marine bacteria
Department of Systems Biology
Natural Product Chemistry
Bacterial Ecophysiology and Biotechnology
Novo Nordisk Foundation Center for Biosustainability
National Food Institute
Division of Industrial Food Research
Period: 01/11/2012 → 12/08/2015
Number of participants: 2
Acronym: EcoDrug
Project ID: FTP 11-116262
Project participant:
Gram, Lone (Intern)
Approving authority:
Månsson, Maria (Intern)
Project

Effecten af omlægning til økologi i offentlige storkøkkener
National Food Institute
Period: 01/11/2012 → 01/09/2016
Number of participants: 7
Phd Student:
Sørensen, Nina Nørgaard (Intern)
Supervisor:
Lassen, Anne Dahl (Intern)
Leje, Hanne (Intern)
Main Supervisor:
Tetens, Inge (Intern)
Examiner:
Trolle, Ellen (Intern)
Bere, Elling (Ekstern)
Kristensen, Niels Heine (Intern)

Financial sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

Intervention med målrettede kostråd på risikomarkører for hjertekarsygdom
National Food Institute
Period: 01/11/2012 → 28/03/2018
Number of participants: 8
Phd Student:
Arentoft, Johanne Louise (Intern)
Supervisor:
Andersen, Elisabeth Wreford (Intern)
Overvad, Kim (Ekstern)
Tetens, Inge (Intern)
Main Supervisor:
Andersen, Rikke (Intern)
Examiner:
Trolle, Ellen (Intern)
Thorsdottir, Inga (Ekstern)
Toft, Ulla Marie Nørgaard (Ekstern)

Financial sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

Microbiota and Metabolic Diseases - Dietary intervention studies in animal models
National Food Institute
Period: 01/11/2012 → 02/06/2016
Number of participants: 7
Phd Student:
Zhang, Li (Intern)
Supervisor:
Bahl, Martin Iain (Intern)
Hansen, Axel Kornerup (Ekstern)
Main Supervisor:
Licht, Tine Rask (Intern)
Examiner:
Pamp, Sünje Johanna (Intern)
Ahrné, Siv (Ekstern)
Wichmann, Anita E. (Ekstern)

Financial sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

Muscle-specific stability of pork packaged in modified atmosphere during refrigerated storage
National Food Institute
Period: 01/11/2012 → 21/04/2016
Number of participants: 8
Phd Student:
Spanos, Dimitrios (Intern)
Innovation consortium - Optimized heating and cooling of meat, shellfish and cheese products

One of the biggest challenges facing the Danish food industry is to retain the current level of domestic production at a time where high wage levels, relatively low increase in productivity and high manufacturing costs are forcing the outsourcing of production, leading to a loss of Danish jobs.

The Danish agriculture and food sector is among the world’s most export-intensive, and investments in new production methods or smarter use of existing equipment are needed to ensure and improve the Danish position as one of the world’s leading exporters of food. However, without a strong learning basis from production in Denmark this position is in danger of being eroded. Research and development in production technology is crucial for the food industry in order to increase productivity and competitiveness and create jobs in the future.

For over a century the heating and cooling of solid food products have been performed using traditional technologies which have not evolved. The consortium involved in the current proposal aims to exploit the commercial potential of new heating and cooling technologies and identify new industrial approaches involving their usage. Based on a more systematic understanding of a selection of novel heating and cooling processes, this will increase the possibilities for improving process productivity, energy economics and reduce carbon footprint while also improving product yield, quality, safety and batch uniformity and allowing the development of new product types.

Specifically the aim of the consortium is to optimize time consuming heating and cooling processes in the food manufacturing area concurrently with an improvement in quality and a reduction in environmental load. The work will be based on case studies from three different food areas: cooling of cream cheese from the dairy industry, heating and cooling of logs of sausage and cold cuts from the meat industry and heating and cooling of shrimps and seafood from the fishing industry.

The potential impact of optimizing heating and cooling in Danish food plants is enormous. The different companies in the market manufacture at least 200,000 tonnes of heat treated meat, shellfish and cheese products annually with more than 85 % thereof destined for export.

For companies manufacturing equipment to the food industry the results from the consortium will furthermore show a ‘proof of concept’ of innovative, new use of not adapted equipment and of new technologies, capable of optimizing either heating or cooling processes.

The consortium will improve the innovative possibilities of the participating companies in a wide range of business areas, just as development possibilities in non-participating companies will be created based on generic results and knowhow. New products lie within the areas off:

- Equipment for improved heating and cooling
- Concepts for minimally processed food
- Software for temperature profiling of novel manufacturing methods
- Probes for online temperature measurement

These innovative concepts will be created on the basis of results from trials in existing, but not adapted, equipment, and in new equipment in close cooperation between the participating food and equipment companies, universities and DMRI – Danish Technological Institute.

National Food Institute
Division of Industrial Food Research
Innovation consortium - Optimized heating and cooling of meat, shellfish and cheese products

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- Concepts for minimally processed food
- Software for temperature profiling of novel manufacturing methods
Probes for online temperature measurement
These innovative concepts will be created on the basis of results from trials in existing, but not adapted, equipment, and in new equipment in close cooperation between the participating food and equipment companies, universities and DMRI – Danish Technological Institute.

National Food Institute
Research Group for Food Production Engineering
Division of Industrial Food Research
University College Dublin
Arla Foods
Tulip Food Company A/S
Royal Greenland A/S
John Bean Technologies AB
BCH
DanTach DK ApS.

**COMSOL A/S**
**Period:** 01/10/2012 → 30/09/2015
**Number of participants:** 2
**Acronym:** Innovation consortium
**Project participant:**
Feyissa, Aberham Hailu (Intern)
Frosch, Stina (Intern)

**Befolkningens forståelse af kostråd, sund kost- og aktivitetsvaner**
National Food Institute
**Period:** 01/10/2012 → 08/02/2017
**Number of participants:** 8
**Phd Student:**
Sørensen, Mette Rosenlund (Intern)
**Supervisor:**
Andersen, Elisabeth Wreford (Intern)
Holm, Lotte (Ekstern)
Matthiessen, Jeppe (Intern)
**Main Supervisor:**
Tetens, Inge (Intern)
**Examiner:**
Mejborn, Heddie (Intern)
Lien, Nanna (Ekstern)
Rasmussen, Mette (Ekstern)

**Financing sources**
**Source:** Internal funding (public)
**Name of research programme:** Institut stipendie (DTU) Samf.

**Relations**
**Publications:**
Assessment of healthy diets and physical activity
**Project:** PhD

**Innovationskonsortiet - "Optimeret opvarmning og nedkøling af kød-, skaldyr- og osteprodukter"**
National Food Institute
Process analysis and data driven optimization in the salmon industry

PassPork: A multi-pathogen pre-screening tool for safer pork products

Within the European meat sector, pork is the most produced and consumed meat as well as the most exported. However, pork is also responsible for a high number of verified outbreaks per year, with Salmonella, Yersinia, Listeria and Campylobacter representing practically all verified pork-associated infections in the EU in recent years.

While large enterprises in the pork industry may be able to afford the regular application of expensive tests; for SMEs, which account for 94% of businesses in the European meat industry, these methods are mostly beyond economic reach, thus impeding their capability to comply with strict regulations.
The main objective is to develop, validate and test an affordable, robust, rapid and reliable multi-pathogen detector for use by non-technical staff in the pork industry.

The device will build upon a combination of immuno-chromatography, fluorescence labelling and optical scanner technologies, together with specific monoclonal antibodies, which will reach detection limit in the range of 10-100cfu/ml.

The manner in which meat samples are collected and pre-treated has great effect over the accuracy of any subsequent test for the presence and count of pathogens. DTU's role is to identify the most effective sampling method and to design sample collection and preparation protocols to be applied in field conditions.

DTU will also be part of the in-field demonstrations of the final prototype which are conducted to collect end-user feedback and recommendations.

National Food Institute
Division of Food Microbiology
Centre de Recerca I Innovacio de Catalunya
Period: 21/09/2012 → 31/10/2014
Number of participants: 2
Pork, Salmonella, Slaughterhouses, Cutting plants, Immuno-chromatography
Acronym: PassPork
Number of related Ph.D. students: 1
Project Manager, organisational:
Aabo, Søren (Intern)
PhD Student:
Bollerslev, Anne Mette (Intern)

Food packaging and food as a source of suspected endocrine disrupting per- and polyfluorinated alkyl surfactants (PFAS) in humans

National Food Institute
Division of Food Chemistry
Period: 03/09/2012 → 30/11/2014
Number of participants: 3
Acronym: CeHoS fluorerede stoffer
Project participant:
Helleskov, Anni (Intern)
Project Manager, organisational:
Frandsen, Henrik Lauritz (Intern)
Project Manager, academic:
Trier, Xenia (Intern)

Increasing Value and Flow in the Marine Biodiscovery Pipeline
EU FP7 project lead by Professor Marcel Jaspers from University of Aberdeen. A total 24 European participants (academia, NGO, SME, industry).

National Food Institute
Division of Industrial Food Research
Period: 01/09/2012 → 31/08/2016
Number of participants: 1
bioprospecting, marine bacteria, bioactive compounds
Acronym: PharmaSea
Project participant:
Gram, Lone (Intern)

Risk based control in pig slaughter

National Food Institute
Risk assessment of pesticides is generally based on the no observed adverse effect levels (NOAELs) for single compounds. For mixtures of endocrine disrupting chemicals including pesticides, there is human and especially experimental evidence showing that substantial mixture effects on reproductive development can occur even though each of the individual chemicals is present at low, ineffective doses. These findings have major implications for the human risk assessment, as they imply that the current use of NOAELs for single chemicals may lead to an underestimation of the potential risk for humans exposed to mixtures of chemicals.

Decreased birth weight, which is an indicator of adverse intrauterine environment, is a common effect for many pesticides. Presently, there is no scientifically robust data available for evaluating potential mixture effects on this endpoint and for selecting the best model for predicting the mixture effects, i.e. dose-addition or independent action (DA or IA). Decreased birth weight is a developmental toxicity effect that is likely to be induced via many different and in most cases unknown mechanisms of action. Consequently, it is relevant to study combined effects of pesticides with dissimilar modes of action and evaluate the predictive value by applying both the IA and the DA model.

Low birth weight is in both humans and experimental animals a marker for a non-optimal prenatal development and is generally a predictor for increased risk for a long list of diseases later in life, including obesity and type 2 diabetes. The most widely accepted mechanisms thought to underlie these relationships are those of foetal programming and it is suggested that the foetus adapts physiologically in response to changes in the environment to prepare for postnatal life. Thus, it is considered very relevant to evaluate whether decreased birth weight is related to an altered metabolic programming during development.
The project has the following main objectives:

• Investigate whether a mixture of environmentally relevant pesticides, with dissimilar modes of action, will cause decreased birth weights at dose levels below NOAELs for the individual pesticides, in a developmental toxicity mixture study in rats.

• Based on existing data submitted for approval of the pesticides, evaluate whether the mixture effect is best predicted by the independent action or the dose-addition model.

• Investigate the influences of developmental pesticide exposure on metabolic programming of the offspring, using biomarkers for obesity and type 2 diabetes.

• Give input for regulatory considerations on cumulative risk assessment of pesticides causing decreased birth weight, in order to take account of the potentially serious predictive value of this endpoint.

National Food Institute

Research Group for Reproductive Toxicology

Research Group for Molecular Toxicology

Period: 01/08/2012 → 31/12/2015

Number of participants: 8

Acronym: ComPest

Project participant:

Christiansen, Sofie (Intern)
Vinggaard, Anne Marie (Intern)
Boberg, Julie (Intern)
Egebjerg, Karen Mandrup (Intern)
Petersen, Marta Axelstad (Intern)
Taxvig, Camilla (Intern)
Scholze, Martin (Ekstern)

Project Manager, academic:

Hass, Ulla (Intern)

Financing sources

Source: Public research programme (public)

Name of research programme: Danish Environmental Protection Agency Pesticide Research Programme

Amount: 3,986,611.00 Danish Kroner

Project

Marine Microorganisms: Cultivation Methods for Improving their Biotechnological Applications

Eu FP7 integrated project

Project is coordinated by Professor Lucas Stal from Royal Netherlands Institute of Sea Research (NIOZ) and has a total of 23 European participants (government, academia, SMEs etc).

National Food Institute

Division of Industrial Food Research

Period: 01/08/2012 → 30/06/2016

Number of participants: 1

Acronym: MaCuMBA

Project participant:

Gram, Lone (Intern)

Project

Follow the fish – Sustainable and optimal resource utilization in the Danish fish industry

National Food Institute

Division of Industrial Food Research

Danish Seafood Association

Skagerak Salmon A/S

Period: 01/07/2012 → 30/06/2016

Number of participants: 5

Acronym: BOPFISK
Project participant:
Frosch, Stina (Intern)
Nielsen, Michael Engelbrecht (Intern)
Adler-Nissen, Jens (Intern)
Dissing, Bjørn Skovlund (Intern)
Phd Student:
Johannson, Gine Ørholt (Intern)

Financing sources
Source: Public research programme (public)
Name of research programme: GUDP
Amount: 5,309,520.00 Danish Kroner
Year of approval: 2012

Relations
Activities:
Danish Seafood Association (DSA)

Adaptability and promiscuity among pathogenic and commensal microorganisms

National Food Institute
Period: 01/07/2012 → 21/04/2016
Number of participants: 6
Phd Student:
Roer, Louise (Intern)
Supervisor:
Hasman, Henrik (Intern)
Main Supervisor:
Aarestrup, Frank Møller (Intern)
Examiner:
Jensen, Lars Boge (Intern)
Hansen, Lars Hestbjerg (Ekstern)
Wain, John (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

Extraction and characterisation of highly biocative ingredients from Nordic marine algae

National Food Institute
Period: 01/06/2012 → 21/04/2016
Number of participants: 6
Phd Student:
Hermund, Ditte Baun (Intern)
Supervisor:
Nielsen, Kristian Fog (Intern)
Main Supervisor:
Jacobsen, Charlotte (Intern)
Examiner:
Sloth, Jens Jørgen (Intern)
Andersen, Mogens Larsen (Ekstern)
Hotchkiss, Sarah (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD
Separation and characterisation of biomolecules in effluents from the herring industry

National Food Institute
Period: 01/05/2012 → 02/09/2015
Number of participants: 6
PhD Student:
Gringer, Nina (Intern)
Supervisor:
Nielsen, Henrik Hauch (Intern)
Main Supervisor:
Baron, Caroline P. (Intern)
Examiner:
Hobley, Timothy John (Intern)
Otte, Jeannette (Ekstern)
Rustad, Turid (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

3G Center: Center for Gut Microbiota, Metabolic disorders, and Grain/Fibre-based Diets (Guts, Grains and Greens)
We hypothesize that the interplay between human host genome expression and gut microbiota (GM) affects the development of chronic metabolic disorders, and that interventions targeting the microbiome and mucosa can therefore reduce the risk of developing metabolic dysfunctions such as obesity, Type 2 Diabetes (T2D), and cardiovascular diseases (CVD).

Our intention is to develop an internationally competitive research platform to address this hypothesis. The platform builds on integration of data from human studies, animal models and in vitro studies with state-of the art methods for high-throughput sequencing and analysis of biomarkers of metabolic disorders. The hypothesis will be tested by intervention studies undertaken in this integrated setup. Grain/vegetable-based interventions, which are known to affect the host gut microbiota and metabolism either positively (dietary fibers/whole grain), or negatively (gluten-rich diet), will be applied. We will actively discuss and develop our research in dialogue with companies that produce foods or food ingredients that influence the GM, industries involved in prevention and/or treatment of metabolic and inflammatory diseases, as well as to public health authorities. This will form the basis for development of new functional foods, new innovative products and improved dietary advice, which in a short-term perspective will add to the value of these companies, and in the long-term perspective reduce the occurrence of lifestyle related metabolic diseases. Once developed, the research platform will be available for further intervention studies, and will provide the possibility to study other endpoints and biomarkers than the ones included in the present proposal. The success of the project will place Danish research at the absolute forefront within GM manipulation and host response.

National Food Institute
Division of Food Microbiology
Technical University of Denmark
University of Copenhagen
DuPont Nutrition and Health
Taconic Europe A/S
Period: 01/04/2012 → 31/03/2017
Number of participants: 8
Acronym: 3G Center
Project participant:
Vigsnæs, Louise Kristine (Intern)
Laursen, Martin Frederik (Intern)
Bahl, Martin Iain (Intern)
Skiby, Jeffrey Edward (Intern)
Roager, Henrik Munch (Intern)
Madsen, Bodil (Intern)
Zhang, Li (Intern)
Project Coordinator:
Licht, Tine Rask (Intern)

Financing sources
Source: Public research programme (public)
Name of research programme: Danish Council for Strategic Research
Amount: 34,749,243.00 Danish Kroner
Year of approval: 2012

Relations
Activities:
Gliadin Affects Glucose Homeostasis and Intestinal Metagenome in C57BL/6 Mice Fed a High-Fat Diet
CamChain: Biology and control of Campylobacter in the chicken supply chain
We comprise groups in Europe, Thailand and Viet Nam. The Thai government will fund work there and that in Viet Nam will be funded by Wellcome Trust and the Dutch Government. Our work will address knowledge gaps on the behaviour of Campylobacter in the poultry chain. We need to better understand interactions between Campylobacter, chickens and the environment and how these affect food safety. We will create a holistic picture of Campylobacter behaviour in chicken production and fundamental data on survival, how environmental exposures affect virulence and on-farm population biology and on pre- and/or probiotic intervention on-farm to reduce Campylobacter levels entering the food chain. We will use modelling and risk assessment tools to identify and test the potential efficacy of different interventions that can be utilised by the international poultry industry. We will determine the role of flies as vectors of Campylobacter to broilers and develop improved surveillance tools in order to reduce the number of Campylobacter in broiler meat.

National Food Institute
Division of Food Microbiology
Research Group for Microbial Food Safety and Quality
University of Liverpool
University of Cambridge
University of Veterinary Medicine
ANSES - French Agency for Food, Environmental and Occupational Health & Safety
Istituto Zooprofilattico Sperimentale dell’Abruzzo e del Molise “G. Caporale”
University of Helsinki
Lithuanian University of Health Sciences
Austrian Agency for Health and Food Safety
Period: 01/03/2012 → 30/04/2015
Number of participants: 4
Acronym: CamChain
Project participant:
Nordentoft, Steen (Intern)
Hald, Birthe (Intern)
Jensen, Annette Nygaard (Intern)
Other:
Skiby, Jeffrey Edward (Intern)

Financing sources
Source: Public research council
Name of research programme: EMIDA ERA-NET

Relations
Activities:
Campylobacter in primary poultry production
CamChain Meeting
EAAP 2017 Annual Meeting: One-day insect seminar
Exploration of *Campylobacter jejuni* survival mechanisms in house flies
Quantitative estimation of *Campylobacter jejuni* survival in house flies at 20°C and 42°C after inoculation with 3×10³ CFU
CHRO 2017

Project

Functional nano-microstructures for food and bioengineering applications
National Food Institute
Period: 01/03/2012 → 02/07/2015
Number of participants: 3
Phd Student:
Jørgensen, Lars (Intern)
Supervisor:
Jessen, Flemming (Intern)
Main Supervisor:
Chronakis, Ioannis S. (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Forskningsrådsfinansiering
Project: PhD

Pathogen detection: On-site diagnostics with focus on pre-analytical engineering
National Food Institute
Period: 01/03/2012 → 15/12/2015
Number of participants: 8
Phd Student:
Fachmann, Mette Sofie Rousing (Intern)
Supervisor:
Josefsen, Mathilde Hasselidam (Intern)
Löfström, Charlotta (Intern)
Pedersen, Karl (Intern)
Main Supervisor:
Hoorfar, Jeffrey (Intern)
Examiner:
Vigre, Håkan (Intern)
Knutsson, Rickard (Ekstern)
Mathiasen, Thomas Erik (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

Autenticitet af aromastoffer
National Food Institute
Period: 15/02/2012 → 15/12/2015
Number of participants: 6
Phd Student:
Hansen, Anne-Mette Sølvbjerg (Intern)
Supervisor:
Fromberg, Arvid (Intern)
Main Supervisor:
Frandsen, Henrik Lauritz (Intern)
Examiner:
Duedahl-Olesen, Lene (Intern)
Engel, Karl-Heinz (Ekstern)
Petersen, Mikael Agerlin (Ekstern)


**Financing sources**
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

**Improving the exposure basis of toxicological research on persistent organic pollutants and their mixtures**

National Food Institute
Period: 15/01/2012 → 15/12/2015
Number of participants: 6
Phd Student:
Gilbert, Dorothea (Intern)
Supervisor:
Vinggaard, Anne Marie (Intern)
Main Supervisor:
Mayer, Philipp (Intern)
Examiner:
Trapp, Stefan (Intern)
Scheringer, Martin (Ekstern)
Wania, Frank (Ekstern)

**Financing sources**
Source: Internal funding (public)
Name of research programme: Ansat eksternt
Project: PhD

**UltraSal: More effective control of fresh meat with an ultra fast Salmonella-test**

National Food Institute
Division of Risk Assessment and Nutrition
Fedewarestyrelsen
Danish Crown A/S
Teknologisk Institut
Period: 10/01/2012 → 30/01/2015
Number of participants: 1
Project participant:
Christensen, Julia (Intern)

**Relations**
Publications:
Detection of Salmonella enterica in meat in less than 5 hours by a low-cost and non-complex sample preparation method

**Can the use of dairy phospholipids as emulgators protect against a pro-obesogenic intestinal microbiota?**
The results from a pilot-study in our labs, indicates that it possible to modulate the composition of the intestinal microbiota by emulsifying fat in milk phospholipids (MPL), instead of using soy-lecithin that is normally used f ex. in infant formulas. In the study, we mimicked the intestinal colonization occurring at birth, by transferring germ-free mice out of the sterile environment and into cages containing faeces from a normal mouse, while they were given the emulsions for three week. The results show that the numbers of bacteria from the phylum Firmicutes decreased in the colon lumen in mice that were given the MPL-based emulsions (fig. 1 below) while Bacteriodetes was not affected. Since obesity-development have been linked to increased ratio between Firmicutes and Bacteriodetes in the colon, the result indicates that it could be possible to reduce the risk of developing obesity later in life by exchanging soy-lecithin with MPL in infant formulas. To elucidate this possibility, we want to perform three studies in which we will validate the results from the pilot-study in a bigger study, determine the mechanism that is explaining the effect on microbial composition and determine whether this effect is persistent also after intake of the emulsion have stopped and whether it actually reduce the risk of developing obesity and metabolic diseases later in life.

National Food Institute
Division of Food Microbiology

Center for Biological Sequence Analysis
Period: 02/01/2012 → 31/12/2015
Number of participants: 3
Project participant:
Licht, Tine Rask (Intern)
Bennike, Rikke Mette Guldhammer (Intern)

Project Manager, organisational:
Hellgren, Lars (Intern)

Financing sources
Source: Public research council
Name of research programme: Mejerbrugets ForskningsFond
Amount: 360,000.00 Danish Kroner

New green process for production of smoked fish products
Collaboration between the Predictive Microbiology group at DTU Food, Royal Smoke and Royal Greenland Seafood Ltd. Funded by the Danish Food Industry Agency (GUDP).

National Food Institute
Division of Industrial Food Research
Period: 01/01/2012 → 31/12/2013
Number of participants: 2
Acronym: GUDP-RØG
Project participant:
Devitt, Tina Dahl (Intern)
Project Manager, academic:
Dalgaard, Paw (Intern)

Financing sources
Source: Public research council
Name of research programme: Danish Food Industry Agency

Pelagic industry processing effluents innovative and sustainable solutions
Volumes of effluents from herring processing industries are important and their organic loads are high, which means that the cost imparted for their discharge is substantial. However, the processing effluents also contain molecules with good marked potential which are discarded.

Technological separation solutions available today do not fit the herring industries due to their poor flux and their poor chemical tolerance and also because they are not well suited for recovery of organic fractions. PIPE will test cutting edge technologies to address sustainability and water purification challenges.

The main goal for the PIPE project is to test cutting edge technologies to separate water and organic material from pelagic industries effluents and to characterise as well as valorise the organic material collected

The PIPE projet has 3 innovative values:
for the first time, technologies such as ceramic membranes and electrochemistry will be tested and their efficiency in separation organic matter from effluents will be investigated;
the functionality and bioactivity of components from pelagic industries effluents will be evaluated;
at the same time, the potential market value of the recovered fractions will be studied.

National Food Institute
Division of Industrial Food Research
Period: 01/01/2012 → 31/12/2015
Number of participants: 10
Acronym: PIPE
Project participant:
Novel bioactive seaweed based ingredients and products

The goal of this project is to develop technologies to process novel highly bioactive ingredients from bladderwrack and develop innovative products containing them with active collaboration of target consumers/users. The products include (a) food supplements, (b) cosmetics and (c) food antioxidants.

Within this programme DTU Food has defined a PhD project, which is cofinanced by DTU Food. The overall aim of the PhD study is to investigate the possibilities for developing novel natural antioxidants from highly unutilized Nordic seaweed resources. This will be achieved by exploring the potential application of polyphenolic secondary metabolites from Icelandic Fucus vesiculosus and Danish Fucus vesiculosus, Fucus serratus and Polysiphonia fucoides as novel natural antioxidants to control lipid oxidation and quality deterioration in lipid rich food systems. The focus will be to extract polyphenolic compounds by different extraction methods. The extracts will be screened for antioxidant activity by in vitro antioxidant assays such as radical scavenging and Fe2+ chelating activity. Analytical methods based on advanced high resolution MS techniques will be developed to characterize the polyphenolic compounds. The antioxidant activity will furthermore be evaluated in food systems.

National Food Institute
Research Group for Bioactives – Analysis and Application
Period: 01/01/2012 → 31/01/2016
Number of participants: 7
Acronym: Seaweed
Project participant:
Jacobsen, Charlotte (Intern)
Larsen, Ditte (Ekstern)
Torp, Eddy (Ekstern)
Sigurðsson, Guðbrandur (Ekstern)
Tómasson, Gunnar (Ekstern)
Folland, Sigbjørn (Ekstern)
Project Manager, academic:
G. Kristinsson, Hörður (Ekstern)

Financing sources
Source: Private funding (private)
Name of research programme: Nordic Innovation Center
Amount: 911,000.00 Norwegian Krone
Project

A-Doc: Netværk til fremme af kvalitets- og authenticitetsdokumentation af fødevarespecialiteter
National Food Institute
Division of Food Microbiology
Smagen af Danmark
Sejerø-Gæs
Period: 01/01/2012 → 31/12/2013
Number of participants: 1
Acronym: A-Doc
Project participant:
**Fresh Produce: Innovative solutions to global safety of fresh produce**

The purpose of the workshop is to create a new international research and innovation platform that involves BRIC countries and the US for the exchange of technologies, scientists and experience in the field of fresh produce. The background is the recent outbreaks of VTEC in Germany and economic loss across Europe, the Listeria outbreak in fruit in the US, and the repeated outbreaks of norovirus in imported berries to Denmark. There is an increasing international trade of fresh produce as a healthy food source. The food safety challenges raised by complex international trade, traceability issue and climate related changes highlight the need for timely scientific advice in order to guide risk management decisions. The workshop will review the problem and innovative solution in different countries. Global trade with stakeholders in many different countries makes the management of food safety extremely difficult. Concerns have emerged regarding the safety of fresh produce in response to recent outbreaks and alerts linked to fresh produce and derived food products. A pre-workshop visit is planned for Dr. Edna Liviera from EMBRAPA to stay one month at DTU-Food to receive training in metagenomic-based laboratory techniques. Post-workshop research visits are planned to follow up on outcomes and agreements made during workshop. The Action Plan will further build on scientific excellence by collaboration with all stakeholders in order to assure a high level of protection of human health. The network will explore development of innovative treatment and control measures of a managerial and technological nature in the supply chain of crop production, post-harvest processing and logistics to minimize food safety risks.

National Food Institute
Division of Food Microbiology
Texas A&M University
US Food & Drug Administration
EMBRAPA
Chinese Academy of Agricultural Sciences

**Ultrusal: More effective control of fresh meat with an ultra fast Salmonella-test**

A consortium consisting of Danish Crown, Tican, The Danish Meat Research Institute, DTU and the Danish Veterinary and Food Administration wants to develop an ultra fast Salmonella-test (4 h). This will enable the slaughter houses to a faster release of several ton of meat every day, and thereby increase their ability to compete, improve food safety and give a significant reduction of expenses. Approximately 100,000 analysis per year are performed applying the existing Salmonella-test, which takes 14-20 h before the Salmonella status of the meat is known and it can be released. The test is based on innovative sample preparation methods combined with fast cycling PCR. The background for the initiative can be found in the more than 20 mio pigs slaughtered per year in Denmark, of which close to 2 mio ton meat is exported at a value of 28 billion kr. The Salmonella control is the most sensitive link in the release of meat, especially to export markets like Sweden, and Finland that have a zero tolerance for Salmonella in imported fresh meat. The current long time of analysis results in expensive refrigeration, re-packaging of meat and a reduced durability of the fresh meat.

National Food Institute
Division of Food Microbiology
Department of Systems Biology
Danish Crown A/S
Tican Fresh Meat A/S
Fødevarestyrelsen
Teknologisk Institut

**Bang-Berthelsen, Iben (Intern)**
**Project**
ADAP: Adaptability and promiscuity among pathogenic and commensal microorganisms
Vi vil i dette projekt undersøge, hvorfor nogle bakterier hyppigere udvikler antibiotikaresistens end andre. Sygdomsfremkaldende bakterier og andre bakterier udveksler gener gennem en proces, der kaldes horisontal genoverførsel. Undersøgelserne vil specielt fokusere på at kortlægge de egenskaber, som bevirket, at nogle bakterier er mindre modtagelige for genoverførsler end andre. Ved anvendelse af den nyeste teknologi, såsom 2. generations DNA-sequentiation og flowcytometri vil vi undersøge den grundlæggende mekanisme bag den evolutionære proces på en måde, der ikke tidligere har været mulig. Vi vil søge forklaringen på, hvorfor specielt sygdomsfremkaldende bakterier er bedre i stand til at modtage gener end andre, hvilket øger disse bakteriers evne til at tilpasse og udvikle sig. En sådan viden vil kunne bruges til at udvikle strategier til at stoppe udvikling af antibiotikaresistens hos sygdomsfremkaldende bakterier, samt gøre det muligt at forudsige potentiøj for at der udvikles resistens i ellers følsomme bakterier. Projektet vil således medvirke til at finde metoder til at undgå en hurtig global spredning af sygdomme forårsaget af bakterier, som er resistente over for moderne medicin.

National Food Institute
Research Group for Genomic Epidemiology
University of Copenhagen
Period: 01/01/2012 → 31/12/2015
Number of participants: 4
ADAP, Adaptability, promiscuity, commensal, microorganisms
Project participant:
Hasman, Henrik (Intern)
Roer, Louise (Intern)
Other:
Carlsson, Susanne (Intern)
Project Manager, academic:
Aarestrup, Frank Møller (Intern)

Financing sources
Source: Public research council
Name of research programme: Det Frie Forskningsråd
Web address: http://ufm.dk/forskning-og-innovation/rad-og-udvalg/det-frie-forskningsrad
Amount: 4,890,449.00 Danish Kroner
Project

Danish Vitamin Network
Danish Vitamin Network brings together junior and senior scientists in the field of vitamins in the Danish Universities and industry. An annual workshop is arranged to promote collaboration between the groups having a major interest in vitamins.

The network were original named LMC's Vitamin Network (01/01/09-01/01/12)

Division of Food Chemistry
National Food Institute
Aarhus University
University of Copenhagen
Period: 01/01/2012 → 31/12/2015
Number of participants: 6
Project participant:
Bügel, Susanne (Ekstern)
Nexø, Ebba (Ekstern)
Fjerkræprojektet. Serotypning beredskabs-aftale.

National Food Institute
Division of Risk Assessment and Nutrition
Division of Food Production Engineering
Genomic Epidemiology
Period: 01/01/2012 → …
Number of participants: 1
Project participant:
Christensen, Julia (Intern)

Industry - Academia Interaction in the Marine Sector
Activities in the InTerAct project were aimed at positioning higher education with a focus on the needs of the aquatic food sector and using as a case study the new international master programme AQFood - Aquatic Food Production - Safety and Quality (www.aqfood.org). The project work included analysis of industry stakeholders to obtain their attitude towards higher education and job opportunities. Additionally, the attitude of the general public towards the seafood industry and students' views on higher education and the seafood business were explored. Methodologies of social sciences (focus groups, interviews and surveys) were applied to obtain perceptions of the position of the industry and higher education. Based on the findings an image film for the higher education was created and linked to prospects for interesting job opportunities in the aquatic food sector for students graduating from master programmes such as the AQFood (See AQFood Image Film).

The research created a benchmark for the Nordic marine sector and suggested how the perceived negative external image of the sector could be improved. In contrast to the image perceived by the general public and students, the industry stakeholders described a more positive internal image. They perceived their own industry as dynamic and highly innovative with a lot of interesting job opportunities. This image should be communicated to attract young educated people to work in the sector. The results of the project are important to understand better the challenges when establishing collaboration between industry and higher education and what factors influence students' choices regarding education and future careers. In particular the results of the surveys among students in the Nordic countries indicate that their interest areas are linked to e.g. innovation, product development and sustainability, which are potential areas for collaboration between higher education programmes and the seafood industries to enhance their competitiveness. Such collaboration is an important step towards the mission to enhance innovation in the marine sector which can be realised through students' projects and the numerous opportunities that have been identified for industry and academia collaboration.

National Food Institute
Division of Industrial Food Research
Period: 01/01/2012 → 01/03/2014
Number of participants: 1
Acronym: InTerAct
Project participant:
Baron, Caroline P. (Intern)

Kombinationsopdræt af havbrugfisk, tang, muslinger til foder og konsum

National Food Institute
Research Group for Bioactives – Analysis and Application
Department of Environmental Engineering
Residual Resource Engineering
Period: 15/12/2011 → 01/04/2015
Number of participants: 3
Acronym: Kombiopdræt
Holdt, Susan Løvstad (Intern)
Silva Marinho, Goncalo (Intern)
Angelidaki, Irini (Intern)

**Financing sources**
Source: Public research programme (public)
Name of research programme: GUDP
Amount: 14,600,000.00 Danish Kroner

**Application of whole genome sequencing for diagnostics, surveillance and outbreak detection of foodborne pathogens**
National Food Institute
Period: 15/12/2011 → 28/10/2015
Number of participants: 6
Phd Student:
Joensen, Katrine Grimstrup (Intern)
Supervisor:
Hasman, Henrik (Intern)
Main Supervisor:
Aarestrup, Frank Møller (Intern)
Examiner:
Baggesen, Dorte Lau (Intern)
Dallman, Tim (Ekstern)
Persson, Søren (Ekstern)

**Financing sources**
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

**Kemiske screeningsmetoder til fødevarekontaktmaterialer**
National Food Institute
Period: 15/12/2011 → 01/04/2015
Number of participants: 6
Phd Student:
Bengtström, Linda (Intern)
Supervisor:
Trier, Xenia (Intern)
Main Supervisor:
Petersen, Jens Højslev (Intern)
Examiner:
Boberg, Julie (Intern)
Bradley, Emma L. (Ekstern)
Svensmark, Bo (Intern)

**Financing sources**
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

**Metabolomics study of endocrine disrupting chemicals**
National Food Institute
Period: 15/12/2011 → 29/02/2016
Number of participants: 7
Phd Student:
Skov, Kasper (Intern)
Fast methods for authentication of organic plant based foods (AuthenticFood)

The objective of AuthenticFood is to test a portfolio of the most promising analytical methods, markers and concepts for their ability to authenticate organic products. This project aims to provide the tools that will ultimately give confidence to consumers by revealing fraudulent substitution of organic with conventionally cultivated products and consequently to promote organic food through assured authenticity. The evaluation of these tools will be performed in a close cooperation between 16 partners from 11 European countries, encompassing agronomists, analytical chemists as well as inspection and certification bodies, with significant expertise in authentication and organic agriculture.

National Food Institute

Division of Food Chemistry
Period: 01/12/2011 → 30/11/2014
Number of participants: 2
Acronym: AuthenticFood
Project participant:
Larsen, Erik Huusfeldt (Intern)
Husted, Søren (Ekstern)

Project

Autenticitet af fødevarer og fødevareingredienser

National Food Institute

Division of Food Chemistry
Einar Willumsen A/S
Period: 01/12/2011 → 31/12/2014
Number of participants: 2
Project participant:
Fromberg, Arvid (Intern)

Project Manager, organisational:
Frandsen, Henrik Lauritz (Intern)

Project

Bioinformatics and toxicology

National Food Institute
Period: 15/11/2011 → 29/04/2015
Number of participants: 8
Phd Student:
Kongsbak, Kristine Grønning (Intern)
Supervisor:
Audouze, Karine Marie Laure (Intern)
Eklund, Aron Charles (Intern)
Hadrup, Niels (Intern)
Main Supervisor:
Vinggaard, Anne Marie (Intern)
SafeOrganic: Restrictive use of antibiotics in organic animal farming – a potential for safer, high quality products with less antibiotic resistant bacteria

Spread of antibiotic resistance along the food-chain is a major food safety concern due to the risk of treatment failure of human foodborne infections. Recent reports suggest that the restrictions on use of antibiotics in organic animal farming promote lower levels of antibiotic resistance in organic animal products as compared to conventional products. This is, however, scarcely documented in the EU, particularly for swine. Thus, the organic pig production is probably characterized by significant lower levels of antibiotic resistance and providing the documentation of this very important quality parameter of organic pigs holds the opportunity of exploiting this essential advantage of organic pork in marketing. Therefore, in SafeOrganic it will be documented whether the organic pigs in different European countries does show lower levels of antibiotic resistant bacteria compared to the conventional pigs. Furthermore, there seems to be a widespread routine of slaughtering conventional and organic animals at the same slaughter lines without special hygiene barriers to avoid cross-contamination. An important part of the project is therefore to investigate to which degree antibiotic resistant bacteria from conventional raised animals is transferred to organic meat during processing. Accordingly, SafeOrganic will assess and suggest management options, which can minimize the contact and hence risk of cross-contamination between the organic and the conventional meat products during slaughter. Information on the antibiotic use at farm level is normally not available, which hampers the authority control of imprudent use of antibiotics. Therefore, SafeOrganic will investigate if bacterial antibiotic resistance patterns and genotypes can be used as markers for the consumption of antibiotics in organic animal production. The results obtained in the project will be communicated to end-users enabling the slaughter industry to reduce spread of antibiotic resistant bacteria, and organic animal farmers to market pork meat with very low levels of antibiotic resistant bacteria implying an improved food safety quality compared to pork from conventional farming systems.

FP7 ERA-Net project, CORE Organic II (Coordination of European Transnational Research in Organic Food and Farming systems, project no. 249667).

National Food Institute
Division of Food Microbiology
National Veterinary Institute Sweden
Instituto Zooprofilattico Sperimentale delle Venezie
ANSES - French Agency for Food, Environmental and Occupational Health & Safety
Veterinary Research Institute, Department of Bacteriology, VRI

University of Copenhagen
Period: 01/11/2011 → 31/10/2014
Number of participants: 2
Acronym: SafeOrganic
Project participant:
Jensen, Annette Nygaard (Intern)
Project Manager, academic:
Aabo, Søren (Intern)

Relations
Activities:
- 23rd International Committee on Food Microbiology and Hygiene Symposium
- Hvordan kan vi vide, om økologi bliver bedre?
- Kick-off møde SafeOrganic
- SafeOrganic Closing Seminar

Antibiotikaresistens i økologiske og konventionelle svinebesætninger – et EU-studie
Publications:
- Evaluation of intestinal sampling sites in pigs at slaughter for assessing antibiotic resistance level in swine herds

Press / Media items:
Development of a Salmonella source-attribution model for evaluating targets in the turkey meat production

A Salmonella source attribution model based on a microbial-subtyping approach was developed to estimate the public health effect of setting a new target for the reduction of Salmonella in fattening turkey flocks in the European Union. The model considers the quantitative contribution and relevance of different Salmonella serovars found in turkeys to human salmonellosis and includes 25 Member States, four animal-food sources of Salmonella (turkeys, broilers, laying hens and pigs) and 23 Salmonella serovars. This turkey-target Salmonella attribution model (TT-SAM) employs prevalence and serovar distribution data from the EU statutory monitoring and EU-wide Baseline Surveys on Salmonella in animal-food sources, data on incidence and serovar distribution of human salmonellosis, and food availability data.

National Food Institute
Division of Epidemiology and Microbial Genomics
Period: 01/11/2011 → 30/04/2012
Number of participants: 3
Contact person:
Hald, Tine (Intern)
Project participant:
de Knegt, Leonardo (Intern)
Pires, Sara Monteiro (Intern)

Hormonforstyrrende effekter af kemikalier i fødevareemballage

National Food Institute
Period: 01/11/2011 → 09/03/2015
Number of participants: 6
Phd Student:
Rosenmai, Anna Kjerstine (Intern)
Supervisor:
Taxvig, Camilla (Intern)
Main Supervisor:
Vinggaard, Anne Marie (Intern)
Examiner:
Boberg, Julie (Intern)
Raun Andersen, Helle (Ekstern)
Si-Lung Lau, Christopher (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.

Relations
Publications:
Compounds in food packaging materials - toxicological profiling of knowns and unknowns
Project: PhD

Sensory factors in food satisfaction

National Food Institute
Period: 01/11/2011 → 01/04/2015
Number of participants: 6
Phd Student:
Andersen, Barbara Vad (Intern)
Supervisor:
Jørgensen, Bo Munk (Intern)
Bioinformatics approaches to identify antimicrobial, virulence and other important genes in bacteria

National Food Institute
Period: 01/10/2011 → 17/11/2016
Number of participants: 6
PhD Student:
Zankari, Ea (Intern)
Supervisor:
Lund, Ole (Intern)
Main Supervisor:
Aarestrup, Frank Møller (Intern)
Examiner:
Petersen, Thomas Nordahl (Intern)
Schultsz, Constance (Ekstern)
Seemann, Torsten (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

Development and characterization of nano-microstructures as carrier for bioactive compounds

National Food Institute
Period: 01/10/2011 → 02/09/2015
Number of participants: 6
PhD Student:
Boutrup Stephansen, Karen (Intern)
Supervisor:
Chronakis, Ioannis S. (Intern)
Main Supervisor:
Jessen, Flemming (Intern)
Examiner:
Sloth, Jens Jørgen (Intern)
Sarmento, Bruno (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Forskningsrådsfinansiering

Relations
Publications:
Development and characterization of nano-micro structures as carrier for bioactive compounds
Project: PhD

Global Microbial Identifier
GMI envisions a global system of DNA genome databases for microbial and infectious disease identification and diagnostics. Such a system will benefit those tackling individual problems at the frontline, clinicians, veterinarian, etc., as
well as policy-makers, regulators, and industry. By enabling access to this global resource, a professional response on health threats will be within reach of all countries with basic laboratory infrastructure.

National Food Institute
Research Group for Genomic Epidemiology
Period: 01/09/2011 → …
Number of participants: 2
Acronym: GMI
Project participant:
Hendriksen, Rene S. (Intern)
Project Manager, organisational:
Aarestrup, Frank Møller (Intern)

Predictive food microbiology - new tools for risk assessment and dairy product development
National Food Institute
Period: 15/08/2011 → 05/11/2014
Number of participants: 6
Phd Student:
Østergaard, Nina Bjerre (Intern)
Supervisor:
Christiansen, Lasse Engbo (Intern)
Main Supervisor:
Dalgaard, Paw (Intern)
Examiner:
Nauta, Maarten (Intern)
Larsen, Marianne Halberg (Ekstern)
Skandamis, Panagiotis N. (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

Improved Cutting Operations in Food Processing
Precise and reproducible cutting depends on 1) the proper geometrical design of the blade (sharpness), 2) the material properties of the cutting tool and 3) the mechanical and tribological interaction between the tool, the food material as well as a third party material (e.g. cutting board). While the patent literature in the field is extensive, fundamental mechanical studies of cutting operations are rare.

National Food Institute
Research Group for Food Production Engineering
Period: 01/08/2011 → 31/08/2015
Number of participants: 1
Project participant:
Adler-Nissen, Jens (Intern)

Financing sources
Source: Other public support (public)
Name of research programme: InSPIRe
Amount: 3,074,000.00 Danish Kroner
Project

Optimising Product Quality throughout the Distribution Chain for Fresh & Semi-processed Fruits and Vegetables
The distribution of fresh and semi-processed fruits and vegetables is faced with the challenge that the optimal temperature for maintenance of quality varies considerably for different products and is not always the standard +5oC or +2oC in the cold chain.

National Food Institute
Division of Industrial Food Research  
Period: 01/08/2011 → 31/08/2015  
Number of participants: 4  
Project participant:  
Christensen, Brian (Ekstern)  
Edelenbos, Merete (Ekstern)  
Løje, Hanne (Intern)  
Project Manager, organisational:  
Kjeldsen Bjørn, Gitte (Ekstern)  

Financing sources  
Source: Public research council  
Name of research programme: Det Strategiske Forskningsråd, Rådet for Teknologi og Innovation, industrien og fonde via inSPIRe  
Web address: http://www.inspirefood.dk/  
Amount: 2,000,000.00 Danish Kroner  

Network for management of allergens in food production  
The aim of the project is to give the participants new knowledge about food allergen management and in addition give them the opportunity to share experience and learn from each other  
National Food Institute  
Division of Toxicology and Risk Assessment  
Danish Technological Institute  
Tulip Food Company A/S  
European Freeze Dry  
Easyfood A/S  
Carl J. Nielsen  
Chr. Hansen A/S  
Urtekram International A/S  
Royal Greenland A/S  
De Forenende Dampvaskerier  
Arla Foods  
Period: 01/08/2011 → 30/06/2013  
Number of participants: 2  
Project participant:  
Madsen, Charlotte Bernhard (Intern)  
Project Manager, organisational:  
Mortensen, Lone Sass (Ekstern)  

Project Identify to Improve Laboratory-Based Surveillance of Foodborne Diseases in Southeast Asia  
In order to increase detection of foodborne pathogens in Laos, Cambodia and Vietnam, the World Health Organization West Pacific Regional Office (WPRO/WHO) and the DTU National Food Institute have set up a series of lectures on epidemiology and laboratory-based surveillance of foodborne diseases, along with discussions on specific local needs, which culminated in the creation of a priority-based 5-year workplan for each of those countries.  
National Food Institute  
Division of Epidemiology and Microbial Genomics  
Period: 01/08/2011 → 31/01/2012  
Number of participants: 4  
Foodborne diseases, Surveillance, Capacity Building  
Project participant:  
de Knegt, Leonardo (Intern)
Netværksprojekt om praktisk styring af allergener i fødevareproduktioner

National Food Institute
Division of Toxicology and Risk Assessment
Danish Technological Institute
Tulip Food Company A/S
European Freeze Dry
Easyfood A/S
Carl J. Nielsen
Chr. Hansen A/S
Urtekram International A/S
Royal Greenland A/S
De Forenende Dampvaskerier
Arla Foods
Period: 01/08/2011 → 30/06/2013
Number of participants: 1
Acronym: Allergener i fødevareproduktioner
Project participant:
Madsen, Charlotte Bernhard (Intern)

Software with predictive models for food product development, risk assessment and risk management
The objectives of this project are to develop software with predictive models to improve food product development, risk assessment and quality management. Development of new lightly preserved foods is interesting for many Danish food processors and the export of these products is substantial. Unfortunately, the development of new lightly preserved products is often slow and costly, which to some extend is due to classical methods of microbiological control and documentation. Previously, the National Food Institute developed software for efficient management of growth for the important human pathogenic bacteria Listeria monocytogenes in new food products. This is significant but more validated models and software are needed. Such new models will be developed within this project for chilled foods where combinations of salt and organic acids (acetic, benzoic, citric, lactic and sorbic acids) are essential for product stability and shelf-life. The software to be developed will be user-friendly and mobile to allow e.g. prediction of how process hygiene, packaging, or distribution conditions can be changed to obtain sufficient control of microbial growth. The project is expected to have a positive effect on production and quality management of different types of lightly preserved foods in Denmark.

National Food Institute
Division of Industrial Food Research
Period: 01/07/2011 → 30/06/2014
Number of participants: 4
Acronym: GUDP-IT-FOOD
Project participant:
Dalgaard, Paw (Intern)
Mejlholm, Ole (Intern)
Phenolipids as antioxidants in omega-3 model and real food systems - Effect of alkyl chain length and concentration

Fish oil contain omega-3 PUFAs due to the content of unsaturated lipids, the fish oil is easily oxidized. The oxidation and development of rancidity in fish oil can be inhibited or delayed by the addition of antioxidants. Phenolics are compounds present in plants and are known to have good antioxidative properties. However, phenolics are primary water soluble antioxidants, and will in many food products (emulsions) be located in the water phase and not close to the interface where the oxidation is initiated.

The lipophilicity of the phenolics can be modified by attaching a fatty acid to the phenolic compound (phenolipids). This modification will change the location of the new phenolipid emulsions, which may increase their antioxidative activity due to the location.

The aim of the project are to evaluate the optimal chain length of the fatty acid attached to different phenolic in order to give optimal antioxidative activity in different food emulsion systems. Second aim of the project is to develop mathematically models, there can be used by the industry to predict the efficacy of the new synthesized phenolipids.

Activities

Research stay at UMR IATE, CIRAD, Montpellier, France - Producing Phenolipids, September 2011 – March 2012
103rd AOCS Annual Meeting & Expo, Long Beach, California, USA, April 29 – May 2, 2012 - Phenolipids as antioxidants in emulsified systems and the effect of alkyl chain length (Ann-Dorit Moltke Sørensen, Christelle Bayrasy, Mickaël Laguerre, Jérôme Lecomte, Pierre Villeneuve and Charlotte Jacobsen)
See AOCS 2012 abstract ADMS in the right column

Research stay at SINTEF, Trondheim, Norway - Introduction to Oxygraph, June 2012
10th Euro Fed Lipid Congress, Cracow, Poland, September 23-26, 2012 - Phenolipids as antioxidants in emulsified systems (Ann-Dorit Moltke Sørensen, Christelle Bayrasy, Mickaël Laguerre, Jérôme Lecomte, Pierre Villeneuve and Charlotte Jacobsen)
See EFL 2012 abstract ADMS in the right column

104th AOCS Annual Meeting & Expo, Montreal, Quebec, Canada, April 28 – May 1, 2013.
See AOCS 2013 abstract ADMS in the right column

Phenolipids as antioxidant in omega-3 enriched food products (Ann-Dorit Moltke Sørensen, Mercedes Alemán, Erwann Durand, Pierre Villeneuve, Ricard Bou, Francesc Guardiola & Charlotte Jacobsen)


246th ACS National Meeting & Exposition, Indianapolis, Indiana, USA, September 8 - 12, 2013. Antioxidant efficacy of caffeates in emulsions and the effect of tocopherols (Ann-Dorit Moltke Sørensen, Mercedes Alemán, Erwann Durand, Pierre Villeneuve, Charlotte Jacobsen)
See ACS 2013 abstract ADMS in the right column

See EFL 2013 abstract ADMS in the right column

See AOCS 2014 abstract ADMS in the right column

Publications


**Phenolipids as antioxidants in omega-3 model and real food systems - Effect of alkyl chain length and concentration**

Fish oil contain omega-3 PUFA due to the content of unsaturated lipids, the fish oil is easily oxidized. The oxidation and development of rancidity in fish oil can be inhibited or delayed by the addition of antioxidants. Phenolics are compounds present in plants and are known to have good antioxidative properties. However, phenolics are primary water soluble antioxidants, and will in many food products (emulsions) be located in the water phase and not close to the interface where the oxidation is initiated. The lipophilicity of the phenolics can be modified by attaching a fatty acid to the phenolic compound (Phenolipids). This modification will change the location of the new phenolipid in emulsions, which may increase their antioxidant activity due to the location. The aim of the project are to evaluate the optimal chain length of the fatty acid attached to different phenolic in order to give optimal antioxidant activity in different food emulsion systems. Second aim of the project is to develop mathematically models, there can be use by the industry to predict the efficacy of the new synthesized phenolipids.

**Activities**
- Research stay at UMR IATE, CIRAD, Montpellier, France - Producing Phenolipids, September 2011 – March 2012
- 103rd AOCS Annual Meeting & Expo, Long Beach, California, USA April 29 – May 2, 2012 - Phenolipids as antioxidants in emulsified systems and the effect of alkyl chain length (Ann-Dorit Moltke Sørensen, Christelle Bayrasy, Mickael Laguerre, Jérôme Lecomte, Pierre Villeneuve and Charlotte Jacobsen); Conference abstract
- Research stay at SINTEF, Trondheim, Norway - Introduction to Oxygraph, June 2012
- 0th Euro Fed Lipid Congress, Cracow, Poland, September 23 -26, 2012 - Phenolipids as antioxidants in emulsified systems (Ann-Dorit Moltke Sørensen, Christelle Bayrasy, Mickael Laguerre, Jérôme Lecomte, Pierre Villeneuve and Charlotte Jacobsen).
Test strategy for mixtures of chemicals migrating from food contact materials (FCM)
A multidisciplinary project team develops and validates a test strategy for testing migration of chemicals from food contact materials that may pose a toxicological risk. Substances which have the potential to migrate into food are initially screened for a range of toxicological effects in various in vitro tests. Migrates which produce a positive response in these tests are investigated further by chemical analysis in order to identify the toxic substances. In case of the occurrence of several active substances possible endocrine disrupting “mixture effects” are elucidated. In order to access the food safety risk, migration of identified chemicals into food and/or appropriate food simulants is estimated.

Project financing
This project is part of a major research initiative funded by the National Food Authorities to study the mechanisms and effect of endocrine disrupting chemicals in food.

National Food Institute
Division of Food Chemistry
Division of Toxicology and Risk Assessment
Period: 01/07/2011 → 31/12/2014
Number of participants: 7
migration, mixture effect, endocrine disrupters, in vitro tests, screening analysis, identification

Project participant:
Trier, Xenia (Intern)
Hadrup, Niels (Intern)
Dybdahl, Marianne (Intern)
Vinggaard, Anne Marie (Intern)
Taxvig, Camilla (Intern)
Binderup, Mona-Lise (Intern)

Project Manager, organisational:
Petersen, Jens Højslev (Intern)

Formation and mitigation of nitroso compounds in food

National Food Institute
Period: 01/06/2011 → 30/09/2014
Number of participants: 6
Phd Student:
Herrmann, Susan Strange (Intern)
Supervisor:
Duedahl-Olesen, Lene (Intern)
Main Supervisor:
Granby, Kit (Intern)
Functional Electrospun Nanostructures and Microstructures for Food and Bioengineering Applications

The objectives of this project is to generate the scientific and technological basis to: (i) develop new nano-microcarrier systems for bioactive compounds using electrospun nano-microstructures for their immobilization, (ii) develop new nano-microdelivery systems utilizing enzyme functionality and molecular imprinted polymers for controlled delivery/release of bioactives, (iii) study the structural and functional properties of nano-microstructures (NMS) as novel components of food and bioengineered products, (iv) evaluate their bioavailability and degradation/digestion in-vitro and in-vivo.

The overall aim is to create new functional systems that have a potential usage in foods/healthy foods, as nutritional supplements, as pharmaceutical products and for a range of other bioengineering applications. The project’s ambition is also to contribute to research training in research institutes and industrial companies as well as education of industrial employees. We expect that the obtained knowledge will strengthen the Danish industry’s potential to emerging nano-microtechnologies and technologies of bioactives.

National Food Institute
Division of Industrial Food Research
Department of Chemical and Biochemical Engineering
Center for BioProcess Engineering
Period: 01/05/2011 → 31/10/2015
Number of participants: 10
Acronym: FENAMI
Project participant:
Meyer, Anne S. (Intern)
Qvortrup, Klaus (Ekstern)
Ye, Lei (Ekstern)
Goycoolea, F.M. (Ekstern)
Nielsen, Kent Albin (Ekstern)
Jessen, Flemming (Intern)
Boutrup Stephansen, Karen (Intern)
Jørgensen, Lars (Intern)
Mendes, Ana Carina Loureiro (Intern)
Project Manager, academic:
Chronakis, Ioannis S. (Intern)

Cocktail - Combination effects of endocrine disrupters

Regulation of chemical substances is traditionally based on knowledge of exposure and effects of each substance separately. This requires that one knows how much we humans are exposed to of each compound, as well as the effects of each of compound.

For the last twenty years insufficient knowledge about cocktail effects (the effects that can occur when substances are found together) and the absence of reliable tools for risk assessment of chemical mixtures has been a source of concern, both in regards to regulation of chemicals, but also concerning development of products and productions methods. The concern has been that the traditional approach to risk assess one substance at a time does not take into account the
effects that can occur when substances are found together (cocktail effects).
This concern has led to funding of a 4-year research project, the Cocktail project, supported by the Danish Veterinary and Food Administration (DVFA)

Focus cocktail project:
The focus of the project is the risk of combinations of endocrine disruptors, and the aim of the project is to provide new practical knowledge on combination effects including effects of each substance and for public exposure to these substances.

The primary objectives are:
Specific recommendations for risk assessment of mixtures of substances including:
●5-year overview of the Danish population's exposure to food chemical contaminants
●Knowledge building on combination effects of chemicals
●Knowledge building in modeling of the combination effects and exposure
●Develop strategy for evaluation of food contact materials
●New potential endocrine disruptors and development of methods to find them
●New technologies to elucidate the effect of chemicals mechanisms such as metabolomics and bioinformatics

The aim is primarily to develop tools for the assessment of combination effects that can actually be used by the DVFA in the risk assessment of chemicals. Currently, these tools are generally non-existent, even at international level, and must be developed from scratch. This means in a broader perspective, that the goal is to build knowledge, develop methods and establish a strong Danish platform at international level in food chemistry and toxicology, which provides the basis for future preparedness in food chemical safety.

The project includes 7 'work packages', each of which focuses on exposure and/or effects and/or risk assessment:
●WP 1 and 2 focuses on experimental work with the aim of generating data and knowledge on toxicological effects.
●WP 3 aims to develop mathematical models, which can be used as in a practical tool for in risk assessment of combinations/mixtures developed in WP 7

Exposure to food contaminants is included in the experimental plan in WP 4 and 6, and a practical approach for the assessment of new food contact materials will be developed in WP 5.

In WP 5 and WP 6 the studies will address toxicological effects of new potential problem substances (e.g. substances in food contact materials and mycotoxins in crops).

National Food Institute
Division of Toxicology and Risk Assessment
Division of Food Chemistry
Department of Systems Biology
Department of Management Engineering
Brunel University
University of Alberta
U.S. Environmental Protection Agency
The Food and Environment Research Agency
University of Rennes
Period: 01/05/2011 → 31/12/2014
Number of participants: 15
Acronym: Cocktail
Project participant:
Taxvig, Camilla (Intern)
Hadrup, Niels (Intern)
Petersen, Annette (Intern)
Petersen, Jens Højslev (Intern)
Rasmussen, Peter Have (Intern)
Lykkeberg, Anne Kruse (Intern)
Sharma, Anoop Kumar (Intern)
Pedersen, Gitte Alsing (Intern)
Frandsen, Henrik Lauritz (Intern)
Granby, Kit (Intern)
Pedersen, Mikael (Intern)
Binderup, Mona-Lise (Intern)
The Danish National Survey on Diet and Physical Activity

Diet and physical activity influence the incidence of widespread diseases such as cardiovascular diseases and diabetes. In order to launch focused prevention initiatives and monitor developments in the population’s health-related lifestyle we need to systematically gather knowledge about and map population dietary and activity habits.

The National Food Institute is behind the Danish National Survey of Diet and Physical Activity. The Institute conducted national dietary surveys in 1985, 1995, 2000-2008 and 2011-2013. The survey has included physical activity in the two latest surveys, which is treated in a dietary context as well as an independent research field. The survey is representative, multidisciplinary and maps the diet, physical activity and overweight of the Danish population as well as their determinants. It is a tool for assessing population nutrient intake as well as the degree to which official health policy objectives are met. It thus contributes with knowledge about the four key lifestyle factors: Diet, smoking, alcohol and physical activity in the Danish population.

The survey results have been published in several reports and in a wide range of journals and articles. The National Food Institute uses the results for consulting and research within nutrition, for example about enrichment of foods, assessment of new ingredients, in relation to dietary recommendations and to target nutritional information at the general population. Data from the dietary studies also constitute an important element in risk assessments.

The National Food Institute cooperate with a wide range of Danish and international stakeholders on improving methodologies and conducting other dietary surveys. The National Food Institute also collects supplementary dietary data for describing developments – for example through statistics data on the provision of foods.

BIOCONVAL: Integrated larvae production for feed in organic egg production

To develop and demonstrate a robust system to produce a new organic feed supplement consisting of live insect larvae with an ideal amino acid composition. The project provides a sustainable way to meet the requirement from EU for organic farms (100% organic feed by 2012) and improved animal welfare in poultry flocks. To investigate the effect of larvae growth on the microbiology of the manure, including selected pathogens and human zoonotic bacteria to assess the microbiological safety of the system. To investigate a prebiotic effect in the digestive system of poultry. To demonstrate
that the integrated ON-farm system is ideal for treating animal manure through composting with larvae and thereby recycle energy, N and P. To investigate the effect of feeding on organic meat and eggs produced with the new feed composition through taste tests and laboratory tests. To demonstrate the high value of larvae digested manure as greenhouse and garden organic fertilizer product.

National Food Institute
Division of Food Microbiology
Danish Technological Institute
Knowledge Centre for Agriculture
Aarhus University
Period: 01/04/2011 → 31/05/2014
Number of participants: 2
Acronym: BIOCONVAL (Bioconversion to value)
Project participant:
Nordentoft, Steen (Intern)
Hald, Birthe (Intern)

Financing sources
Source: Public research council
Name of research programme: Green Development and Demonstration Programme
Amount: 11,237,000.00 Danish Kroner

Risk-Benefit assessment of function foods - Focus on intestinal integrity
National Food Institute
Period: 01/03/2011 → 04/06/2014
Number of participants: 6
Phd Student:
Christensen, Ellen Gerd (Intern)
Supervisor:
Licht, Tine Rask (Intern)
Main Supervisor:
Bahl, Martin Iain (Intern)
Examiner:
Boye, Mette (Intern)
Abbeele, Pieter Van den (Ekstern)
Højberg, Ole (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Forskningsrådsfinansiering
Project: PhD

Integrated Modelling of Food Production Chains (a part of the inSPIRe Food)
A current challenge in the food industry is to improve both flexibility and productivity in the production and supply chain. In Integrated Modelling of Food Production Chains, generic, robust models suitable for industrial use will be researched and developed in a long-term collaboration with a consortium of industry partners. The models are primarily developed as tools for improving productivity and flexibility in addition to reduce waste in the food production chain. Focus will be entirely on the production line and individual unit operations e.g. cooking, baking, frying, chilling and freezing, within the factory and abandon from integrating out-of factory logistics, as this appears not to be an urgent need for the involved industrial partners.

The overall objective of the project is to develop a cross-disciplinary framework for studying and developing process optimization in relation to the food production industry. It requires an interdisciplinary approach combining food science, food engineering, industrial statistics, management and industrial production knowledge. The objective is to develop and validate through experiments robust models, which are easy to use in industry and which describe important processes. The important processes will be identified through comprehensive production analysis.

A parallel objective is to encourage production managers in the Danish food industry to systematically apply such models, whether existing or developed in this project, for improving productivity and flexibility in addition to reduce waste.

The output of the project will be multifaceted and cover both scientific and innovative issues.
• Exploring the need for data / information.
- Describing and discussing tools and techniques for the improvement of productivity and flexibility in addition to reduce waste.
- Generic, robust models and methods suitable for industrial use will be researched and developed.

National Food Institute

Research Group for Food Production Engineering
Period: 01/01/2011 → 31/12/2016
Number of participants: 5
Project participant:
Frosch, Stina (Intern)
Adler-Nissen, Jens (Intern)
Feyissa, Aberham Hailu (Intern)
Pedersen, Søren Juhl (Intern)
Christensen, Martin Gram (Intern)

Financing sources
Source: Public research council
Name of research programme: Danish Council for Strategic Research and the Danish Council for Technology (now The Danish Innovation Foundation)
Amount: 10,444,444.00 Danish Kroner

Project

Control & Surveillance of Automated Production Steps (a part of the inSPIRe Food)
Summary of project: Automation of many manual operations in the food industry is difficult, because the criteria for process control are often based on tacit knowledge of the operator. Our hypothesis is that a route to optimal automation of such operations is to register how the trained process operator makes decisions from observations of the process and combining this knowledge with predictive modelling of input/output of the process units.

Department of Applied Mathematics and Computer Science
Statistics and Data Analysis

National Food Institute

Research Group for Food Production Engineering
Image Analysis & Computer Graphics
Period: 01/01/2011 → 31/12/2016
Number of participants: 5
Project participant:
Larsen, Rasmus (Intern)
Ersbøll, Bjarne Kjær (Intern)
Frosch, Stina (Intern)
Clemmensen, Line Katrine Harder (Intern)
Larsen, Anders Boesen Lindbo (Intern)

Financing sources
Source: Public research council
Name of research programme: Danish Council for Strategic Research and the Danish Council for Technology (now The Danish Innovation Foundation)
Amount: 5,218,000.00 Danish Kroner

Project

Biobooster
To examine the potential of a new pilot scale biofilm fermenter.

National Food Institute
Division of Industrial Food Research
Grundfos A/S
Period: 01/01/2011 → 31/12/2012
Number of participants: 1
Project Manager, academic:
Establishment of Risk Based Microbiological Criteria in the Nordic Countries
Nordic project for NMDD
National Food Institute
Division of Epidemiology and Microbial Genomics
Period: 01/01/2011 → 15/02/2013
Number of participants: 1
Project ID: 12532 nmdd
Project participant:
Nauta, Maarten (Intern)

Relations
Activities:
Risk based microbiological criteria for Campylobacter

Improving health properties of food by sharing our knowledge on the digestive process
The action will gradually build a European network that will spread and improve current basic knowledge on food digestion and promote harmonization of currently used digestion models used including validation with human data from different populations such as infants, elderly, sport professionals etc. A multidisciplinary scientific community will be built on this topic gathering scientists from different disciplines (food science, nutrition, physiology, immunology, cell biology…).

National Food Institute
Division of Toxicology and Risk Assessment
Period: 01/01/2011 → 31/12/2015
Number of participants: 3
Protein, Digestion
Acronym: INFOGEST
Project participant:
Madsen, Charlotte Bernhard (Intern)
Bøgh, Katrine Lindholm (Intern)
Project Manager, organisational:
Dupont, Didier (Ekstern)

Styr på sikkerhed, kulinarisk kvalitet og bæredygtighed med IT
National Food Institute
Division of Food Microbiology
University of Copenhagen
Erhvervsakademii Sjælland
Komply A/S
Period: 01/01/2011 → 31/12/2012
Number of participants: 1
Acronym: e-food
Project participant:
Hansen, Tina Beck (Intern)

inSPIRe
National Food Institute
Period: 01/01/2011 → 31/12/2016
Number of participants: 1
Acronym: inSPIRe
MICROBESE – A novel approach to the study of the intestinal microbial ecosystem and its putative role in obesity development

Causal relationships between the large number of bacterial species present in the human gut contains potentially important information on the regulation of intestinal function. Although the broad taxonomic groups of bacteria and their physiological functions are common to all people, there is tremendous individual variation in the bacterial composition, also known as the microbiota.

As the composition of the microbiota is formed in the early years of life, it is highly relevant to analyze correlations of microbiota, diet and trends of overweight in infants, in particular, since there is a strong correlation between overweight/obesity in infants/children and associated correlated serious Western lifestyle diseases in adults. Relevant examples are Type 2 Diabetes and cardiovascular disease.

Due to technical restrictions, it has not previously been possible to effectively analyze internal bacterial patterns and relationships for a large number of samples. To this purpose, we have developed a fast, cheap and reliable "gut-low-density array" (GULDA), which utilize quantitative PCR (qPCR) to simultaneously quantify approximately 50 different selected bacterial species in a given sample of fecal DNA.

The aim of this project is to use GULDA to analyze a large number of stool samples collected at a recent cohort study at KU-LIFE of very young (0-3 years) Danish children (SKOT cohort = Småbørns KOst og Trivsel). Hopefully, this should elucidate important internal causal relationships in the microbiota and correlations between microbiota, diet and biomarkers for risk of obesity development in infants.

Project financing:
The project is fully financed by a personal post.doc grant to Anders Bergström from The Danish Agency for Science, Technology and Innovation/Technology and Production. The grant awarded was 2.181.600 DKR.

A novel approach to the study of the intestinal microbial ecosystem and its putative role in obesity development

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Project financing:
The project is fully financed by a personal post.doc grant to Anders Bergström from The Danish Agency for Science, Technology and Innovation/Technology and Production. The grant awarded was 2.181.600 DKR.
APUA: Animal Production without Antibiotics

National Food Institute
Research Group for Genomic Epidemiology
Aalborg University
University of Copenhagen
ISI Food Protection APS
BioMar A/S
Period: 01/01/2011 → 30/06/2015
Number of participants: 3
APUA, Animal Production, without Antibiotics
Project participant:
Aarestrup, Frank Møller (Intern)
Ebbensgaard, Anna Elisabeth (Intern)
Carlsson, Susanne (Intern)
Other:

Financing sources
Source: Other public support (public)
Name of research programme: GUDP
Web address: http://naturerhverv.dk/tilskud-selvbetjening/tilskudsguide/groent-udviklings-og-demonstrationsprogram-gudp/
Amount: 7,958,400.00 Pound Sterling
Project

Controlling food safety, culinary quality and sustainability with IT
Temperature conditions during production, transport and serving of ready-to-eat meals are essential for the safety of the product and it is recommended that products are kept cold at all points. This leads to stressful routines with many lifts in and out of refrigerators, but also to culinary degradation of the meals, as bread becomes dry and many vegetables loose taste intensity when they are kept cold.

With exact knowledge of the temperature conditions, it will be possible to control the process in a more appropriate way, and the need for cooling in between handling can be evaluated.

In the e-FOOD project, time- and temperature conditions will be collected, e.g. by RFID technology, and combined with mathematical models for assessing the growth potential of foodborne pathogens during temperature shifts. Based on the results, an IT-based tool will be developed for establishing safe but gentle production schemes.

For such a tool to be effective, it is important that food companies implement Good Manufacturing Practices (GMP) to minimize contamination of meals during production. The e-FOOD project intends to develop new in-line communication
methods related to this.

National Food Institute

Division of Food Microbiology

Viffos (Knowledge Centre for Food and Health)
Period: 01/01/2011 → 31/03/2013
Number of participants: 3
Acronym: e-food
Project participant:
Knøchel, Susanne (Ekstern)

Project Manager, organisational:
Hansen, Tina Beck (Intern)
Project Manager, academic:
Christensen, Bjarke Bak (Intern)

Opdatering af det videnskabelige grundlag for kostråd

National Food Institute

Division of Nutrition
Period: 01/01/2011 → 01/10/2013
Number of participants: 14
Contact person:
Knudsen, Vibeke Kildegaard (Intern)
Gondolf, Ulla Holmboe (Intern)
Project participant:
Tjønneland, Anne (Ekstern)
Astrup, Arne (Ekstern)
Trolle, Ellen (Intern)
Mejborn, Heddie (Intern)
Hermansen, Kjeld (Ekstern)
Andersen, Lars Bo (Ekstern)
Jakobsen, Marianne Uhre (Ekstern)
Schwarz, Peter (Ekstern)
Grønlund, Trine Enevold (Ekstern)
Vestergård, Tove (Ekstern)
Hejgaard, Tatjana (Ekstern)
Project Manager, organisational:
Tetens, Inge (Intern)
Documents:
referat_kostraadsbodeme_300112
referat_kostraadsbodeme_040312
referat_kostraadsbodeme_260313
referat_kostraadsbodeme_030912
referat_kostraadsbodeme_101011
referat_kostraadsbodeme_041212

Whole Genome Epidemiological Typing of Salmonella

National Food Institute
Period: 01/01/2011 → 30/09/2014
Number of participants: 6
Phd Student:
Leekitcharoenphon, Pimlapas (Intern)
Supervisor:
Lund, Ole (Intern)
Main Supervisor:
Aarestrup, Frank Møller (Intern)
Examiner:
Hasman, Henrik (Intern)
Allard, Marc William (Ekstern)
Torp Dahl, Mia (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

D vitamin i planter
National Food Institute
Division of Food Chemistry
Københavns Universitet
Period: 31/12/2010 → 30/11/2013
Number of participants: 2
Contact person:
Jäpelt, Rie Bak (Intern)
Project Manager, organisational:
Jakobsen, Jette (Intern)

Risk-benefit assessment of functional foods – Focus on vitamin D metabolism
This PhD study represents one of five PhD projects within the Mobility stipend entitled: An Integrated approach to risk-benefit assessment of the human health effects of food and food contaminants.

The aim of this project is to study the vitamin D metabolism if vitamin D is synthesized in the skin by UV B exposure and if fed by feeding vitamin D. The animal model is the mini-pigs.

For measurement specific LC-MS/MS methods will be developed and validated for vitamin D metabolites in plasma and in food i.e. organs, meat and fat.

National Food Institute
Division of Food Chemistry
Division of Toxicology and Risk Assessment
Period: 01/12/2010 → 30/11/2014
Number of participants: 4
Acronym: Vitamin D Metabolism
Contact person:
Burild, Anders (Intern)
Jakobsen, Jette (Intern)
Project participant:
Poulsen, Morten (Intern)
Frandsen, Henrik Lauritz (Intern)

Biofuels production in yeast
National Food Institute
Period: 01/12/2010 → 29/05/2017
Number of participants: 5
Phd Student:
Phadnavis, Ambareesh Govind (Intern)
Main Supervisor:
Jensen, Peter Ruhdal (Intern)
Examiner:
Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

Metabolisme af D-vitamin
National Food Institute
Period: 01/12/2010 → 03/12/2014
Number of participants: 6
PhD Student:
Burild, Anders (Intern)
Supervisor:
Frandsen, Henrik Lauritz (Intern)
Main Supervisor:
Jakobsen, Jette (Intern)
Examiner:
Ravn-Haren, Gitte (Intern)
Höller, Ulrich (Ekstern)
Rejnmark, Lars (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Forskningsrådsfinansiering
Project: PhD

Molecular markers for typing of Campylobacter based on whole genome sequences.
National Food Institute
Period: 01/12/2010 → 31/05/2016
Number of participants: 3
PhD Student:
Hansen, Marlene (Intern)
Supervisor:
Lund, Ole (Intern)
Main Supervisor:
Aarestrup, Frank Møller (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

Risk-benefit analyser af funktionelle fødevarer – Fokus på D-vitamin
National Food Institute
Division of Food Chemistry
Division of Toxicology and Risk Assessment
Department of Energy Conversion and Storage
Mixed Conductors
Period: 01/12/2010 → 30/11/2014
Number of participants: 4
Project participant:
Burild, Anders (Intern)
Poulsen, Morten (Intern)
Frandsen, Henrik Lund (Intern)
Project Manager, organisational:
Jakobsen, Jette (Intern)

Enzyme Immobilisation and Bioprocessing
National Food Institute
Period: 15/11/2010 → 04/06/2014
Number of participants: 6
PhD Student:
Alfrén, Johan (Intern)
Supervisor:
Koski, Marja (Intern)
Main Supervisor:
Hobley, Timothy John (Intern)
Examiner:
Jensen, Peter Ruhdal (Intern)
Felby, Claus (Ekstern)
Øyaas, Karin (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU)
Project: PhD

Chemistry of non-enzymatic protein modification – modulation of protein structure and function
The complexity of human life arises from some twenty thousand genes, and results due to alternative splicing mechanism in approx. 100000 proteins. By posttranslational modifications these proteins are converted into an array of some 1.5 million different functional entities. Interestingly, this conversion can either be enzymatically controlled and regulated, or may have an apparently random aspect due to non-enzymatic reactions. Proteins undergo a wide array of non-enzymatic post-translational modifications. Such modifications of proteins are often determined by their environments, their structural features and by a number of protecting structures, and also by free radicals generated in their vicinity. Non-enzymatic protein modifications are, therefore, not random, but occur in a non-regulated manner and depend largely on the protein and its environment.

National Food Institute
Division of Industrial Food Research
Period: 08/11/2010 → 07/11/2014
Number of participants: 1
Project Manager, organisational:
Baron, Caroline P. (Intern)

Infectious Triggers of Chronic Autoimmunity
The main objective of the project is to find out the links between infections and autoimmune diseases. INTRICATE examines the connection between specific bacterial infections and the autoimmune disease "Systemic Vasculitis". DTU Food contributes to the part of the project where it is investigated whether genetic variation in the bacterial Type 1 fimbrial adhesin FimH influences bacterial uptake and pathogenesis. We are specifically working on making mutations in FimH and on creating fusion proteins, which by means of fluorescent markers will make it possible to detect invading bacteria in mammalian cell lines.

Project financing:
INTRICATE is funded by the European Commission under the 7th Framework Programme.
National Food Institute
Division of Epidemiology and Microbial Genomics
Department of Systems Biology
Bacterial Ecophysiology and Biotechnology
Intricate: Infectious Triggers of Chronic Autoimmunity

The INTRICATE project has four specific aims, namely to:

1. Use novel high-throughput antigen array technology and well-characterized patient cohorts to determine whether acute infection with specific microorganisms triggers the induction or re-activation of AASV; and to ascertain whether antibody responses to microbial proteins cross-react with native or epigenetically modified self-proteins.

2. Elucidate the reasons why dysbiotic expansion of S. aureus in nasal sinuses and upper airways is linked to localised and systemic granulomatous vasculitis in AASV; and in particular to analyse the roles of microbial superantigens and the local adaptive immune response to them.

3. Analyse the mechanisms of molecular mimicry in transgenic mice expressing the human forms of LAMP-2, PR3 and MPO – the major targets of autoantibodies in AASV – by determining whether infection with bacteria that express molecular mimics induce AASV and, if so, to define under which circumstances they do so.

4. Characterise disease-associated genes identified in the European Vasculitis Genetics Consortium's genome wide association study (GWAS) of AASV and to examine their effect on gene expression and function; and to determine whether the genetic variants that predispose to AASV have been maintained in the gene pool because of a beneficial effect on resistance to infection.
Financing sources
Source: EU research programme (public)
Name of research programme: EU FP7 Health 2010
Web address: https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/fp7/calls/fp7-health-2010-single-stage.html
Amount: 5,965,086.00 Euro

Whole Genome Epidemiological Typing Of Escherichia Coli
National Food Institute
Period: 01/11/2010 → 26/01/2015
Number of participants: 7
PhD Student:
Kaas, Rolf Sommer (Intern)
Supervisor:
Lund, Ole (Intern)
Ussery, David (Intern)
Main Supervisor:
Aarestrup, Frank Møller (Intern)
Examiner:
Hendriksen, Rene S. (Intern)
Krogh, Anders Stærmose (Intern)
Underwood, Anthony (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

AniBioThreat: Bio-preparedness measures concerning prevention, detection and response to animal bioterrorism threats
The aim is to improve the EU's capacity to counter biological animal bioterrorism threats in terms of awareness, prevention and contingency.

National Food Institute
Division of Food Microbiology
Sveriges Veterinärmedicinska Anstalt
Central Veterinary Institute
Lund University
National Police Board
Swedish National Laboratory of Forensic Science
MSB Swedish Civil Contingencies Agency
Agence nationale de la sécurité sanitaire, alimentation, environnement et travail
Central Agricultural Office
Swedish University of Agricultural Sciences
Federal Institute for Risk Assessment
Period: 01/10/2010 → 30/09/2013
Number of participants: 5
Acronym: AniBioThreat
Project ID: HOME/2009/ISEC/AG/191
Project participant:
Löfström, Charlotta (Intern)
Development of a framework and mathematical models for holistic benefit-risk assessment of food

National Food Institute
Period: 01/10/2010 → 02/04/2014
Number of participants: 5
PhD Student:
Berjia, Firew Lemma (Intern)
Main Supervisor:
Nauta, Maarten (Intern)
Examiner:
Dalgaard, Paw (Intern)
Christensen, Bjarke Bak (Intern)
Hart, Andrew David McAfee (Extern)

Financing sources
Source: Internal funding (public)
Name of research programme: Forskningsrådsfinansiering
Project: PhD

Downstream processing and protein purification using magnetic adsorbents

National Food Institute
Period: 01/10/2010 → 31/07/2013
Number of participants: 2
PhD Student:
Søndergaard, Wickie (Intern)
Main Supervisor:
Hobley, Timothy John (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Anden EU-finansiering
Project: PhD

D Vitamin og prostata cancer risiko

National Food Institute
Period: 01/10/2010 → 29/04/2015
Number of participants: 9
PhD Student:
Kopp, Tine Iskov (Intern)
Supervisor:
Jakobsen, Jette (Intern)
Ravn-Haren, Gitte (Intern)
Tjønneland, Anne (Ekstern)
Vogel, Ulla Birgitte (Intern)
Main Supervisor:
Nellemann, Christine (Intern)
Examiner:
Sharma, Anoop Kumar (Intern)
Loft, Steffen (Ekstern)
Pavanello, Sofia (Ekstern)

Financing sources
Betydningen af genotyper for D-vitaminstatus

National Food Institute
Period: 01/09/2010 → 15/12/2015
Number of participants: 9
Phd Student:
Nissen, Ioanna (Intern)
Supervisor:
Andersen, Elisabeth Wreford (Intern)
Ravn-Haren, Gitte (Intern)
Vogel, Ulla Birgitte (Intern)
Wulf, Hans Christian (Ekstern)
Main Supervisor:
Andersen, Rikke (Intern)
Examiner:
Poulsen, Morten (Intern)
Linneberg, Allan (Ekstern)
Meyer, Haakon E. (Ekstern)

Quorum sensing in Roseobacter : Interactions between fish probiotic Roseobacter and fish pathogenic bacteria: Mode of action and application in aquaculture

The purpose of the project is to determine the role of QS molecules in community structure and life style of roseobacters. Specifically, we will study if their antagonistic activity and interactions with fish pathogenic bacteria can be manipulated via the QS system. We will determine if QS molecules regulate biofilm formation and production of antagonistic compounds in model systems using laboratory substrates but also in algal and rotifer cultures mimicking both the natural environment and the aquaculture scenario.

Division of Seafood Research
National Food Institute
Period: 01/09/2010 → 31/08/2012
Number of participants: 2
Project participant:
Prol García, María Jesús (Intern)
Project Manager, organisational:
Gram, Lone (Intern)

Development of a decision tool for vaccination against Campylobacter in poultry

National Food Institute
Period: 15/08/2010 → 29/01/2014
Number of participants: 7
Phd Student:
Garcia Clavero, Ana Belén (Intern)
Supervisor:
Christensen, Laurids Siig (Intern)
Madsen, Anders Læsø (Ekstern)
Main Supervisor:
Vigre, Håkan (Intern)
Examiner:
Pedersen, Karl (Intern)
Sustainable Biofuel: Innovation in Bioethanol Production Technologies
The main objective of the project is to carry out breakthrough science leading to innovations in the central production technologies for conversion of lignocellulosic biomass into second generation bioethanol. These central processes include pretreatment, hydrolysis and fermentation.

National Food Institute
Division of Industrial Food Research
Statoil ASA
Weyland AS lignocellulosic material with subsequent acid recovery
SINTEF Group, Norway
Paper and Fibre Research Institute
RISE Bioeconomy
VTT - Technical Research Centre of Finland
Matís Ltd.
Period: 01/08/2010 → 01/08/2014
Number of participants: 1
Acronym: SusBiofuels
Project participant:
Hobley, Timothy John (Intern)

Metagenomic and nano-chip-based analysis of foodborne pathogens
National Food Institute
Period: 01/07/2010 → 17/12/2010
Number of participants: 5
PhD Student:
Wangari, Romilda (Intern)
Supervisor:
Christensen, Laurids Siig (Intern)
Josefsen, Mathilde Hasseldam (Intern)
Svendsen, Winnie Edith (Intern)
Main Supervisor:
Hoorfar, Jeffrey (Intern)

Characterization of ESBL and MRSA from production animals and food products in Denmark
National Food Institute
Period: 01/06/2010 → 04/06/2014
Number of participants: 7
Phd Student:
Christiansen, Mette Theilgaard (Intern)
Supervisor:
Agersø, Yvonne (Intern)
Hasman, Henrik (Intern)
Main Supervisor:
Aarestrup, Frank Møller (Intern)
Examiner:
Cavaco, Lina (Intern)
Lindsay, Jodi A. (Ekstern)
Westh, Henrik (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

Tools for nutritional therapy
The project is part of a big project “Good food – Good life” run by the National Board of Social Service a subdivision of the Ministry of Social Welfare. The target group is old people receiving meal service. Our project consists of several steps: 1. Development of and testing nutritional screening tools 2. Development of and testing tools for nutritional therapy 3. Assessment of the current organisation of nutritional therapy 4. Improvement of the knowledge of the staff in relation to nutritional screening and therapy 5. Suggestions for quality indicators in relation to the above All steps should be coordinated with the 10 other parts of “Good food – Good life”

National Food Institute
Division of Nutrition
National Board of Social Service
Period: 31/05/2010 → 11/06/2011
Number of participants: 3
Project participant:
Kjær, Stine (Intern)
Kjær, Stine (Intern)
Project Manager, organisational:
Beck, Anne Marie (Intern)

Anden internationale Vitamin Konference
National Food Institute
Division of Food Chemistry
Technical University of Denmark
Nestle
University of Copenhagen
New Zealand Laboratory Services
University of Florida
University of Helsinki
Instituto de Ciencia de Materiales de Sevilla
Tufts University
University of Sydney
Period: 21/05/2010 → 31/10/2012
Number of participants: 2
Contact person:
CamCon: Campylobacter control - Novel approaches in primary poultry production
CamCon aims to improve the control of Campylobacter in primary poultry production in various parts of Europe and thereby enable the production of "low-risk broilers". The project places great emphasis on ensuring rapid and effective dissemination of scientific achievements to end-users, in particular the EU poultry industry. The consortium consists of 10 participants from seven countries representing various parts of Europe. The participating institutions include national diagnostic laboratories, institutions providing research and advisory services and universities. The scientists involved have a strong background in Campylobacter research and have published many original publications in the field.

National Food Institute
Division of Epidemiology and Microbial Genomics
Division of Food Microbiology
University of Liverpool
Utrecht University
National Veterinary Institute
Dianova
University of Minho
University of Newcastle upon Tyne
Centre de Recerca en Sanitat Animal
National Veterinary Research Institute
Wageningen University & Research
Period: 01/05/2010 → 30/04/2015
Number of participants: 8
Acronym: CamCon
Project ID: 244547
Project participant:
Rosenquist, Hanne (Intern)
Hald, Birthe (Intern)
Hoorfar, Jeffrey (Intern)
Josefsen, Mathilde Hasseldam (Intern)
Michaëlis, Kirsten (Intern)
Borck Hag, Birgitte (Intern)
Nauta, Maarten (Intern)
Other:
Skiby, Jeffrey Edward (Intern)

Financing sources
Source: EU research programme (public)
Name of research programme: FP7-KBBE-2009-3
Amount: 4,170,000.00 Euro
Year of approval: 2010
Project

CamCon: Campylobacter control - Novel approaches in primary poultry production (CamCon)
National Food Institute
Division of Risk Assessment and Nutrition
Period: 01/05/2010 → 01/05/2015
Number of participants: 1
Project participant:
Christensen, Julia (Intern)
Effects of endocrine disrupters on the development of mammary glands and the female reproductive system

National Food Institute
Period: 01/05/2010 → 28/08/2013
Number of participants: 7
Phd Student: Egebjerg, Karen Mandrup (Intern)
Supervisor: Boberg, Julie (Intern)
Pilegaard, Kirsten (Intern)
Main Supervisor: Hass, Ulla (Intern)
Examiner: Sørensen, Ilona Kryspin (Intern)
D'Angelo, Luca (Intern)
Fenton, Suzanne E. (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: 1/3 FUU, 1/3 inst 1/3 Andet
Project: PhD

Molecular Diagnostics of Foodborne Pathogens

National Food Institute
Period: 01/05/2010 → 18/09/2013
Number of participants: 8
Phd Student: Hansen, Trine (Intern)
Supervisor: Löfström, Charlotta (Intern)
Riber, Leise (Intern)
Vigre, Håkan (Intern)
Main Supervisor: Hoorfar, Jeffrey (Intern)
Examiner: Pedersen, Karl (Intern)
Rudi, Knut (Ekstern)
Schelin, Jenny Regina (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Anden EU-finansiering
Project: PhD

Center for genomic epidemiology

Within five years the costs for a total bacterial genome sequencing will be less than 5 000 DKK and the equipment needed will cost less than 500 000 DKK. Thus, in 5 to 10 years most clinical and industrial microbiological laboratories will have a sequencer in use on a daily basis. As prices decline to less than 1000 DKK whole genome sequencing will also find worldwide application in human and veterinary practices, in the biotech industry, as well as many other places where bacteria are handled. In Denmark alone this equals more than 100,000 isolates annually in 15-20 laboratories and globally up to half a billion isolates per year. Thus, in the future, the limiting factor will not be the cost of the sequencing, but how to assemble, process and handle the large amount of data in a standardized way that will make the information useful for diagnosis, outbreak investigation, source tracking and surveillance. The biotechnology industry and environmental microbiology will have a similar need. The proposed center will provide the bioinformatic and scientific foundation for future web-based solutions where a central database will provide simplified whole genome sequence information and enable rapid whole genome comparisons to all other sequences including spatial-temporal analysis. Thus, we will develop algorithms for rapid whole genome sequence analyses, tools for extraction of biologically and epidemiologically relevant information from the sequence data, and web-based interfaces to enable use of the system by the global scientific, public health and medical communities. The activity can be expanded to also include other microorganisms, such as viruses and...
parasites. To build up such a service and have it accepted by the medical and scientific community it must be a well-organized and stably funded project; therefore, we are applying for 6 years of funding in order to develop a strategic research centre. Following this period, we expect that these functions will be imbedded in the basic activities of the project partners.

Division of Microbiology and Risk Assessment
National Food Institute
Department of Systems Biology
Period: 01/04/2010 → 30/09/2016
Number of participants: 1
Project Manager, organisational: Aarestrup, Frank Møller (Intern)

Financing sources
Source: Public research council
Name of research programme: Det Strategiske Forskningsråd
Amount: 36,000,000.00 Danish Kroner
Project

CGE: Center for Genomic Epidemiology
The cost of sequencing a bacterial genome is $50 and is expected to decrease further in the near future and the equipment needed cost less than $150 000. Thus, within a few years all clinical microbiological laboratories will have a sequencer in use on a daily basis. The price of genome sequencing is already so low that whole genome sequencing will also find worldwide application in human and veterinary practices as well as many other places where bacteria are handled. In Denmark alone this equals more than 1 million isolates annually in 15-20 laboratories and globally up to 1-2 billion isolates per year. The limiting factor will therefore in the future not be the cost of the sequencing, but how to assemble, process and handle the large amount of data in a standardized way that will make the information useful, especially for diagnostic and surveillance.

The aim of this center is to provide the scientific foundation for future internet-based solutions where a central database will enable simplification of total genome sequence information and comparison to all other sequenced including spatial-temporal analysis. We will develop algorithms for rapid analyses of whole genome DNA-sequences, tools for analyses and extraction of information from the sequence data and internet/web-interfaces for using the tools in the global scientific and medical community. The activity is being expanded to also include other microorganisms, such as vira and parasites as well as metagenomic samples.

National Food Institute
Research Group for Genomic Epidemiology
Department of Systems Biology
Center for Biological Sequence Analysis
Period: 01/04/2010 → 30/09/2016
Number of participants: 5
Genomic Epidemiology, genome, CGE
Project participant:
Hasman, Henrik (Intern)
Hendriksen, Rene S. (Intern)
Lund, Ole (Intern)
Other:
Carlsson, Susanne (Intern)
Project Manager, academic: Aarestrup, Frank Møller (Intern)

Financing sources
Source: Public research programme (public)
Name of research programme: Innovationsfonden
Web address: http://innovationsfonden.dk/da
Amount: 11,246,579.00 Danish Kroner
Project

VISK: Reduce the burden of waterborne virus transmission during heavy rain falls
There is a concern within the KASK region over the presence and dispersion of waterborne pathogenic viruses. Consequently, there are a number of ongoing studies and research projects which will be coordinated under VISK. VISK will develop knowledge and competence for public action, which will lead to human well-being and quality of life. VISK will
be a network of competence for sustainable and safe drinking water systems, where municipalities within the KASK region and beyond can seek advice for contingency and safety plans. The VISK work packages include: project leadership, epidemiology, mapping, virus reduction, risk communication, communication strategies, as well dissemination and communication. VISK results will be collated in a communication and action plan which will be disseminated to politicians, water industry stakeholders and society. The aim is to enable correct decision-making.

National Food Institute
Division of Food Microbiology
National Veterinary Institute Sweden
National Food Administration
Länssjukhuset Ryhov
Göteborgsregionens regionalförbund
Lilla Edets Kommun
Kungälvs Kommun
Chalmars Tekniska Högskola
Svensk Vatten AB
Norsk Vann BA
Norwegian University of Science and Technology
Norwegian University of Life Sciences
Nedre Romerike Vannverk A/S
Moss Vannverk
FREVAR KF
Veterinærinstituttet
OptiMus Linemusling
Dansk Linemusling A/S
Foreningen Muslinge erhvervet.
Period: 01/04/2010 → 31/03/2013
Number of participants: 2
Acronym: VISK
Contact person:
Schultz, Anna Charlotte (Intern)
Bang-Berthelsen, Iben (Intern)

Relations
Activities:
VISK Final Conference
Project

CamVac: Campylobacter vaccination of poultry
The main objective of this project is to develop a cost-effective vaccination strategy for the poultry production, hereby reducing the colonization of Campylobacter in both parental and broiler flocks. Vaccination is one of the few measures that can be applied to reduce the colonization of Campylobacter in free range organic poultry. The project aims to identify a vaccination strategy based on reduction, since risk assessment studies have shown that a 2 log reduction of colonization in poultry can reduce the risk of human infection by 30 times.

National Food Institute
Division of Food Microbiology
Division of Epidemiology and Microbial Genomics
National Veterinary Institute
Dianova
TD Vaccines

University of Copenhagen

Utrecht University

University of Arizona

Hugin Expert

Period: 01/03/2010 → 31/12/2014

Number of participants: 18

Campylobacter, vaccination

Acronym: CamVac

Project participant:

Bang-Berthelsen, Iben (Intern)
Christensen, Laurids Siig (Intern)
Josefsen, Mathilde Hasseldam (Intern)
Vigre, Håkan (Intern)
García Clavero, Ana Belén (Intern)
Saunders, Ingelise (Ekstern)
Darsley, Mike (Ekstern)
Lund, Mogens (Ekstern)
Sandøe, Peter (Ekstern)
Cooper, Kerry (Ekstern)
Madsen, Anders (Ekstern)
Hald, Birthe (Intern)
Bahndorff, Simon (Intern)
Heegaard, Peter Mikael Helweg (Intern)

Project Manager, organisational:

Madsen, Mogens (Ekstern)
Wagenaar, Jaap (Ekstern)
Joens, Lynn (Ekstern)

Project Coordinator:

Hoorfar, Jeffrey (Intern)

Relations

Related projects:

CamCon: Campylobacter control - Novel approaches in primary poultry production

Publications:

Low-cost monitoring of campylobacter in poultry houses by air sampling and quantitative PCR.

Design and data analysis of experimental trials to test vaccine candidates against zoonotic pathogens in animals: the case of a clinical trial against campylobacter in broilers

Intestinal colonization of broiler chickens by Campylobacter spp. in an experimental infection study

Direct Quantification of Campylobacter jejuni in Chicken Fecal Samples Using Real-Time PCR: Evaluation of Six Rapid DNA Extraction Methods

Integration of Epidemiological Evidence in a Decision Support Model for the Control of Campylobacter in Poultry Production

Towards a best practice for Campylobacter prevention at farm and house level

The use of probabilistic graphical models (PGMs) to develop a cost-effective vaccination strategy against Campylobacter in poultry

Quantitative microbiological data analysis of a Campylobacter vaccination trial

Campylobacter vaccination of poultry: Clinical trials, quantitative microbiological methods and decision support tools for the control of Campylobacter in poultry

Estimation of the variation that can be attributed to different levels in a clinical trial of a vaccine against Campylobacter in broilers

Estimation of the variation that can be attributed to different levels in a clinical trial of a vaccine
Discovery and characterization of novel bioactive peptides from marine secondary products

National Food Institute
Period: 01/03/2010 → 02/07/2014
Number of participants: 7
Phd Student: Falkenberg, Susan Skanderup (Intern)
Supervisor: Jessen, Flemming (Intern)
Stagsted, Jan (Ekstern)
Main Supervisor: Nielsen, Henrik Hauch (Intern)
Examiner: Jørgensen, Bo Munk (Intern)
Kristensson, Hordur G. (Ekstern)
Rustad, Turid (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

Lactococcus lactis as microbial platform for production of biochemicals

National Food Institute
Period: 01/03/2010 → 01/06/2016
Number of participants: 6
Phd Student: Belmont, Martin (Ekstern)
Supervisor: Jensen, Peter Ruhdal (Intern)
Main Supervisor: Solem, Christian (Intern)
Examiner: Martinussen, Jan (Intern)
Neves, Ana Rute (Intern)
von Niel, Eduard Willibrordus Johannes (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Stipendie fra udlandet
Project: PhD

Molekylære typningsmetoder til fremtidens Salmonella smittekilderegnskab

National Food Institute
Period: 01/03/2010 → 22/03/2016
Number of participants: 7
Phd Student: Kjeldsen, Marianne Kirstine (Intern)
Supervisor: Nielsen, Eva Møller (Ekstern)
Torpdahl, Mia (Ekstern)
Main Supervisor: Pedersen, Karl (Intern)
Examiner: Baggesen, Dorte Lau (Intern)
Christensen, Henrik (Ekstern)
Lindstedt, Bjørn-Arne (Ekstern)
**Financing sources**  
Source: Internal funding (public)  
Name of research programme: Ansat eksternt  
Project: PhD

**The interpretation of quantitative microbiology data: meeting the demands of quantitative microbiological risk assessment**  
National Food Institute  
Period: 01/03/2010 → 18/09/2013  
Number of participants: 7  
Phd Student:  
Ribeiro Duarte, Ana Sofia (Intern)  
Supervisor:  
Aabo, Søren (Intern)  
Vigre, Håkan (Intern)  
Main Supervisor:  
Nauta, Maarten (Intern)  
Examiner:  
Dalgaard, Paw (Intern)  
Evers, Eric (Ekstern)  
Nørrung, Birgit (Intern)

**Financing sources**  
Source: Internal funding (public)  
Name of research programme: 1/3 FUU, 1/3 inst 1/3 Andet  
Project: PhD

**Kostundersøgelse blandt spæd- og småbørn 2006-2007 (SOS)**  
National Food Institute  
Division of Nutrition  
The Danish National Centre for Social Research  
Period: 01/01/2010 → …  
Number of participants: 4  
Acronym: SOS  
Project participant:  
Gondolf, Ulla Holmboe (Intern)  
Ege, Majken (Intern)  
Nielsen, Trine Holmgaard (Intern)  
Project Manager, organisational:  
Trolle, Ellen (Intern)  
Documents:  
Rapport_-_Danskernes_kostvaner-spæd-_og_småbørn-rev._12.12.13(1)

**Sustainable Biofuel: Innovations in Bioethanol Production Technologies (Sus Biofuels)**  
The main objective of the project is to carry out break-through science leading to innovations in the central production technologies for conversion of lignocellulosic biomass into second generation bioethanol. These central processes include pretreatment, hydrolysis and fermentation. The work at DTU is focusing on magnetic immobilised cellulases.

National Food Institute  
Division of Industrial Food Research  
Period: 01/01/2010 → 31/12/2014  
Number of participants: 9  
Acronym: Sus Biofuels  
Project participant:  
Hobley, Timothy John (Intern)  
Markussen, Sidsel (Ekstern)  
Øyaas, Karin (Ekstern)
Selens betydning for prostatacancerisiko blandt danske mænd
National Food Institute
Division of Food Chemistry
Kræftens Bekæmpelse
Period: 01/01/2010 → 31/12/2014
Number of participants: 2
Acronym: Selen
Number of related Ph.D. students: 1
Contact person:
Larsen, Erik Huusfeldt (Intern)
Project participant:
Outzen, Malene (Ekstern)

Functional and Safe Food Contact Materials in the Food Production
DTU national food institute will like to add to the development of new food contact materials in the food production. In cooperation with industry and other research institutions it is our aim to add to the production and use of functional and safe materials to increase chemical and microbial food safety and to reduce waste of food within the food production.

We do chemical characterization and chemical safety assessment of the materials.

The research group has many years of experience within chemical analysis and migration testing of food contact materials and the laboratory is well equipped with the aim to do analysis for known chemicals and food contaminants as well as screening analysis for unknowns. We are experts within the EU legislation in the area and are active members of the EU referencelaboratories.

National Food Institute
Division of Food Chemistry
Period: 01/01/2010 → …
Number of participants: 3
Contact person:
Pedersen, Gitte Alsing (Intern)
Petersen, Jens Højslev (Intern)
Trier, Xenia (Intern)

Assessment of dietary intake and occurrence of organochlorine pesticides and PCB in food.
Chemical environmental contaminants such as PCB and organochlorine pesticides are slowly degradable, found in the environment and accumulate in fatty tissues and can therefore be detected in our food. The compounds have been observed to develop cancer in the liver of experimental animals exposed to high daily doses of the compounds.

The aim of this project is to evaluate monitoring and survey data for organochlorine pesticides and PCB in foods. Furthermore, the aim is to monitor the levels of these contaminants in our foods and to estimate their dietary intake. The outcome of the deterministic calculations used are expressed as e.g. the mean or 95th percentile intake via food. The analytical method has been used for determination of organochlorine pesticides and PCB in milk, eggs, animal fats, fish and oils.

National Food Institute
Division of Food Chemistry
Productivity and Growth in Organic Value-Chains

Large groups of smallholder farmers in Africa have weak market links and practice unsustainable farming with little economic benefit. Organic agriculture (OA) can improve yields and natural resource management and link farmers to high value markets.

The growing organic sector is an example of private/market led development and the organic value chains have general interest. Research have demonstrated mixed experiences in terms of livelihood improvement and economic sustainability of the organic market chains due to limited capacity among chain actors, limited institutional and organisational frameworks and lack of research and adaptation of agro-ecological methods.

The project will investigate potentials and develop methods for increased productivity, growth and sustainable development in existing OA chains in pilot areas and value chains in Kenya, Uganda, and Tanzania. Research will focus on development and adoption of agro-ecological methods, integrated livestock and pest management in the chain, potentials and barriers for local value addition including reduced post-harvest losses. Other topics are market development and the need for supporting frameworks and platforms for learning alliances in a public private partnership. The objective is to build capacity for development of the OA based value chains through research and dissemination and to train a number of young researchers in applying discipline oriented methods in an agro-ecosystem and value chain framework.

Arsenolipids in fish oil, fish feed, fish and other seafood

Arsenic exists in many different chemical forms in the marine environment, of which the water-soluble arsenicals are well studied. However, knowledge regarding the so-called arsenolipids (lipid soluble arsenic compounds) is so far limited, although arsenolipids are present in considerable quantities in fish oil (reported concentrations range from 4 to 15 mg As/kg). The present project aims to generate knowledge on arsenolipids in fish oil and other marine samples, with a main aim of developing methods for the determination of arsenolipids in marine samples using capillary HPLC-ICPMS and capillary HPLC-ESI MS/MS. The results obtained within the project will be of importance to national and international food authorities in their evaluation and risk assessment of the consequences of arsenolipids for food safety and fish welfare. Furthermore, the results will also be of value for the aquaculture industry and the fishery sector.
Amlund, Heidi (Ekstern)
Sele, Veronika (Ekstern)
Project Manager, organisational:
Sloth, Jens Jørgen (Intern)

Activities:
An update on the analysis of lipid-soluble arsenic compounds in marine oils – new compounds and new challenges
Arsenic compounds in foodstuffs – recent developments in speciation analysis and food safety assessment
Speciation analysis of lipid-soluble arsenic compounds (arsenolipids) in marine oils – new compounds and new challenges

Cam-Vac: Campylobacter vaccination of Poultry (CamVac)
National Food Institute
Division of Risk Assessment and Nutrition
Period: 01/01/2010 → 22/02/2015
Number of participants: 1
Project participant:
Christensen, Julia (Intern)

Effect of bovine milk oligosaccharides on infant microbiota
Division of Microbiology and Risk Assessment
National Food Institute
Period: 01/01/2010 → 31/12/2012
Number of participants: 2
Project ID: 12436 X2
Project participant:
Andersen, Jens Bo (Intern)
Project Manager, organisational:
Wilcks, Andrea (Intern)

Financing sources
Source: Sam.arb.aftaler, Private danske - Andre virksomheder
Name of research programme: Sam.arb.aftaler, Private danske - Andre virksomheder
Source: Forsk. Andre statslige danske i øvrigt
Name of research programme: Forsk. Andre statslige danske i øvrigt

Healthy Buffet Index
Dietary interventions and research need to take consideration stakeholder motivation in all phases to facilitate program development at national level. The goal of the present study is to develop a tool for canteen personnel to evaluate the nutritional profile of the food and drinks offered in the canteen. Also, the tool should encourage caterers to make stepwise progress towards the nutritional goals of their meal politic. The HBI is based on the Healthy Meal Index (lassen et al. 2010). It divide the buffet in categories (i.e. hot and cold dishes, salads, drinks) and score each category at the time to compare with maximum score possible with respect to The 8 dietary recommendations. The HBI will be tested among 3 intervention canteens and 3 control canteens.

National Food Institute
Division of Nutrition
Technical University of Denmark
Danish Cancer Society
Period: 01/01/2010 → 31/12/2012
Number of participants: 1
Acronym: HBI
Number of related Ph.D. students: 1
Phd Student:
Improving global disease surveillance tools with a specific focus on food safety

National Food Institute
Period: 01/01/2010 → 18/11/2015
Number of participants: 3
Phd Student:
Coutinho Calado Domingues, Ana Rita (Intern)
Supervisor:
Hald, Tine (Intern)
Main Supervisor:
Aarestrup, Frank Møller (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: 1/3 FUU, 1/3 inst 1/3 Andet
Project: PhD

Keyhole certification of canteens and restaurants
In January 2012 the Danish Veterinary and Food Administration’s Keyhole certification of canteens and restaurants is launched. The Keyhole aims to ensure that it is easier to make healthy choices at work, in institutions, when eating out or travelling. The specific aim of the present study is to study opportunities and limitations for a certification scheme, and to evaluate the effect of the scheme in relation to increasing the availability and accessibility of more healthy food options.

Project financing:
the Danish Veterinary and Food Administration

External collaboration
Danish Veterinary and Food Administration. The work is based on partnerships and anchored in the food professions and a series of canteen chains and food wholesalers.

National Food Institute
Division of Nutrition

Danish Veterinary and Food Administration
Period: 01/01/2010 → 31/12/2012
Number of participants: 3
Project participant:
Mejborn, Heddie (Intern)
Gross, Gitte (Intern)

Project Coordinator:
Lassen, Anne Dahl (Intern)

Metagenomic and nano-chip-based analysis of foodborne pathogens

National Food Institute
Division of Risk Assessment and Nutrition
Period: 01/01/2010 → 31/12/2010
Number of participants: 1
Project participant:
Christensen, Julia (Intern)

MRSA and ESBL in the Danish pig production
Antimicrobial resistance is one of our greatest public health problems. Especially the emergence of Methicillin resistant Staphylococcus aureus (MRSA) and extended-spectrum beta-lactamase (ESBL) producing bacteria are considered some of the main problems. Several studies have shown that food animals can be a reservoir for these bacteria. The occurrence, spread and factors of importance hereof in Denmark are not known, which makes it difficult to determine intervention strategies. This project will determine the occurrence and spread of ESBL and MRSA in the Danish pig
production and examine the most important risk factors.

National Food Institute
University of Copenhagen
Statens Serum Institut
Danish Agriculture and Food Agency

Period: 01/01/2010 → 30/06/2013
Number of participants: 1
Project Manager, organisational:
Aarestrup, Frank Møller (Intern)

Project Nanoparticles in Food: Analytical methods for detection and characterisation

The NanoLyse project will focus on the development of validated methods and reference materials for the analysis of engineered nano-particles (ENP) in food and beverages. The developed methods will cover all relevant classes of ENP with reported or expected food and food contact material applications, i.e. metal, metal oxide/silicate, surface functionalised and organic encapsulate (colloidal/micelle type) ENP. Priority ENPs have been selected out of each class as model particles to demonstrate the applicability of the developed approaches, e.g. nano-silver, nano-silica, an organically surface modified nano-clay and organic nanoencapsulates. Priority will be given to methods which can be implemented in existing food analysis laboratories. A dual approach will be followed. Rapid imaging and screening methods will allow the distinction between samples which contain ENP and those that do not. These methods will be characterised by minimal sample preparation, cost-efficiency, high throughput and will be achieved by the application of automated smart electron microscopy imaging and screening techniques in sensor and immunochemical formats. More sophisticated, hyphenated methods will allow the unambiguous characterisation and quantification of ENP. These will include elaborate sample preparation, separation by flow field fractionation and chromatographic techniques as well as mass spectrometric and electron microscopic characterisation techniques. The developed methods will be validated using the well characterised food matrix reference materials that will be produced within the project. Small-scale interlaboratory method performance studies and the analysis of a few commercially available products claiming or suspect to contain ENP will demonstrate the applicability and soundness of the developed methods.

National Food Institute
Division of Food Chemistry

Period: 01/01/2010 → 30/09/2013
Number of participants: 2
Acronym: NanoLyse
Project participant:
Löschner, Katrin (Intern)
Larsen, Erik Huusfeldt (Intern)

Project Reproduction of European eel: Towards a self-sustained aquaculture (PRO-EEL) (38793)

Reproduction of European eel (Anguilla anguilla) in culture has become a research priority area due a severe decline of natural stocks and an increasing interest to breed eels for a self-sustained aquaculture. As eels do not reproduce naturally in captivity, development of methodology and technology was needed for production of viable eggs and larvae from broodstock in a regular and predictable way.

Focus of PRO-EEL project was on the primary bottlenecks in a controlled reproduction of eels, which concern deficiencies in knowledge about eel reproductive physiology and methods applied to induce and finalize gamete development. During a 4-year period, the project significantly expanded current knowledge on the eel reproductive mechanisms and hormonal control of sexual maturation. The consortium developed standardized protocols for assisted production of high quality gametes (egg and sperm) and artificial fertilization, thereby obtaining a stable production of viable embryos. Furthermore, egg incubation procedures and culture of yolksac larvae were established for the first time for European eel, leading to the first feeding stage. The project disseminated novel literature on early life stages, including their ontogeny and requirements thereby describing egg and larval stages still unknown in nature and providing important information for future development of larval diets and rearing technology. Methodology and technology was established using small scale tests and validated in full scale experimental facilities managed by DTU.

The project was an international, EU-funded research project characterized by an integrative and multidisciplinary approach. The consortium brought together leading experts in eel reproduction complemented by expertise in disciplines filling gaps in knowledge and technology. The consortium included 15 partners, comprising European research institutes and industry partners as well as an international collaboration partner country (ICPC). Within DTU, the project involved DTU Food, Research Group for Bioactives – Analysis and Application, and several DTU Aqua research areas including
The future approach for Salmonella source attribution
Source attribution is the process of determining what proportion of a particular disease is acquired from a given source (e.g., chicken) and through a given pathway (e.g., food or direct animal contact). Source attribution using microbial subtyping to compare isolates from humans with isolates from animals and food sources and a mathematical model that quantifies the human disease burden by comparing these distributions has recently received a considerable amount of attention. In this project, we will provide the foundation for a new concept for Salmonella source attribution based on molecular typing and mathematical modelling. The hypothesis is that we by applying molecular typing methods can obtain an improved and more conclusive identification of sources of human salmonellosis both for sporadic and outbreak-related human cases.

National Food Institute

Statens Serum Institut
Period: 01/01/2010 → 30/11/2012
Number of participants: 1
Web-reporting results from pesticide monitoring
Due to a political decision in 2010, results from the Danish pesticide monitoring will be reported on a quarterly basis.

Reporting is web-based and show results from samples representative for cereals, fresh fruit and vegetables on the Danish market.

Results show in tables. Samples with residues above the Maximum Residue Level (MRL) will be listed separately with more details.

Findings are assessed by the National Food Institute (DTU Food) regarding food safety.

A short description of the basis for the data and the assessments are included.

Tables and text will be part of the collaboration between DTU Food and the Danish Veterinary and Food Administration (Fødevarestyrelsen) on risk communication regarding pesticide residues in food.

National Food Institute
Division of Food Chemistry
Period: 01/01/2010 → 31/12/2013
Number of participants: 5
Contact person:
Jensen, Bodil Hamborg (Intern)
Project participant:
Grossmann, Annette (Ekstern)
Frandsen, Gitte Inselmann (Intern)
Johannesen, Søren (Ekstern)
Project Manager, organisational:
Andersen, Jens Hinge (Intern)
Project

Zoonotiske aspekter af Hepatitis E i Danmark
Virology
Division of Veterinary Diagnostics and Research
National Veterinary Institute
National Food Institute
FoodDTU
Statens Seruminstitute
Period: 01/01/2010 → 31/12/2012
Number of participants: 4
Project ID: 22442
Project participant:
Christensen, Laurids Siig (Intern)
Böttiger, Blenda (Ekstern)
Larsen, Hans Henrik (Ekstern)
Project Manager, organisational:
Larsen, Lars Erik (Intern)

Financing sources
Source: Forskningsprojekter - Fødevareministeriet
Name of research programme: Forskningsprojekter - Fødevareministeriet
Amount: 917,000.00 Danish Kroner
Project
WHO Advisory Group on Integrated Surveillance of Antimicrobial Resistance (AGISAR)
WHO AGISAR was established in December 2008 to support WHO’s effort to minimize the public health impact of antimicrobial resistance associated with the use of antimicrobials in food animals. The Group comprises over 30 internationally renowned experts in a broad range of disciplines relevant to antimicrobial resistance, appointed following a web-published call for advisers and a transparent selection process.

National Food Institute
Research Group for Genomic Epidemiology
Period: 15/12/2009 → …
Number of participants: 1
Acronym: AGISAR
Project participant:
Hendriksen, Rene S. (Intern)

Bacterial response to stress by biocides
National Food Institute
Period: 01/12/2009 → 18/09/2013
Number of participants: 7
Phd Student:
Seier-Petersen, Maria Amalie (Intern)
Supervisor:
Agerø, Yvonne (Intern)
Ussery, David (Intern)
Main Supervisor:
Aarestrup, Frank Møller (Intern)
Examiner:
Aabo, Søren (Intern)
Guardabassi, Luca (Ekstern)
Webber, Mark (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Forskningsrådsfinansiering
Project: PhD

Food process modeling with integration of process impact and quality mapping
National Food Institute
Period: 01/12/2009 → 04/02/2015
Number of participants: 6
Phd Student:
Christensen, Martin Gram (Intern)
Supervisor:
Løje, Hanne (Intern)
Main Supervisor:
Adler-Nissen, Jens (Intern)
Examiner:
Frosch, Stina (Intern)
Ahrné, Lilia Maria (Ekstern)
Jensen, Bo Boye Busk (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut, samfinansiering
Project: PhD

Modellering af fødevareprocesser og Kortlægning af kvalitet
National Food Institute
**Division of Industrial Food Research**

**Period:** 01/12/2009 → 31/12/2014  
**Number of participants:** 2  
**Number of related Ph.D. students:** 1  
**Project participant:**  
- Adler-Nissen, Jens (Intern)  
**Project Manager, academic:**  
- Christensen, Martin Gram (Intern)

**Project**

*Effekten af D-vitamin berigelse i danske familier*

**National Food Institute**  
**Period:** 15/11/2009 → 26/02/2014  
**Number of participants:** 8  
**PhD Student:**  
- Madsen, Katja Howarth (Intern)  
**Supervisor:**  
- Andersen, Elisabeth Wreford (Intern)  
- Andersen, Rikke (Intern)  
- Mølgaard, Christian (Ekstern)  
**Main Supervisor:**  
- Rasmussen, Lone Banke (Intern)  
**Examiner:**  
- Pedersen, Agnes N. (Intern)  
- Abrahamsen, Bo (Ekstern)  
- Meyer, Haakon E. (Ekstern)  

**Financing sources**  
- **Source:** Internal funding (public)  
- **Name of research programme:** Institut stipendie (DTU) Samf.  
- **Project:** PhD

**Electronic Transmission of Chemical Occurrence Data (CFP/EFSA/DATEX/2009/01)**

The objective of this call is that the successful applicants implement and test an electronic system for the transmission of food contaminant and eventually pesticide residues data to EFSA, according to EFSA standards.

**National Food Institute**  
**Division of Food Chemistry**  
**DFVA Regional Laboratory**  
**Period:** 01/11/2009 → 31/07/2011  
**Number of participants:** 5  
**Project participant:**  
- Jensen, Bodil Hamborg (Intern)  
- Duedahl-Olesen, Lene (Intern)  
- Sloth, Jens Jørgen (Intern)  
- Jørgensen, Kevin (Intern)  
**Project Manager, academic:**  
- Andersen, Jens Hinge (Intern)

**Financing sources**  
- **Source:** EU research programme (public)  
- **Name of research programme:** EFSA  
- **Amount:** 60,000.00 Euro  
- **Project**

**Vitamin D fortification**

Several studies have shown that vitamin D status in the general population gradually decreases over the Winter season. This project aims at studying the effectiveness of vitamin D fortification of commonly consumed foods in alleviating this reduction in vit D status in families.
Innovative Applications of marine phospholipids for development of healthy foods

National Food Institute
Period: 15/10/2009 → 24/04/2013
Number of participants: 7
Phd Student:
Lu, Henna Fung Sieng (Intern)
Supervisor:
Baron, Caroline P. (Intern)
Nielsen, Nina Skall (Intern)
Main Supervisor:
Jacobsen, Charlotte (Intern)
Examiner:
Hellgren, Lars (Intern)
Levaas, Erik (Ekstern)
Olsen, Karsten (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: 1/3 DTU-stip, 2/3 FUR/andet
Project: PhD

MagPro2Life
To demonstrate at pilot scale that magnetic adsorbents can be used for production of food, feed and farma products

Project financing:
EU framework 7, ca. 7.4 million euro to the consortium
EU framework 7, ca. 7.4 million euro to the consortium

National Food Institute
Division of Industrial Food Research
The Solae Company
Merck Research Laboratories
ETH Zurich
Karlsruhe Institute of Technology KIT
University of Salamanca
University of Birmingham
Romanian Academy
Freiberg University of Mining and Technology
National Institute for Laser, Plasma and Radiation Physics
University College Dublin
Bühler AG
ANDRITZ KMPT GmbH
Forschungszentrum für Medizintechnik und Biotechnologie GmbH
National Institute for Research and Development of Isotopic and Molecular Technologies
Period: 10/10/2009 → 10/10/2013
Number of participants: 2
Contact person:
Hobley, Timothy John (Intern)
Project Manager, organisational:
Denoo, Koen (Ekstern)
Project

**Bacterial biofilms in aquaculture : Beneficial bacterial biofilms in aquaculture – disease proection without antibiotics**

Division of Seafood Research

National Food Institute
Period: 01/10/2009 → 30/09/2012
Number of participants: 2
Project participant:
D'Alvise, Paul (Intern)
Project Manager, organisational:
Gram, Lone (Intern)

**Bioactive bacterial biofilm surfaces in aquaculture - Disease prevention without antibiotics**

National Food Institute
Period: 01/10/2009 → 27/03/2013
Number of participants: 5
Phd Student:
D'Alvise, Paul (Intern)
Main Supervisor:
Gram, Lone (Intern)
Examiner:
Bahl, Martin Iain (Intern)
Bossier, Peter Georges Madeleine (Ekstern)
Brinkhoff, Thorsten (Ekstern)

**Financing sources**
Source: Internal funding (public)
Name of research programme: Forskningsrådsfinansiering
Project: PhD

**Compliance testing of printed paper and board**
A majority of paper and board packaging used for foodstuffs are printed on at least one surface. During the last few years several food “scandals” have been connected to printing ink ingredients like ITX and Benzophenone. Since these materials are not yet covered in all details by European legislation there is a need for developing approaches, test procedures and analytical methods, which ensures that they comply with good manufacturing practise (EC regulation 2023/2006). Result of testing with official food simulants, taken from the EC plastics regulation (2002/72/EC), and those obtained by supercritical CO2 extraction will be compared. Methods will be adapted in order to ensure that migrateable substances from water, solvent- and oil based inks as well as from UV-curing printing inks can be analysed. The goal is to give advice to, or even implement procedures in, the packaging industry that ensures that food safety can be protected by
taking qualified decisions in the industry.

Division of Food Chemistry
National Food Institute
EnPro ApS
FiBaC and Mammen Emballage A/S
Period: 01/09/2009 → 30/11/2011
Number of participants: 1
Acronym: TEPP
Project Manager, organisational:
Wallström, Eva (Ekstern)
Project

**HOPE**

13 used and potential endocrine disruptive pesticides will be analysed for mechanistic effects both in QSAR, in a battery of six different vitro tests, in an ex vivo human placenta model and finally in a short-term animal study. Mixtures of selected pesticides will be studies in the different tests as well. Based on this study knowledge on the applicability of the different in vitro studies as well as the QSAR approach will be evaluated.

Division of Toxicology and Risk Assessment
National Food Institute
Aarhus University
University of Copenhagen
Period: 01/09/2009 → 30/06/2012
Number of participants: 2
Project participant:
Nellemann, Christine (Intern)
Hass, Ulla (Intern)
Project

**Optimisation of frozen pelagics quality: Mackerel as a case study**

Today herring and mackerel are often frozen either on board or immediately after landing and stored frozen for long period of time before entering the production chain. However, frozen storage leads to a significant loss in fish quality due to oxidation of the long chain omega-3 fatty acids. These quality changes result in significant loss for fish processing industries. However, how these changes correlate with factors related to the “post-frozen storage” period are not documented. Therefore the aims of this project are:

- to correlate the raw material history, composition and quality with the quality loss observed during frozen storage
- to monitor the frozen storage conditions in pelagics until they enter the production
- to identify critical points in the entire chain and propose strategies to prevent quality loss.

National Food Institute
Division of Industrial Food Research
Period: 01/09/2009 → 01/03/2011
Number of participants: 1
Project Manager, academic:
Baron, Caroline P. (Intern)
Project

**Sustainable plasticisers**

Plasticisers are additives that increase the plasticity of the materials to which they are added. Plasticisers are widely used in the plastic industry to plasticise polymers like PVC and PLA. Phthalates, based on non sustainable petrochemical raw materials are the most widely used group of plasticisers. However, phthalates have low biodegradability and negative effects on the environment, where hormonal disrupting effects on higher animals such as fish, mammals and humans is the most alarming, causing abnormalities in the reproductive system. It is therefore desirable to be able to produce alternative sustainable plasticisers the price of which, should be at competitive levels to that of phthalates. The role of Department of Toxicology and Risk Assessment in the project is evaluation of toxic properties of potential compounds generated in the project using based on structure-toxicity relationship in silico ((Q)SAR), testing of the potential genotoxicity of synthesized compound(s) in vitro, and of the potential anti-androgenic effects in vivo in prenatally exposed rats.
Methodology for combining sensory properties with additional information in consumer acceptance studies of food products

The project focuses on method development for better understanding of consumer acceptance of food products with added values related to health benefits, environment and user-friendliness. The main goal is to develop and make available statistical methods that can be used to identify the important factors for consumer acceptance, their interactions and their optimal combinations. This will be achieved through the following contents: 1) Statistical method development with focus on the combined use of experimental design and multivariate analysis 2) Development of an easy-to-use open source software package 3) Industry based method development, 4) writing scientific papers, giving courses and producing a PhD degree in Sensometrics. The industrial effect will be 1) lowering the costs of product development, 2) reduced product development time 3) higher hit rate of new products and 4) better predictions of product potential. Since most relevant Danish and Norwegian stakeholders are participating together with an interested international network in Netherlands, Australia and South Africa, the project will add to the already ongoing process of turning Denmark and Norway into one of the major international players for handling sensory and consumer data.

Analyses of data on antimicrobial resistance in certain zoonotic agents and indicator organisms derived from human cases, animals and food in the European Union from year 2008

The objective is to conduct detailed analyses on antimicrobial resistance data on Salmonella, Campylobacter, E. coli and Enterococci from animals and food as reported under the Directive 2003/99/EC (Zoonoses Directive) in 2008. The analyses will focus on descriptive analyses of antimicrobial resistance development among Salmonella, Campylobacter and indicator organisms (E. coli and Enterococci). Temporal trends are analysed both at Member State (MS) level and Community level by including available information from 2004 through 2007. For Salmonella and Campylobacter from animals and food the antimicrobial resistance will be compared to isolates from humans. The results of the analyses will be compared to available data on antimicrobial consumption in animals. The project is done in close collaboration with the European Food Safety Authority (EFSA).
**Applying image analysis as a new tool for understanding the processes behind dermal tissue damage and regeneration**

National Food Institute  
**Period:** 01/08/2009 → 28/02/2010  
**Number of participants:** 4  
**Project participant:**  
Vieira, Antonio (Intern)  
Christiansen, Pia (Intern)  
Bielak, Eliza Maria (Intern)  
**Project Manager, organisational:**  
Emborg, Hanne-Dorthe (Intern)  

**Project**

**Bacterial Impact on Gut Metabolomics**  
The complex ecosystem of microbes inhabiting the human gut plays an important role for human health. An increasing number of publications show that the composition and activity of our intestinal microbiota affects a number of so-called lifestyle diseases including allergy, obesity, colorectal cancer, and susceptibility to intestinal infections. Additionally, it has become evident that the intestinal microbiota can be modulated by intake of probiotic bacteria or prebiotic carbohydrates. Recently developed approaches allow simultaneous mapping of multiple bacterial metabolites present in gut contents. Our intention is to use these stage-of-the-art approaches to elucidate the impact of selected bacteria and carbohydrates, which will be supplied by dietary interventions, on the intestinal metabolome. For this purpose, we will use gnotobiotic animal models, which allow establishment of a simple, well-defined intestinal microbiota.

National Food Institute  
**Period:** 01/08/2009 → 18/12/2013  
**Number of participants:** 6  
**Phd Student:**  
Schmidt, Jacob Günther (Intern)  
**Supervisor:**  
Ersbøll, Bjarne Kjær (Intern)  
**Main Supervisor:**  
Nielsen, Michael Engelbrecht (Intern)  
**Examiner:**  
Madsen, Charlotte Bernhard (Intern)  
Hammerschmidt, Matthias (Ekstern)  
Lindenstrøm, Thomas (Ekstern)  

**Financing sources**  
Source: Internal funding (public)  
Name of research programme: 1/3 FUU, 1/3 inst 1/3 Andet  
**Project:** PhD

**Bacterial Impact on Gut Metabolomics**  
The complex ecosystem of microbes inhabiting the human gut plays an important role for human health. An increasing number of publications show that the composition and activity of our intestinal microbiota affects a number of so-called lifestyle diseases including allergy, obesity, colorectal cancer, and susceptibility to intestinal infections. Additionally, it has become evident that the intestinal microbiota can be modulated by intake of probiotic bacteria or prebiotic carbohydrates. Recently developed approaches allow simultaneous mapping of multiple bacterial metabolites present in gut contents. Our intention is to use these stage-of-the-art approaches to elucidate the impact of selected bacteria and carbohydrates, which will be supplied by dietary interventions, on the intestinal metabolome. For this purpose, we will use gnotobiotic animal models, which allow establishment of a simple, well-defined intestinal microbiota.
**Bacterial Impact on the Gut Metabolome**

National Food Institute  
Period: 01/08/2009 → 06/02/2013  
Number of participants: 6  
PhD Student:  
Sulek, Karolina (Intern)  
Supervisor:  
Skov, Thomas Hjort (Intern)  
Smedsgaard, Jørn (Intern)  
Main Supervisor:  
Licht, Tine Rask (Intern)  
Examiner:  
Bahl, Martin Iain (Intern)  
Dragsted, Lars Ove (Ekstern)

**Financing sources**  
Source: Internal funding (public)  
Name of research programme: Institut stipendie (DTU) Samf.  
Project: PhD

**Effekter af kulhydrater på tarmens mikrobiologi**

National Food Institute  
Period: 01/08/2009 → 31/07/2011  
Number of participants: 4  
PhD Student:  
Hemmingsen, Lene (Intern)  
Supervisor:  
Meyer, Anne S. (Intern)  
Wilcks, Andrea (Intern)  
Main Supervisor:  
Licht, Tine Rask (Intern)

**Financing sources**  
Source: Internal funding (public)  
Name of research programme: Forskningsrådsfinansiering  
Project: PhD

**Antibiotics and listeria monocytogenes : Development of bacterial tolerance to antibiotics – a bottleneck in current and future anti-microbial therapy**

Division of Seafood Research  
National Food Institute  
Food Production Engineering
MARB: A mechanism for alcohol related breast cancer. Implication of PPARg activity in alcohol related breast cancer

Alcohol is an important risk factor for breast cancer, especially in Denmark, where women have a high alcohol intake and a high breast cancer incidence. We have found that PPARg activity is associated with a high rate of alcohol related breast cancer whereas genetically determined low PPARg activity confers protection against alcohol related breast cancer among postmenopausal women. In postmenopausal women, estrogens are synthesized in the adipose tissue. Adipocyte steroid synthesis is inhibited by PPARg. We believe that alcohol intake modifies a PPARg dependent regulation of estrogen biosynthesis. The present application aims at establishing whether PPARg activity is a determinant for alcohol related breast cancer. It is very important to clarify this relationship, since several types of medication including over-the-counter medication may enhance alcohol related breast cancer through activation of PPARg.

National Food Institute
Danish Cancer Society
University of Copenhagen

Ny nordisk mad og måltider - udvikling og validering af en velegnet kostundersøgelsesmetode til 8-10 årigt børn

National Food Institute

Financing sources
Source: Internal funding (public)
Name of research programme: Eksternt finansieret virksomhed
Project: PhD
Global surveillance of Salmonella in animals, food and humans: Identification of major sources and analysis of global trends

The objectives are to provide an overview of Salmonella serovars in different countries and regions, evaluate trends over the years and analyze the worldwide epidemiology of the various serovars. The overall aim is to estimate the attribution of the global burden of human salmonellosis on the various animal-food sources, by: 1) Reviewing the Salmonella serovar distribution in animal reservoirs to obtain the expected distribution and prevalence of Salmonella serovars in different countries, by animal host. 2) Developing a Global Atlas of Food Consumption from several food consumption databases worldwide, which will provide data on the estimated consumption of animal-originated food items in different countries/regions. 3) Use the Global Livestock Production and Health Atlas (GLiPHA) to provide data on global distribution of animal hosts and other possible animal-originated sources of Salmonella contamination. The project is done in close collaboration with WHO, and supports the WHO initiative to estimate the global burden of foodborne disease (FERG).

Division of Microbiology and Risk Assessment

National Food Institute

World Health Organization
Period: 01/04/2009 → 02/03/2012
Number of participants: 5
Project participant:
de Knegt, Leonardo (Intern)
Aarestrup, Frank Møller (Intern)
Pires, Sara Monteiro (Intern)
Lo Wong, Danilo (Ekstern)

Project Manager, organisational:
Hald, Tine (Intern)

Global surveillance of Salmonella in animals, food and humans: Identification of major sources and analysis of global trends

National Food Institute
Period: 01/04/2009 → 29/05/2013
Number of participants: 6
Phd Student:
de Knegt, Leonardo (Intern)
Supervisor:
Pires, Sara Monteiro (Intern)
Main Supervisor:
Hald, Tine (Intern)
Examiner:
Hendriksen, Rene S. (Intern)
Döpfer, Dörte D.V. (Ekstern)
Ricci, Antonia (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

Gluten and celiac disease – a specific food-disease association

Division of Toxicology and Risk Assessment

National Food Institute
University of Southern Denmark
Novozymes A/S
University College Cork
Period: 01/04/2009 → 30/06/2014
Number of participants: 1
Project Manager, organisational:
Madsen, Charlotte Bernhard (Intern)
Spectrum and Activity of novel antomicrobial peptidomimetics

National Food Institute
Period: 01/03/2009 → 23/05/2012
Number of participants: 5
Phd Student:
Hein-Kristensen, Line (Intern)
Main Supervisor:
Gram, Lone (Intern)
Examiner:
Molin, Søren (Intern)
Peschel, Andreas (Ekstern)
Thomsen, Line Elnif (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: 1/3 FUU, 1/3 inst 1/3 Andet
Project: PhD

Sensory food satisfaction in promoting healthy and sustainable eating behaviour
Satisfaction with food and sensory palatability play an important role in food choices and food intake and thus the nutritional quality of our diets. Expectations and experience with different foods contribute to the ways we make choices and compile our meals. Previous studies have looked at food intake from homeostatic viewpoints but have overlooked sensory and affective influences that may be utilised in changing food behaviours. The project aims therefore to study the impact of sensory experiences from foods on perceived satisfaction and food intake both during consumption and between eating occasions. In total four areas are addressed in the project to improve the understanding of food satisfaction in eating behaviour: 1) the development of new methods for measuring satisfaction with foods and meals including sensory palatability, physiological factors and consumer responses; 2) the role of food composition and complexity (texture, flavour and nutrient-density) on intake; 3) satisfaction with meals and food intake in realistic eating situations; and 4) the estimation of the environmental and economic impact for food categories where lower consumption may be achieved. The project will provide new insights in positive and negative feedback in human eating behaviour from sensory, affective and nutritional viewpoints, and thus providing the food industry and policy makers with new knowledge on foods that fit with more sustainable lifestyles.

National Food Institute
Research Group for Bioactives – Analysis and Application
Period: 01/01/2009 → 30/06/2015
Number of participants: 3
Acronym: SensWell
Project participant:
Hyldig, Grethe (Intern)
Marie B. Green Petersen, Ditte (Ekstern)
Andersen, Barbara Vad (Intern)

Financing sources
Source: Public research council
Name of research programme: The Danish Council for Strategic Research
Amount: 18,121,114.00 Danish Kroner
Project

SensNet
National Food Institute
Research Group for Bioactives – Analysis and Application
Period: 01/01/2009 → 30/06/2015
Number of participants: 2
Acronym: SensNet
Grundlag for anbefalinger for sund mad i vuggestuer og børnehaver

National Food Institute

Division of Risk Assessment and Nutrition

Period: 01/01/2009 → 30/11/2009

Number of participants: 1

Project participant:
Christensen, Lene Møller (Intern)

Analyses of data on Salmonella serovars and phage types derived from animals and food in the European Union

The objective is to analyse in detail Salmonella serovar and phage typing surveillance data as reported under the Directive 2003/99/EC (Zoonoses Directive) and through the completed EU-wide baseline studies. The analysis will focus on the main relevant epidemiological findings based on frequency and spatial distributions of Salmonella serovars and phage types isolated from animals, food, feed and humans in EU. Special attention will be given to analyse the data in order to investigate the contribution of each animal-food source to human salmonellosis i.e. a source attribution analysis. The project is done in close collaboration with the European Food Safety Authority (EFSA).

Division of Microbiology and Risk Assessment

National Food Institute

Period: 01/01/2009 → 31/03/2010

Number of participants: 3

Project participant:
de Knegt, Leonardo (Intern)
Pires, Sara Monteiro (Intern)

Project Manager, organisational:
Hald, Tine (Intern)

Antifouling marine bacteria

Division of Seafood Research

National Food Institute

Period: 01/01/2009 → 31/12/2012

Number of participants: 3

Project participant:
Bernbom, Nete (Intern)
Ng, Yin (Intern)

Project Manager, organisational:
Gram, Lone (Intern)

Aquatic Resources as a Source of Potential Natural Antioxidants for Food Industry

It is well documented that long-chain polyunsaturated omega-3 fatty acids (omega-3 PUFA) have a range of beneficial health effects such as reducing artherosclerosis, prevention and treatment of numerous disorders like cardiovascular disease, cancer, diabetics, mental illness etc.

At the same time they are very susceptible to lipid oxidation that not only causes deterioration of food sensory quality, but also contributes to carcinogenesis, atherosclerosis and aging processes in humans. Hence, the oxidative instability of omega-3 fatty acids often limits their use as nutritionally beneficial lipids in fish oil enriched foods. Addition of antioxidants that scavenge free radicals and control pro-oxidative metals is used to retard lipid oxidation.
Many of the most commonly used antioxidants are synthetic compounds, which have been reported to possess carcinogenic effect in humans and there is, therefore a need to find potent and safer natural antioxidants.

Many living organisms in the marine environment are rich in omega-3 PUFA. Our hypothesis is therefore that these marine organisms are rich in natural antioxidants that are able to protect them against lipid oxidation and that these antioxidants can be used to protect foods against oxidation.

Objectives
The overall goal of the project is to identify natural compounds with antioxidant activity from aquatic resources such as marine algae, bacteria, fungi, peptides isolated from fish waste and to evaluate potential applications of these novel compounds to enhance oxidative stability, flavor quality and nutritional value of foods enriched with omega-3 fatty acids and seafood based products.

This will be achieved by:

Screening extracts from aquatic resources like marine algae, bacteria, fungi and peptides isolated from fish waste for their antioxidative mechanisms and properties and identifying the most promising sources of antioxidants.

Evaluating the antioxidant properties of the most promising antioxidant sources in different foods systems enriched with omega-3 fatty acids such as milk, dressing and seafood.

Project financing:
Danish research council for Technology and production (FTP)
National Food Institute
Division of Industrial Food Research
Department of Systems Biology
Bacterial Ecophysiology and Biotechnology

Metabolomics Platform
Period: 01/01/2009 → 31/12/2012
Number of participants: 6
Acronym: Potential natural antioxidants
Contact person:
Jacobsen, Charlotte (Intern)
Project participant:
Gram, Lone (Intern)
Jessen, Flemming (Intern)
Nielsen, Henrik Hauch (Intern)
Nielsen, Kristian Fog (Intern)
Project Manager, organisational:
Farvin Habeullah, Sabeena (Intern)
Project

Bioactivity of marine bacterial genus Pseudoalteromonas
National Food Institute
Period: 01/01/2009 → 25/04/2012
Number of participants: 5
Phd Student:
Vynne, Nikolaj Grønnegaard (Intern)
Main Supervisor:
Gram, Lone (Intern)
Examiner:
Hasman, Henrik (Intern)
Burgess, James Grant (Ekstern)
Givskov, Michael Christian (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: 1/3 FUU, 1/3 inst 1/3 Andet
Project: PhD
Biocide: Biocide Resistance; An emerging threat to public health
Biocides are chemical substances capable of killing or inhibiting bacteria and their use have become an integrated part of the industrialized world. The potential negative effects of biocides on development of virulence and antimicrobial resistance in bacteria is to a large extent unknown. The purpose of this project is to determine the response of bacteria to selected biocides. The work will include studies of bacterial gene transcription, as well as determination of mutation-rates and horizontal gene-transfer when exposed to different biocides.

Department of Systems Biology
National Institute of Aquatic Resources
National Food Institute
Research Group for Genomic Epidemiology
University of Copenhagen
Hvidovre Hospital

DHI
Period: 01/01/2009 → 01/05/2015
Number of participants: 2
Biocides, Resistance, Biocides resistance
Other:
Carlsson, Susanne (Intern)
Project Manager, academic:
Aarestrup, Frank Møller (Intern)

Financing sources
Source: Other public support (public)
Name of research programme: Innovationsfonden
Web address: http://innovationsfonden.dk/da
Amount: 14,993,406.00 Danish Kroner

Biocides and Listeria monocytogenes: Biocide resistance: an emerging threat to public health
Biocide resistance in bacteria is a developing phenomenon and has been linked to antibiotic resistance. In this project, we will determine how sublethal concentrations of biocides affect tolerance development, antibiotic resistance and virulence changes. At Aqua we work with Listeria monocytogenes, but the project group also adresses Staphylococcus aureus, Salmonella and other Gram-negative bacteria.

Division of Seafood Research
National Food Institute

Department of Systems Biology
University of Copenhagen
Period: 01/01/2009 → 31/12/2012
Number of participants: 6
Contact person:
Kastbjerg, Vicky Gaedt (Intern)
Gram, Lone (Intern)
Project participant:
Aarestrup, Frank Møller (Intern)
Agersø, Yvonne (Exttern)
Halberg, Marianne (Exttern)
Project Manager, organisational:
Ingmer, Hanne (Exttern)

Biomonitoring and food
We are daily exposed to chemicals from our surroundings and an important source is food and drinking together with smoking, consumables and packaging or medicine. The exposure for many harmful compounds such as persistent organic pollutants and heavy metals is primary through the diet. The relationship between the exposure through the diet
and the surroundings can be elucidated through biomonitoring. The health effects caused by the chemicals exposed for can be a result of complex interactions between genes and exposure, in cases concerning cancer, neurotoxicity, hormone disturbance and reproduction damaging compounds. However surveillance of essential and non-nutritive health promoting compounds is also important for an overall evaluation of the impact of the exposure of chemicals on the health.

Biomonitoring of the content of polluting chemicals and essential and non-nutritive compounds in food at DTU FOOD is done through development and validation of chemical analytical methods for determination of a wide range of polluting compounds, macro-compounds, essential and non-nutritive trace elements using techniques based on the coupling between chromatography and mass spectrometry: HPLC-ICPMS (organic metallic compounds), HPLC-ESI-MSMS (non-volatile compounds), GS-MS (volatile compounds) and GC-HRMS (Dioxins; PCB and quality assurance/verification).

National Food Institute
Division of Food Chemistry
Novo Nordisk Foundation Center for Biosustainability
Period: 01/01/2009 → 31/12/2013
Number of participants: 10
Project participant:
Granby, Kit (Intern)
Larsen, Erik Huusfeldt (Intern)
Jakobsen, Jette (Intern)
Petersen, Jens Højselev (Intern)
Duedahl-Olesen, Lene (Intern)
Frandsen, Henrik Lauritz (Intern)
Cederberg, Tommy Licht (Intern)
Fromberg, Arvid (Intern)
Christensen, Hanne Bjørre (Intern)
Project Manager, organisational:
Hedegaard, Rikke Susanne Vingborg (Intern)

Bisphenol A migration into foodstuffs and food simulants
Bisphenol A is a major industrial chemical used in the production of different food contact materials where the main applications are polycarbonate plastics and epoxy-phenolic resins. Polycarbonate is widely used in infant feeding bottles and in some tableware whereas epoxy resins are used as internal lining for food and beverages cans and other articles. Bisphenol A is an estrogenic endocrine-disrupting chemical. The actual specific migration limit is 0.6 mg/kg food based on a temporary TDI of 0.01 mg/kg bw. The aim of this project is to determine the level of bisphenol A migration into selected foods and food simulants to estimate the human exposure to bisphenol A in the Danish population. Development and validation of an analytical method with LC-MS/MS is a part of this project.

National Veterinary Institute
Division of Food Chemistry
National Food Institute
Period: 01/01/2009 → 31/12/2010
Number of participants: 1
Project Manager, organisational:
Pedersen, Gitte Alsing (Intern)

Bisphenol A migration into foodstuffs and food simulants
Bisphenol A is a major industrial chemical used in the production of different food contact materials where the main applications are polycarbonate plastics and epoxy-phenolic resins. Polycarbonate is widely used in infant feeding bottles and in some tableware whereas epoxy resins are used as internal lining for food and beverages cans and other articles. Bisphenol A is also used in printing inks and can become a contaminant in food contact materials of paper and board from recycled fibres.

Bisphenol A is an estrogenic endocrine-disrupting chemical. The actual specific migration limit is 0.6 mg/kg food.

The aim of this project is to determine (by the use of an accredited LC-MS/MS method) the level of bisphenol A migration into selected foods and food simulants to estimate the human exposure to bisphenol A in the Danish population.

National Food Institute
**Division of Food Chemistry**

Danish Veterinary and Food Administration  
Period: 01/01/2009 – 31/12/2010  
Number of participants: 1  
Acronym: Bisphenol A migration  
Project Manager, organisational:  
Pedersen, Gitte Alsing (Intern)  

**Project**

Contaminant mixtures and reproductive health: Development toxicity effects in rats after mixed exposure to environmentally relevant endocrine disrupti

National Food Institute  
Period: 01/01/2009 – 29/05/2013  
Number of participants: 6  
Phd Student:  
Jacobsen, Pernille Rosenskjold (Intern)  
Supervisor:  
Christiansen, Sofie (Intern)  
Main Supervisor:  
Hass, Ulla (Intern)  
Examiner:  
Madsen, Charlotte Bernhard (Intern)  
Andersson, Anna-Maria (Ekstern)  
Fowler, Paul A. F. (Ekstern)  

**Financing sources**

Source: Internal funding (public)  
Name of research programme: Institut stipendie (DTU) Samf.  
Project: PhD

**Cultivation of mushrooms with natural content of vitamin D**

In this project the scientific basis for cultivation of fresh mushrooms with a natural high content of vitamin D by exposure of UVB-light will be developed. Exposure of UVB-light will increase vitamin D content to the same high content of vitamin D in cultivated mushrooms as in wild mushrooms.

Division of Food Chemistry  
National Food Institute  
Aarhus University  
Period: 01/01/2009 – 31/12/2010  
Number of participants: 1  
Project Manager, organisational:  
Jakobsen, Jette (Intern)  

**Project**

**Dansk Produktion af økologiske Ørred i Havbrug – Effekt af tæthed på Sundhed, Velfærd og Kvalitet**

National Food Institute  
Division of Industrial Food Research  
Division of Toxicology and Risk Assessment  
Period: 01/01/2009 – 31/12/2011  
Number of participants: 3  
Acronym: DANQUAL  
Project ID: 12508  
Number of related Ph.D. students: 1  
Project participant:  
Nielsen, Michael Engelbrecht (Intern)  
Wulff, Tune (Intern)
Nielsen, Lars Birger (Ekstern)

Relations
Publications:
- Tissue damage in organic rainbow trout muscle investigated by proteomics and bioinformatics.
- Tandem mass spectrometry for species recognition and phenotyping in fish.
- Previous bacterial infection affects textural quality parameters of heat-treated fillets from rainbow trout (Oncorhynchus mykiss).

Project

Dietary exposure 2009-2013 to endocrine disrupters
Obesity has increased substantially in the past two decades. Improper nutrition and inactivity, together with genetic predisposition, are known to be important causal factors, but cannot entirely account for these trends. Increasing evidence suggests that developmental exposure to environmental pollutants with hormonal activity, whose production and use has increased simultaneously with the rise in these conditions, may play a role. Studies have suggested that dietary exposure to low doses of endocrine disrupting chemicals (EDCs) in early periods of vulnerability may increase the risk of obesity in adult life. Also, most EDCs accumulate in fat tissue, which is of great concern since it is now known that body fat is not merely a depot for storage of triglycerides, but an endocrine gland crucially involved in energy regulation. Therefore it is plausible, even likely, that EDC accumulation in adipose tissue could disrupt such functions as fat storage, fat distribution, and appetite signalling. We plan to study early markers of the metabolic syndrome in relation to the body burden of chemicals in four longitudinal cohorts in whom we have longitudinal measures of growth and metabolism during various stages of development. In addition we test relevant mixtures of chemicals in cellular models of interest for obesity development.

Division of Toxicology and Risk Assessment
National Food Institute
University of Southern Denmark
University of Copenhagen
University of Rochester
Faroese Hospital System
University of Missouri
Period: 01/01/2009 → 31/12/2013
Number of participants: 2
Project participant:
- Nellemann, Christine (Intern)
- Taxvig, Camilla (Intern)

Dietary exposure to environmental pollutants and the risk of obesity
The obesity epidemic is known being caused by improper nutrition and inactivity, together with genetic predisposition, but it is generally agreed that these factors alone cannot entirely account for the epidemic.

The obesogen hypothesis suggests that dietary exposure to low doses of endocrine disrupting chemicals (EDCs) in early periods of vulnerability may increase the risk of obesity in adult life. Also, most EDCs accumulate in fat tissue, which is of concern since it is known that body fat is not merely a depot for storage of triglycerides, but an endocrine gland crucially involved in energy regulation.

We study early markers of the metabolic syndrome in relation to the body burden of chemicals in four longitudinal cohorts in whom we have longitudinal measures of growth and metabolism during various stages of development. In addition we test relevant mixtures of chemicals in cellular models of interest for obesity development.

National Food Institute
Division of Toxicology and Risk Assessment
University of Southern Denmark
University of Copenhagen
University of Rochester
Food Survey of Fruits and Vegetables
A food survey of fruits and vegetables on the Danish market are being performed in 2009 leading to a detailed sampling plan of fruits and vegetables for analysis of nutrients to the Danish food composition databank.

Genetic variation and treatment outcome in Multiple Myeloma Patients

Inflammatory pathways in Inflammatory Bowel Disease and Colorectal Cancer.
Novel antibiotic peptidomimetics

Division of Seafood Research
National Food Institute

Department of Systems Biology
Period: 01/01/2009 → 31/12/2012
Number of participants: 2

Project participant:
Gram, Lone (Intern)
Hein-Kristensen, Line (Intern)

Nutrients in milk and dairy products

A food survey of milk and dairy products on the Danish market have been performed in 2004 leading to a detailed sampling plan of mainly Danish produced milk and dairy products. The analytical project have started. 180 samples are being sampled. Most samples are purchased in ordinary consumer stores and have been analysed for nitrogen, fat, fatty acids, dry matter, ash, sugars, starch, dietary fiber, retinol, vitamin D3, 25-OH-D3, tokoferol, thiamin, riboflavin, vitamin B6, folate, niacin, pantothenic acid, biotine, folate, vitamin B12, ascorbic acid, dehydrosacorbic acid, sodium, potassium, calcium, magnesium, iron, copper, zinc, manganese, phosphorus, chloride, nickle, chromium, cadmium, selenium, iodine and cholesterol.

National Veterinary Institute
Division of Food Chemistry
National Food Institute

Period: 01/01/2009 → 31/12/2011
Number of participants: 2

Project participant:
Saxholt, Erling (Intern)

Knuthsen, Pia (Intern)

Optimal well-being, development and health for Danish children through a healthy New Nordic

The overall aim is to develop a New Nordic Diet and evaluate it's effects on dietary intake, health, and learning abilities in healthy Danish school children. The task of the National Food Institute is to develop and validate a suitable dietary assessment method for children aged 8-10 yrs and in close collaboration with another project partner to ensure that the New Nordic Diet fulfills the nutrient recommendations and food-based dietary guidelines. Further, the National Food Institute is responsible for measurements of dietary intake and physical activity in the school interventions.

Division of Nutrition
National Food Institute
University of Copenhagen
Aarhus University

Period: 01/01/2009 → 31/12/2013
Number of participants: 4

Project participant:
Biltoft-Jensen, Anja Pia (Intern)
Thorsen, Anne Vibeke (Intern)
Hoppe, Camilla (Intern)
Tetens, Inge (Intern)
**Optimal well-being, development and health for Danish children through a healthy New Nordic**

The overall aim is to develop a New Nordic Diet and evaluate its effects on dietary intake, health, and learning abilities in healthy Danish school children. The task of the National Food Institute is to develop and validate a suitable dietary assessment method for children aged 8-10 yrs and in close collaboration with another project partner to ensure that the New Nordic Diet fulfills the nutrient recommendations and food-based dietary guidelines.

Further, the National Food Institute is responsible for measurements of dietary intake and physical activity in the school interventions.

**Project financing:**
Nordea Denmark Foundation
National Food Institute
Division of Nutrition
University of Copenhagen
Gentofte University Hospital
Aarhus University

**Period:** 01/01/2009 → 31/12/2013
**Number of participants:** 4
**Acronym:** OPUS
**Contact person:**
Hoppe, Camilla (Intern)
Tetens, Inge (Intern)
Thorsen, Anne Vibeke (Intern)

**Project participant:**
Astrup, Arne (Ekstern)

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**Prevention of viruses in fruit and vegetables by using indicator bacteria**

Human noroviruses, causing vomiting and diarrhea are the most commonly detected food-borne viruses. Increased global export has resulted in increased risk for large-scale outbreaks that are difficult to detect. Virus detection in food requires specialized expertise that is not available in most laboratories charged with quality control of food. While regulations are in place to monitor the microbiological quality of food, the criteria in use has been developed based on properties of live bacteria. Viruses behave quite differently and may remain intact under circumstances in which bacterial contaminants would be killed. The aim is to develop an assay that makes it possible to assure products free of fecal viruses and hence increase food safety. This will be achieved by genome determination of human specific Bacterioides.

**Division of Microbiology and Risk Assessment**
National Food Institute
Danish Technological Institute
Frigodan
European Freeze Dry

**Period:** 01/01/2009 → 31/12/2010
**Number of participants:** 8
**Project participant:**
Baggesen, Dorte Lau (Intern)
Damgaard, Trine-Maria (Ekstern)
Friis-Holm, Lotte Bjerrum (Ekstern)
Madsen, Jeanette (Ekstern)
Andersen, Susan Hein (Ekstern)
Ragone, Carlos (Ekstern)

**Project Manager, organisational:**
Schultz, Anna Charlotte (Intern)
Lorenzen, Jan (Ekstern)
Reproduction of European eel in aquaculture: Consolidation and new production methods (REEL) (38398)

Project aim: Enhance methods and technology applied to produce and culture European eel larvae as basis for the development of a future self-sustained eel aquaculture.

Background: The severe decline of the European eel stock calls for conservation measures including national eel management plans and establishment of a self-sustained eel aquaculture. In 2005, DTU Aqua, University of Copenhagen and the eel aquaculture industry started to build up a research and technology platform for the development of methods to reproduce European eel in aquaculture.

Two major projects: Artificial Reproduction of Eels II and III (ROE II and III) succeeded during 2005-2008 to produce viable eggs and larvae that lived up to 12 days. The larvae thereby accomplished the yolk sac stage and became ready to start feeding. The results were in particular promising because they evidenced that methods successfully applied to Japanese eel have a potential for application also to European eel. ROE II and III LC were supported by the Danish Ministry of Food, Agriculture and Fisheries and the Financial Instrument for Fisheries Guidance (FIFG) and RO III by the Danish Food Research Program 2006.

Results: The REEL project has accomplished through three series of experiments to consolidate previous results and extend the longevity of larvae from 12 to 20 days after hatch in first feeding experiments. Methods to induce maturation were further tested, and farmed and wild eel broodstocks and different treatments were compared. In particular, fertilization procedures to produce fertilized eggs and embryos and monitoring techniques were enhanced. The technology needed to culture embryos and larvae was substantially improved. The potential for new hormonal treatments was explored and recombinant eel hormones have been produced. New broodstock diets were developed with focus on the lipid composition essential for development and survival of fish larvae. In addition, the experimental facility established by DTU Aqua at Lyksvad Fishfarm was enhanced by improving the experimental and laboratory facilities. The REEL project has provided the basis for the establishment of an EU research project: Reproduction of European Eel: Towards a Self-sustained Aquaculture (PRO-EEL) (38793) coordinated by DTU Aqua. REEL included the partners DTU Aqua, the Danish Eel Producers Association, Billund Aquaculture, BioMar, Bioneer and Copenhagen University of which four are integrated in PRO-EEL.

The project was coordinated by DTU Aqua.

National Food Institute
National Institute of Aquatic Resources
Section for Marine Ecology and Oceanography
University of Copenhagen
Bioneer A/S
Danish Eel Farmers Association
Billund Aquaculture Service Aps
BioMar A/S
Period: 01/01/2009 → 31/12/2010
Number of participants: 8
Research areas: Marine Populations and Ecosystem Dynamics & Fish Biology
Project participant:
Steenfeldt, Svend Jørgen (Intern)
Sørensen, Sune Riis (Intern)
Hornum, Inger (Intern)
Krüger-Johnsen, Maria (Intern)
Project Manager, academic:
Tomkiewicz, Jonna (Intern)
Munk, Peter (Intern)
Støttrup, Josianne Gatt (Intern)
Tybjerg, Lars (Intern)

The first international vitamin conference - 19-21 May 2010 in Copenhagen

Vitamins in foods and supplements - analytical possibilities versus nutritional need in human research, food databases, and labelling. The idea of setting up this conference is to establish a forum for scientists and regulators for whom the vitamins are of major concern. Although we can't give the impression that a new vitamin will be launched we will promise to make a great effort to reveal new information on the vitamins.

Division of Food Chemistry
The interaction between drug use and the risk of infection with foodborne zoonotic bacteria

National Food Institute
Period: 01/01/2009 → 26/02/2014
Number of participants: 6
Phd Student: Koningstein, Maike (Intern)
Supervisor: Mølbak, Kåre (Ekstern)
Main Supervisor: Hald, Tine (Intern)
Examiner: Vigre, Håkan (Intern)
Emborg, Hanne-Dorthe (Intern)
Engberg, Jørgen H. (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Ansat eksternt
Project: PhD

Virulence of Listeria monocytogenes: Influence of genetic sub-type, persistence capacity and environmental factors on risk from the human foodborne pathogen Listeria monocytogenes

Division of Seafood Research
National Food Institute
Division of Microbiology and Risk Assessment
Period: 01/01/2009 → 07/07/2011
Number of participants: 3
Project participant: Gram, Lone (Intern)
Licht, Tine Rask (Intern)

Kontinuerlig bagning: Robust modellering af bageprocesser

National Food Institute
Period: 15/12/2008 → 28/08/2013
Number of participants: 6
Phd Student: Stenby Andresen, Mette (Intern)
Supervisor:
Løje, Hanne (Intern)
Main Supervisor:
Adler-Nissen, Jens (Intern)
Examiner:
Frosch, Stina (Intern)
Skjöldebrand, Ewa Christina Ericsdottir (Ekstern)
Wium, Helle (Ekstern)

**Financing sources**
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

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**Cellular and Molecular Fish Immunology**

National Food Institute
Period: 01/12/2008 → 27/03/2013
Number of participants: 6
Phd Student:
Jiménez, Natalia Ivonne Vera (Intern)
Supervisor:
Lindenstrøm, Thomas (Ekstern)
Main Supervisor:
Nielsen, Michael Engelbrecht (Intern)
Examiner:
Nellemann, Christine (Intern)
Forlenza, Maria (Ekstern)
Skov, Søren (Ekstern)

**Financing sources**
Source: Internal funding (public)
Name of research programme: Marie Curie (EU-stipendium)
Project: PhD

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**Dietary Exposure Assessments for Children in Europe – EXPOCHI**

The overall objective of the project is to create a relational network of different individual food consumption databases in children, representative for diverse regions/countries within Europe, covering different geographical areas and to use those data for specific exposure assessment case studies in children. The specific objectives of the call are to provide individual food consumption data for children for different Member States, and to carry out an independent exposure assessment study in children for food colours, selenium, chromium and lead. At present, there is no harmonised approach for the data collection of food consumption data in childhood populations. However, the data included in this project are representative at a national (or large regional) level: 14 regions covering 13 countries. Only data derived from 24-h dietary recalls and dietary records collected on at least two (non)consecutive days per individual are included in the project. EFSA provides the required occurrence data for the substances under study. The outcome is estimated distribution of long term dietary exposure levels in the relevant population group, based statistical models for long term exposure, using the Monte Carlo Risk Assessment (MCRA) software, developed by RIKILT – Institute of Food Safety (The Netherlands).

Division of Nutrition
National Food Institute
Ghent University
Wageningen IMARES
Agence Française de Sécurité Sanitaire des Aliments
National Research Institute for Food and Nutrition
Finnish Food Safety Authority
University of Crete
National Food Administration
Fører interventioner i foodservice på skolen til effekt på elevers kostindtag

National Food Institute
Period: 01/12/2008 → 18/12/2013
Number of participants: 6
Phd Student:
Sabinsky, Marianne (Intern)
Supervisor:
Toft, Ulla Marie Nørgaard (Ekstern)
Main Supervisor:
Tetens, Inge (Intern)
Examiner:
Matthiessen, Jeppe (Intern)
Andersen, Lene Frost (Ekstern)
Rasmussen, Mette (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: 1/3 DTU-stip, 2/3 FUR/andet
Project: PhD

Microbiological and molecular characterization of successful salmonella

National Food Institute
Period: 01/12/2008 → 23/05/2012
Number of participants: 7
Phd Student:
Müller, Anna Karoline (Intern)
Supervisor:
Aabo, Søren (Intern)
Aarestrup, Frank Møller (Intern)
Main Supervisor:
Agersø, Yvonne (Intern)
Examiner:
Pedersen, Karl (Intern)
McDermott, Patrick F. (Ekstern)
Olsen, John Elmerdahl (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Offentlig finansiering
Project: PhD
Mucosal Fish Immunology and Pathology - Host Pathogen Interactions
National Food Institute
Period: 01/12/2008 → 30/09/2012
Number of participants: 5
PhD Student:
Przybylska, Dominika Alicja (Intern)
Main Supervisor:
Nielsen, Michael Engelbrecht (Intern)
Examiner:
Nielsen, Henrik Hauch (Intern)
Hoole, David (Ekstern)
Raida, Martin (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Marie Curie (EU-stipendium)
Project: PhD

Plasmid diversity and epidemiology in Enterobacteriae from human and non-human reservoirs
National Food Institute
Period: 01/12/2008 → 27/06/2012
Number of participants: 6
PhD Student:
Bielak, Eliza Maria (Intern)
Supervisor:
Aarestrup, Frank Møller (Intern)
Main Supervisor:
Hasman, Henrik (Intern)
Examiner:
Jensen, Lars Bogø (Intern)
Guardabassi, Luca (Ekstern)
Guerra Román, Beatriz (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

Effect of prenatal exposure to carbon-based nanoparticles and diesel exhaust particles on germline DNA stability
National Food Institute
Period: 01/11/2008 → 22/08/2012
Number of participants: 7
PhD Student:
Boisen, Anne Mette Zenner (Intern)
Supervisor:
Vogel, Ulla Birgitte (Intern)
Wallin, Håkan (Ekstern)
Main Supervisor:
Nellemann, Christine (Intern)
Examiner:
Binderup, Mona-Lise (Intern)
Guldberg, Per (Ekstern)
Olsen, Ann-Karin Hardie (Ekstern)

Financing sources
Source: Internal funding (public)
Induction of inheritable DNA mutations by prenatal exposure to carbon-based nanoparticles

Exposure to air pollution leads to induction of mutations in male germline cells in male mice and herring gulls. This indicates that exposure to air pollution gives inheritable DNA mutations, which may be linked to increased risk of cancer or malformation. It is not possible to assess the effect of particle exposure on germline DNA in adult females, because all the eggs are already established during fetal development in the mother. Thus, the effects of exposure on female germline cells have to be assessed with in utero exposure. Carbon nanotubes and other nanomaterials will gain widespread use in the near future, leading to a low-level, but widespread exposure to CNT containing materials as dust or food contaminants. In the present project we want to assess if in utero exposure to nanoparticles results in germline DNA instability in males and females.

Division of Toxicology and Risk Assessment
National Food Institute
National Research Center for Working Environment
Health Canada
Period: 01/11/2008 → 30/11/2011
Number of participants: 4
Project participant:
Boisen, Anne Mette Zenner (Intern)
Vogel, Ulla Birgitte (Intern)
Wallin, Håkan (Ekstern)
Yauk, Carole (Ekstern)
Project Evaluation and optimisation of surveillance programmes for antimicrobial resistance and drug use
The overall objective of the project is to provide a quantitative risk assessment of the relationship between consumption of antimicrobials in food animals and the occurrence of antimicrobial resistant bacteria in animals and foods including their potential adverse health effects in humans. The assessment is expected to provide the scientific basis for future recommendations, partly in order to optimize the existing surveillance for antibiotic resistance (DANMAP), and partly in order to develop guidelines regarding antimicrobial consumption and management of specific risk factors in the primary production. The project focuses on the development of resistance to antimicrobial (cephalosporins, macrolides and quinolones), which is critically important for human therapy, for example, persons having a foodborne infection with Salmonella or Campylobacter. The project is a pilot study of transfer of resistance determinants through the food-production chain.

Division of Microbiology and Risk Assessment
National Food Institute
Period: 01/10/2008 → 30/11/2011
Number of participants: 5
Project participant:
Struve, Tina (Intern)
Aarestrup, Frank Møller (Intern)
Emborg, Hanne-Dorthe (Intern)
Vigre, Håkan (Intern)
Project Manager, organisational:
Hald, Tine (Intern)
Project Evaluation and optimisation of surveillance programmes for antimicrobial resistance and drug use
The overall objective of the project is to provide a quantitative risk assessment of the relationship between consumption of antimicrobials in food animals and the occurrence of antimicrobial resistant bacteria in animals and foods including their potential adverse health effects in humans. The assessment is expected to provide the scientific basis for future recommendations, partly in order to optimize the existing surveillance for antibiotic resistance (DANMAP), and partly in order to develop guidelines regarding antimicrobial consumption and management of specific risk factors in the primary production. The project focuses on the development of resistance to antimicrobial (cephalosporins, macrolides and quinolones), which is critically important for human therapy, for example, persons having a foodborne infection with Salmonella or Campylobacter. The project is a pilot study of transfer of resistance determinants through the food-production chain.
Division of Microbiology and Risk Assessment

National Food Institute
Period: 01/10/2008 → 31/10/2011
Number of participants: 5
Project participant:

Struve, Tina (Intern)
Aarestrup, Frank Møller (Intern)
Emborg, Hanne-Dorthe (Intern)
Vigre, Håkan (Intern)

Project Manager, organisational:

Hald, Tine (Intern)

Project

Evaluering og optimering af overvågningsprogrammer for antibiotika resistens og antibiotikaforbrug

National Food Institute
Period: 01/10/2008 → 25/04/2012
Number of participants: 7
Phd Student:

Struve, Tina (Intern)

Supervisor:

Aarestrup, Frank Møller (Intern)
Emborg, Hanne-Dorthe (Intern)

Main Supervisor:

Hald, Tine (Intern)

Examiner:

Jensen, Lars Bogø (Intern)
Bækbo, Poul (Ekstern)
Greiner, Matthias (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

Laboratory Skin Patches and SmartCards based on foils and compatible with a smartphone* (contract number 224306 for Large-scale integrating project (IP))
LabOnFoil is the acronym chosen to designate the project named "Laboratory Skin Patches and SmartCards based on foils and compatible with a smartphone" (contract number 224306 for Large-scale integrating project (IP).

National Food Institute
Division of Food Microbiology
Department of Micro- and Nanotechnology

BioLabChip

Microsystems
Period: 01/09/2008 → 31/12/2011
Number of participants: 2
Acronym: LABONFOIL
Project participant:

Bang, Dang Duong (Intern)
Wolff, Anders (Intern)

Financing sources
Source: EU research programme (public)
Name of research programme: Large-scale integrating Project (IP)
Web address: http://www.labonfoil.eu
Amount: 7,100,000.00 Euro
Improvement of vitamin D content in food crops

The hypothesis is that plant can be a vitamin D source for humans as well as for domestic animals. The ultimate aim of this project is to increase the synthesis and content of vitamin D in food crops through biofortification. To achieve this aim, we must obtain a better understanding of how vitamin D synthesis in plants takes place and how it is regulated. In the project we expect to analyze plant species with high amount of D2 and D3 and to screen several crop plants and their ancestors for the presence and amount of provitamin D2 and D3, and to identify and clone plant enzymes and genes involved in vitamin D2 and vitamin D3 synthesis, and to determine the subcellular localization of vitamin D3 and its glucosides. A LC-MS/MS will be developed and validated before applied on samples to elucidate the synthesis, content of vitamin D in plant crops, and the effect of exposure of UVB-light on vegetables.

Division of Food Chemistry
National Food Institute
Period: 01/09/2008 → 31/10/2011
Number of participants: 1
Project Manager, organisational:
Jakobsen, Jette (Intern)

Kvalitet af skolefrokost - Undersøgelse af skoleelevers frokostmåltider

National Food Institute
Division of Nutrition
Period: 01/09/2008 → 31/10/2009
Number of participants: 1
Project Manager, academic:
Christensen, Lene Møller (Intern)
Documents:
Kvalitet_af_skolefrokost_-Undersoegelse_af_skoleelevers_frokostmaaltider

Vitamin D in plants

National Food Institute
Period: 01/09/2008 → 29/02/2012
Number of participants: 6
Phd Student:
Jäpelt, Rie Bak (Intern)
Supervisor:
Smedsgaard, Jørn (Intern)
Main Supervisor:
Jakobsen, Jette (Intern)
Examiner:
Munch Jacobsen, Charlotte (Ekstern)
Bjørn, Lars Olof (Ekstern)
Höller, Ulrich (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

Safe heating and cooling in mass catering

According to the Danish catering industry, it is a challenge to keep a high culinary quality of certain foods because of the official requirements for safe holding either at hot or chilled temperatures.

For safe heating, a temperature of at least 75°C in the coldest is recommended. Equivalently for safe cooling, it is recommended to cool down from 65°C to 10°C in max. 3 h
In both cases, EU legislation gives the possibility to apply other time and temperature combinations as long as the company can document that the product is safe. However, this requires a definition of safe processes.

For this purpose Codex has suggested a management concept named Performance Criterion (PC). PC is a transparent way to link a food safety program with its expected public health impact.

Codex defines a PC as the effect on concentration of a hazard in a food that must be achieved by the application of one or more control measures to provide the wanted consumer protection.

National Food Institute
Division of Food Microbiology
Ehvervsakademi Sjælland
e-smiley A/S
Period: 01/08/2008 → 31/03/2010
Number of participants: 2
Food safety, catering, heating, cooling, decision support tool, hazard analysis
Acronym: Sikker mad til mange
Project Manager, organisational:
Hansen, Tina Beck (Intern)
Christensen, Bjarke Bak (Intern)
Documents:
Proceeding_Cold Chain-Management
Sikker nedkøling
Sikker opvarmning
Project

Development of methods for in-line detection and identification of viruses in water
National Food Institute
Period: 01/08/2008 → 27/06/2012
Number of participants: 7
Phd Student:
Uhrbrand, Katrine (Intern)
Supervisor:
Hedlund, Kjell-Olof (Ekstern)
Myrmel, Mette (Ekstern)
Main Supervisor:
Christensen, Laurids Siig (Intern)
Examiner:
Larsen, Lars Erik (Intern)
Cook, Nigel (Ekstern)
Simonsson, Magnus (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Offentlig finansiering
Project: PhD

Foodenvironmental impact on the infectivity of salmonella
National Food Institute
Period: 01/08/2008 → 07/05/2014
Number of participants: 5
Phd Student:
Henriksen, Sidsel (Intern)
Main Supervisor:
Aabo, Søren (Intern)
Examiner:
Josefsen, Mathilde Hasseldam (Intern)
Nano Test, networking project
Engineered and designed nanoparticles (NPs) may pose a potential risk to human health and to the environment. The availability of results from relevant and systematic cross-disciplinary research is poor. Physico-chemical characterization and quantification should be incorporated among other parameters. It is mandatory to gain systematic knowledge before we are able to assess risk to humans and to the environment. The main purpose of this networking project is to establish a forum to gain and share such knowledge. The division for Toxicology and Risk Assessment (div. T) has a more than thirty years tradition for toxicological advice and risk assessment based on own interdisciplinary research and is a national and international leader in these areas. The division of Food Chemistry (div. K) has expert knowledge about chemical analyses in biological materials and testing of migration from food contact materials. Recently acquired knowledge includes studies of metal microparticulates and elemental speciation in food and biological matrices. Internally in the National Food Institute, div. T and K have established a thriving network that includes complimenting scientific skills useful in the cross-disciplinary area of nano research. Div. T and K are establishing national and international networks, presently including Danish governmental institutions and universities, and private companies. For the time being a.o. The Danish Food Agency, Danish Environmental Protection Agency, Aalborg University, University of Illinois, Risø National Laboratory, and DHI - Water and Environment are taking part. DFVF also is a member of two national nanotechnology networks: NaNet and iNANO. This thriving network has initiated initiatives for research including physico-chemical characterization and quantification and in vitro testing and has planned in vivo investigations. We can offer collaboration with other institutions in EU countries or elsewhere.

National Food Institute
National Veterinary Institute
UNEP Risoe Centre on Energy, Climate and Sustainable Development (URC)
Risø National Laboratory for Sustainable Energy
Aalborg University
DHI Denmark
Danish Agriculture and Food Agency
Environmental Protection Agency

Marinated and chilled MAP shellfish – optimization of quality and safety
Collaboration between the Predictive Microbiology group at DTU Aqua and Royal Greenland Seafood Ltd. Funded by the Danish Food Industry Agency (Innovationsloven).

National Food Institute
Division of Industrial Food Research

Acronym: MAP-SKALDYR
Project participant:
Mejlholm, Ole (Intern)
Devitt, Tina Dahl (Intern)
Project Manager, academic:
Dalgaard, Paw (Intern)

Financing sources
Source: Public research council
Name of research programme: Danish Food Industry Agency

Dansk Vitamin Netværk
National Food Institute
Division of Food Chemistry
Aarhus University
University of Copenhagen
Technical University of Denmark
Period: 01/07/2008 → 31/12/2014
Number of participants: 1
Project Manager, organisational:
Jakobsen, Jette (Intern)

Måling af fysisk aktivitet og sammenhænge mellem kost- og aktivitetsvaner samt overvægt blandt danske børn
National Food Institute
Period: 01/07/2008 → 22/08/2012
Number of participants: 8
Phd Student:
Rothausen, Berit Worm (Intern)
Supervisor:
Andersen, Lene Frost (Ekstern)
Brockhoff, Per B. (Intern)
Matthiessen, Jeppe (Intern)
Main Supervisor:
Tetens, Inge (Intern)
Examiner:
Rasmussen, Lone Banke (Intern)
Brantsøeter, Anne Lise (Ekstern)
Dalgård, Christine (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

D Vitamin og mælk
National Food Institute
Division of Food Chemistry
Aarhus University
Period: 01/06/2008 → 31/05/2012
Number of participants: 1
Project Manager, academic:
Jakobsen, Jette (Intern)
Maximizing of vitamin D content in milk from indoor raised dairy cows
In this project a novel light source will be developed, which will increase the synthesis of vitamin D in indoor raised dairy cows, and thereby the content of vitamin D in milk. The background is that usual vitamin D in milk from indoor raised cows is lower than from cows with access to grass, regardless of content of vitamin D in feed.

Division of Food Chemistry
National Food Institute
Aarhus University
Scan Research A/S
Period: 01/06/2008 → 31/05/2011
Number of participants: 1
Project Manager, organisational:
Jakobsen, Jette (Intern)
Contaminants in food and feed: Inexpensive detection for control of exposure (CONffIDENCE)
Safer food, through rapid and cost efficient tests for detecting chemical contaminants in food and animal feed, is the major goal of this project. It is co-ordinated by RIKILT, Institute of Food Safety, The Netherlands and the project consortium consists of 17 partners from 10 European countries. DTU Food is leader of WP3 on heavy metals, which focuses on the development of simplified and inexpensive methods for the determination of inorganic arsenic and methylmercury. Since seafood is the major dietary source for both arsenic and mercury in the European population, the project will focus on marine feed and seafood as sample matrices of interest. The methods developed at DTU Food are based on microwave assisted extraction techniques followed by solid phase extraction of the analyte of interest combined with detection with atomic absorption spectrometry (SPE-AAS). The method's performance will be evaluated in international collaborative trials and used in surveys on fish and fish feed.

National Food Institute
Division of Food Chemistry
Tampere University of Technology
Period: 01/05/2008 → 30/04/2012
Number of participants: 4
Acronym: CONFIDENCE
Project participant:
Karp, Matti (Ekstern)
Hedegaard, Rikke Susanne Vingborg (Intern)
Rasmussen, Rie Romme (Intern)
Project Manager, organisational:
Sloth, Jens Jørgen (Intern)

Relations
Activities:
Arsenic compounds in foodstuffs –recent developments in speciation analysis and food safety assessment
Project

Evaluation of Interventions towards Young people in school food programs, EVIUS.
The project aims at evaluating the effects on children of different healthy school food interventions. The project consists of a several work packages with the following research questions: WP1 - Diet & Nutrition: Does the school food has an effect on the student's dietary intake? Is dietary intake different for students in different age groups? WP2 - Coaching & counselling How can coaching of intermediaries be developed to efficacy Does coaching of intermediaries have an effect on dietary intake? WP3 - Learning & preferences How does the school food environment influence the learning climate? How does the school food environment influence the well-being and concentration of the students? WP 4 - Sociotechnical approach to school food What type of meaning and sense does teachers and students attribute to different school food concepts? What organisational and social pre-conditions are needed for the long term survival of school food programs? Does price has an effect on the students demand and use of the school food programme?

Division of Nutrition
National Food Institute
Department of Management Engineering
Aalborg University
Aarhus University
Boris Andersen Counselling
The Danish Catering Centre
Y Group
Period: 01/05/2008 → 31/12/2009
Number of participants: 1
Project Manager, organisational:
Mikkelsen, Bent Egberg (Intern)

Stine Kroghbo
In the EU project Contamed, DTU FOOD conducts extended developmental toxicity rat studies investigating the possible role of mixtures of 12-14 estrogens, anti-androgens and other classes of EDCs in producing long-lasting delayed adverse reproductive effects at environmentally relevant levels. The endpoints assessed cover effects on male and female offspring during the postnatal development of the pups as well as long-lasting effects in adult offspring, i.e., anogenital
distance, nipple retention, mammary gland development, histopathology and gene expression in selected reproductive organs, puberty, malformations of reproductive organs (hypospadias), oestrus cycling, semen quality and sexual dimorphic behaviour. DTU FOOD will also conduct In vitro assays and is responsible for the H295R assay.

Financial support from the EU seventh framework programme (grant agreement no.: 212502) and Danish Environmental Protection Agency.

National Food Institute
Division of Toxicology and Risk Assessment
University of London
University of Sussex
Universidad De Granada
Erasmus University Medical Centre
GREEN Tox
Faust und Backhaus Environmental Consulting

University of Bristol
Period: 01/05/2008 → 01/11/2012
Number of participants: 7

mixtures, endocrine disrupters, human reproductive health, developmental toxicity
Project participant:
Boberg, Julie (Intern)
Christiansen, Sofie (Intern)
Vinggaard, Anne Marie (Intern)
Taxvig, Camilla (Intern)
Petersen, Marta Axelstad (Intern)

Project Manager, organisational:
Hass, Ulla (Intern)

Project Manager, academic:
Kortenkamp, Andreas (Ekstern)

Project

Utilisation of bioactive peptides from fish processing - Upgrading the value of secondary products.
Fish and seafood products contain bioactive peptides with different health promoting effects on e.g. blood pressure, immune system, cancer, diabetes, obesity and ulcer. Some bioactive peptides are present per se in the fish whereas most are only formed by degradation of the proteins. The aim of the project was to find bioactive peptides in enzymatic hydrolysed fish parts or whole fish not used for human consumption. We have found many peptide preparations with positive effects on the enzyme regulating blood tension (ACE) and with antioxidative effects, but also several that inhibit or kill pancreatic cancer cells in culture and some that strongly inhibit the adhesion of ulcer forming bacteria (Helicobacter pylori) to stomach cells in culture. Especially the effects on cancer cells and bacteria have interesting perspectives if the peptides show up to function in whole organisms, including human, because they would then have potential as future anticancer and antibacterial drugs.

National Food Institute
Division of Industrial Food Research
Division of Toxicology and Risk Assessment
Period: 01/04/2008 → 31/12/2012
Number of participants: 10

Acronym: PEPFISH
Project participant:
Nielsen, Henrik Hauch (Intern)
Andersen, Lisa Lystbaek (Intern)
Nielsen, Michael Engelbrecht (Intern)
Hoffmann, Else K. (Ekstern)
Andersen, Leif Percival (Ekstern)
Elvevol, Edel Oddny (Ekstern)
Jakobsen, Greta (Ekstern)

Project


Alternative modeller baseret på invertebrater og funktionelle mammale cellemodeller til risikovurdering af mikrobiologiske bekæmpelsesmidler

Division of Microbiology and Risk Assessment
National Food Institute
Aarhus University
University of Copenhagen
INRA Institut National de La Recherche Agronomique
Period: 01/04/2008 → 30/11/2010
Number of participants: 6
Acronym: RiskModels
Project ID: 12251
Project participant:
Wilcks, Andrea (Intern)
Madsen, Bodil (Intern)
Hendriksen, Niels Bohse (Ekstern)
Thorsen, Line (Ekstern)
Nielsen-LeRoux, Christina (Ekstern)

Omega-3 food emulsions: Control and Investigation of Molecular Structure in Relation to Lipid Oxidation
National Food Institute
Period: 01/04/2008 → 28/03/2012
Number of participants: 7
Phd Student:
Horn, Anna Frisenfeldt (Intern)
Supervisor:
Nielsen, Nina Skall (Intern)
Szabo, Peter (Intern)
Main Supervisor:
Jacobsen, Charlotte (Intern)
Examiner:
Hellgren, Lars (Intern)
Andersen, Mogens Larsen (Ekstern)
Genot, Claude (Ekstern)

Financing sources
Source: Forskningsprojekter - Miljø- og Energimisteriet
Name of research programme: Forskningsprojekter - Miljø- og Energimisteriet
Project

Omega-3 food emulsions: Control and Investigation of Molecular Structure in Relation to Lipid Oxidation
National Food Institute
Period: 01/04/2008 → 28/03/2012
Number of participants: 7
Phd Student:
Horn, Anna Frisenfeldt (Intern)
Supervisor:
Nielsen, Nina Skall (Intern)
Szabo, Peter (Intern)
Main Supervisor:
Jacobsen, Charlotte (Intern)
Examiner:
Hellgren, Lars (Intern)
Andersen, Mogens Larsen (Ekstern)
Genot, Claude (Ekstern)

Financing sources
Source: Forskningsprojekter - Miljø- og Energimisteriet
Name of research programme: Forskningsprojekter - Miljø- og Energimisteriet
Project

Omega-3 food emulsions: Control and Investigation of Molecular Structure in Relation to Lipid Oxidation
National Food Institute
Period: 01/04/2008 → 28/03/2012
Number of participants: 7
Phd Student:
Horn, Anna Frisenfeldt (Intern)
Supervisor:
Nielsen, Nina Skall (Intern)
Szabo, Peter (Intern)
Main Supervisor:
Jacobsen, Charlotte (Intern)
Examiner:
Hellgren, Lars (Intern)
Andersen, Mogens Larsen (Ekstern)
Genot, Claude (Ekstern)

Financing sources
Source: Forskningsprojekter - Miljø- og Energimisteriet
Name of research programme: Forskningsprojekter - Miljø- og Energimisteriet
Project

Omega-3 food emulsions: Control and Investigation of Molecular Structure in Relation to Lipid Oxidation
National Food Institute
Period: 01/04/2008 → 28/03/2012
Number of participants: 7
Phd Student:
Horn, Anna Frisenfeldt (Intern)
Supervisor:
Nielsen, Nina Skall (Intern)
Szabo, Peter (Intern)
Main Supervisor:
Jacobsen, Charlotte (Intern)
Examiner:
Hellgren, Lars (Intern)
Andersen, Mogens Larsen (Ekstern)
Genot, Claude (Ekstern)

Financing sources
Source: Forskningsprojekter - Miljø- og Energimisteriet
Name of research programme: Forskningsprojekter - Miljø- og Energimisteriet
Project

Omega-3 food emulsions: Control and Investigation of Molecular Structure in Relation to Lipid Oxidation
National Food Institute
Period: 01/04/2008 → 28/03/2012
Number of participants: 7
Phd Student:
Horn, Anna Frisenfeldt (Intern)
Supervisor:
Nielsen, Nina Skall (Intern)
Szabo, Peter (Intern)
Main Supervisor:
Jacobsen, Charlotte (Intern)
Examiner:
Hellgren, Lars (Intern)
Andersen, Mogens Larsen (Ekstern)
Genot, Claude (Ekstern)

Financing sources
Source: Forskningsprojekter - Miljø- og Energimisteriet
Name of research programme: Forskningsprojekter - Miljø- og Energimisteriet
Project

Omega-3 food emulsions: Control and Investigation of Molecular Structure in Relation to Lipid Oxidation
National Food Institute
Period: 01/04/2008 → 28/03/2012
Number of participants: 7
Phd Student:
Horn, Anna Frisenfeldt (Intern)
Supervisor:
Nielsen, Nina Skall (Intern)
Szabo, Peter (Intern)
Main Supervisor:
Jacobsen, Charlotte (Intern)
Examiner:
Hellgren, Lars (Intern)
Andersen, Mogens Larsen (Ekstern)
Genot, Claude (Ekstern)

Financing sources
Source: Forskningsprojekter - Miljø- og Energimisteriet
Name of research programme: Forskningsprojekter - Miljø- og Energimisteriet
Project

Omega-3 food emulsions: Control and Investigation of Molecular Structure in Relation to Lipid Oxidation
National Food Institute
Period: 01/04/2008 → 28/03/2012
Number of participants: 7
Phd Student:
Horn, Anna Frisenfeldt (Intern)
Supervisor:
Nielsen, Nina Skall (Intern)
Szabo, Peter (Intern)
Main Supervisor:
Jacobsen, Charlotte (Intern)
Examiner:
Hellgren, Lars (Intern)
Andersen, Mogens Larsen (Ekstern)
Genot, Claude (Ekstern)

Financing sources
Source: Forskningsprojekter - Miljø- og Energimisteriet
Name of research programme: Forskningsprojekter - Miljø- og Energimisteriet
Project

Omega-3 food emulsions: Control and Investigation of Molecular Structure in Relation to Lipid Oxidation
National Food Institute
Period: 01/04/2008 → 28/03/2012
Number of participants: 7
Phd Student:
Horn, Anna Frisenfeldt (Intern)
Supervisor:
Nielsen, Nina Skall (Intern)
Szabo, Peter (Intern)
Main Supervisor:
Jacobsen, Charlotte (Intern)
Examiner:
Hellgren, Lars (Intern)
Andersen, Mogens Larsen (Ekstern)
Genot, Claude (Ekstern)

Financing sources
Source: Forskningsprojekter - Miljø- og Energimisteriet
Name of research programme: Forskningsprojekter - Miljø- og Energimisteriet
Project

Omega-3 food emulsions: Control and Investigation of Molecular Structure in Relation to Lipid Oxidation
National Food Institute
Period: 01/04/2008 → 28/03/2012
Number of participants: 7
Phd Student:
Horn, Anna Frisenfeldt (Intern)
Supervisor:
Nielsen, Nina Skall (Intern)
Szabo, Peter (Intern)
Main Supervisor:
Jacobsen, Charlotte (Intern)
Examiner:
Hellgren, Lars (Intern)
Andersen, Mogens Larsen (Ekstern)
Genot, Claude (Ekstern)

Financing sources
Source: Forskningsprojekter - Miljø- og Energimisteriet
Name of research programme: Forskningsprojekter - Miljø- og Energimisteriet
Project

Omega-3 food emulsions: Control and Investigation of Molecular Structure in Relation to Lipid Oxidation
National Food Institute
Period: 01/04/2008 → 28/03/2012
Number of participants: 7
Phd Student:
Horn, Anna Frisenfeldt (Intern)
Supervisor:
Nielsen, Nina Skall (Intern)
Szabo, Peter (Intern)
Main Supervisor:
Jacobsen, Charlotte (Intern)
Examiner:
Hellgren, Lars (Intern)
Andersen, Mogens Larsen (Ekstern)
Genot, Claude (Ekstern)

Financing sources
Source: Forskningsprojekter - Miljø- og Energimisteriet
Name of research programme: Forskningsprojekter - Miljø- og Energimisteriet
Project
Reducing the risk from food-borne viruses in the Nordic countries (Food-Virus)
The strategic objective of the project is to create tools and data for the improvement of risk assessment related to foodborne viruses. The more specific objectives are: I. To resolve technical bottlenecks in sampling and develop non-complex sample preparation methods. II. To develop novel tools for quantification, data interpretation, molecular characterization, and survival studies of NoV and HAV in water and soft fruits. III. To use the developed tools in screening studies. IV. To evaluate the effectiveness of minimal and innovative inactivation strategies. V. To ensure effective dissemination of project outputs.

National Food Institute
University of Helsinki
Matís ltd.
Norwegian School of Veterinary Science
National Food Administration
Swedish Institute for Infectious Disease Control

Project participant:
Schultz, Anna Charlotte (Intern)
Uhrbrand, Katrine (Intern)
Von Bonsdorff, Carl-Henrik (Ekstern)
Maunula, Leena (Ekstern)
Marteinsson, Viggo Thor (Ekstern)
Vígdisdóttir, Anna Pála (Ekstern)
Mette Myrmel (Ekstern)
Rimstad, Espen (Ekstern)
Simonsson, Magnus (Ekstern)
Hedlund, Kjell-Olof (Ekstern)

Project Manager, organisational:
Christensen, Laurids Siig (Intern)

Project
Campylobacter - human eksponering, smittekilde og Bekæmpelsestiltag

National Food Institute
Period: 01/03/2008 → 23/05/2012
Number of participants: 7
Phd Student:
Boysen, Louise (Intern)
Supervisor:
Ethelberg, Steen (Ekstern)
Hald, Tine (Intern)
Main Supervisor:
Rosenquist, Hanne (Intern)
Examiner:
Hansen, Tina Beck (Intern)
Havelaar, Arie Hendrik (Ekstern)
Jørgensen, Frieda (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Offentlig finansiering
Project: PhD

Design, fabrication and testing of support structures for biomimetic water filters

National Food Institute
Period: 01/03/2008 → 18/05/2011
Number of participants: 5
Phd Student:
Taxvig, Camilla (Intern)
Main Supervisor:
Nellemann, Christine (Intern)
Examiner:
Granby, Kit (Intern)
Kortenkamp, Andreas (Ekstern)
Raun Andersen, Helle (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

Global patterns of marine bacterioplankton diversity and characterisation of bioactive Vibrionaceae isolates

National Food Institute
Period: 01/02/2008 → 14/04/2011
Number of participants: 5
Phd Student:
Wietz, Matthias (Intern)
Main Supervisor:
Gram, Lone (Intern)
Examiner:
Molin, Søren (Intern)
Burgess, James Grant (Ekstern)
Simon, Meinhard (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD
Professionelt tilberedte måltider

National Food Institute
Division of Industrial Food Research
National Institute of Aquatic Resources
Department of Management Engineering
Period: 01/02/2008 → 31/12/2012
Number of participants: 1
Project Manager, organisational:
Adler-Nissen, Jens (Intern)

Financing sources
Source: Public research programme (public)
Name of research programme: Fødevareforskningsprogrammet 2007
Amount: 4,470,000.00 Danish Kroner

Robust Modelling of Mass and Heat Transfer in Food Processing

National Food Institute
Period: 01/02/2008 → 22/06/2011
Number of participants: 6
Phd Student:
Feyissa, Aberham Hailu (Intern)
Supervisor:
Gernaey, Krist V. (Intern)
Main Supervisor:
Adler-Nissen, Jens (Intern)
Examiner:
Friis, Alan (Intern)
Ahrné, Lilia Maria (Ekstern)
Borggaard, Claus (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Globaliseringsmidler
Project: PhD

Bioactive marine bacteria: Discovery of bioactive marine bacteria and natural products and their use to promote human health and safety

Division of Seafood Research
National Food Institute
Center for Microbial Biotechnology
Department of Systems Biology
Period: 01/01/2008 → 31/12/2012
Number of participants: 7
Project participant:
Vynne, Nikolaj Grønnegaard (Intern)
Wietz, Matthias (Intern)
Melchior, Jette (Intern)
Månsson, Maria (Intern)
Larsen, Thomas Ostenfeld (Intern)
Nielsen, Kristian Fog (Intern)
Project Manager, organisational:
Gram, Lone (Intern)
Comparative and collaborative validation of a real-time PCR method for detection of Salmonella in animal feces, carcass swabs and meat

National Food Institute
Tican Fresh Meat A/S
Eurofins
Lantmännen Danpo A/S
Danish Technological Institute
Danish Crown A/S
Period: 01/01/2008 → 30/06/2010
Number of participants: 1
Project Manager, organisational:
Löfström, Charlotta (Intern)

Comparative Pathogenomics and Transcriptomics of Escherichia coli

National Food Institute
Division of Epidemiology and Microbial Genomics
Period: 01/01/2008 → 31/12/2012
Number of participants: 3
Acronym: Escherichia coli
Contact person:
Aarestrup, Frank Møller (Intern)
Project participant:
Hancock, Viktoria (Intern)
Project Manager, organisational:
Klemm, Per (Intern)

Financing sources
Source: Private funding (private)
Name of research programme: Lundbeckfonden
Amount: 2,000,000.00 Danish Kroner

Control of foodborne infections from lightly preserved meat products through mathematical modelling and efficient HACCP-based control programmes

HACCP-based control programs are mandatory and are implemented by most enterprises but very often these have shown to be inefficient in ensuring inactivation of VTEC and Salmonella. The aim of the project is to generate data and develop mathematical models, which predict the reduction of Salmonella and verocytotoxigenic E. coli (VTEC) at different process and product conditions. A web-based user-friendly tool will be developed, which will enable industry to assess their current recipes and processes and to develop new and safe products. In addition we will investigate for factors during processing, which are of possible importance for infectivity of VTEC and Salmonella. E.g gene expression studies will be included.

Division of Microbiology and Risk Assessment
National Food Institute
University of Copenhagen
Danish Technological Institute
Statens Serum Institut
Period: 01/01/2008 → 31/12/2011
Number of participants: 2
Acronym: Confood
Project participant:
Hansen, Tina Beck (Intern)
**Control of foodborne infections from lightly preserved meat products through mathematical modelling and efficient HACCP-based control programmes (CONFOOD)**

HACCP-based control programs are mandatory and are implemented by most enterprises but very often these have shown to be inefficient in ensuring inactivation of VTEC and Salmonella. The aim of the project is to generate data and develop mathematical models, which predict the reduction of Salmonella and verocytotoxigenic E. coli (VTEC) at different process and product conditions. A web-based user-friendly tool will be developed, which will enable industry to assess their current recipes and processes and to develop new and safe products. In addition we will investigate for factors during processing, which are of possible importance for infectivity of VTEC and Salmonella. E.g gene expression studies will be included.

Division of Microbiology and Risk Assessment
National Food Institute
University of Copenhagen
Danish Technological Institute
Statens Seruminstitute
**Period:** 01/01/2008 → 31/12/2011
**Number of participants:** 1
**Project Manager, organisational:**
Aabo, Søren (Intern)

**Developmental toxicity effects in experimental animals after mixed exposure to endocrine disrupting pesticides**

This project aims at exploring the hypothesis that combined developmental exposure to endocrine disrupting pesticides at dose levels below the No Observed adverse effect level (NOAEL) for each of the single pesticides may lead to adverse developmental toxicity effects. The project has the following main objectives: Investigate whether a mixture of environmentally relevant endocrine disrupting pesticides with dissimilar modes of action causes adverse developmental toxicity effects, including long-term delayed effects, at dose levels below NOAELs for the individual pesticides in a large extended developmental toxicity rat study. Investigate the same mixture of pesticides and the single chemicals using in vitro assays in order to compare the results with those from the rat mixture study and evaluate the usability of alternative in vitro methods for estimating mixture effects. Provide a survey of the intake of the studied pesticides and attempt to estimate the cumulative intake. Evaluate whether there may be a reason for concern in relation to mixed exposure of humans to the investigated pesticides. Give input to regulatory considerations on the need for modification of risk assessment procedures for pesticides in order to take account of mixture effects and the potentially serious impact of mixed exposure on development and reproduction.

Division of Toxicology and Risk Assessment
National Food Institute
**Period:** 01/01/2008 → 30/11/2010
**Number of participants:** 9
**Project participant:**
Poulsen, Mette Erecius (Intern)
Jensen, Bodil Hamborg (Intern)
Nellemann, Christine (Intern)
Boberg, Julie (Intern)
Christiansen, Sofie (Intern)
Hansen, Pernille Reimer (Ekstern)
Taxvig, Camilla (Intern)
Petersen, Marta Axelstad (Intern)
**Project Manager, organisational:**
Hass, Ulla (Intern)

**Edible-, slaughter- and health quality of exercised rainbow trout (38395)**

In Danish aquaculture the production of rainbow trout (Oncorhynchus mykiss) in intensive, recirculating systems has increased over the years and this tendency is expected to proceed. Intensive systems are characterized by their potential
to apply relatively high water velocities that can be of importance to fish farmers since water currents in earlier studies have been shown to stimulate fish growth. A large part of the growth potential of modern trout strains has however been exploited through breeding and this makes it uncertain to what extent and how modern trout strains respond to increased water velocities in terms of growth. Quality is also a significant parameter in that regard. Fast growth in intensive rearing systems may have implications on trout quality through increased propensities to stimulate lipid depositions in edible parts of the fish and in buccal cavities with concomitant effects on sensory parameters and slaughter yields.

The aim of the project is to study how exercise of rainbow trout may influence their growth and quality. Through collaboration with external partners and internal collaboration in DTU Aqua that has been stimulated through the research area “Individual Biology” numerous competences are involved. The project addresses important aspects of muscle physiology, hormonal control, enzymatic activities, fatty acid metabolism, overall fish growth and industrial fish quality. More specifically, by use of different exercise levels, fish growth and feed and protein utilization is monitored by changes in weights and lengths of the fish together with differences in feed intake. Growth rates are evaluated together with blood plasma content of IGF-1. Furthermore, measurements of plasma cortisol levels together with feed shares indicate the impact on fish welfare. Slaughter yields are determined under common production conditions in industry. Changes in chemical proximate composition of fillets are studied together with fatty acid profiles and the particular change in healthy n-3 fatty acids. Muscle fiber growth and other characteristics in the swimming musculature are studied by use of histological techniques involving light microscopy as well as electron microscopy. Changes in gene expression for mTOR (the mammalian target of rapamycin) are studied for their potential role in muscle fiber hypertrophic or hyperplastic growth and proteom analyses considering other key proteins of importance to both growth and quality are also undertaken. Changes in the calpastatin/calpain system measured as gene expression and/or electrophoretic are considered important for development of fillet texture that is measured instrumentally. Fillet texture is additionally considered by a trained sensory panel focusing on taste, odors, texture characteristics and appearance of the fish fillets.

The results obtained so far have proven positive with regards to applying exercise in rearing of modern rainbow trout strains. Negative aspects only seem to manifest when strenuous exercise levels are applied. Exercise has the potential to stimulate overall growth and reduce size differences within a stock supposedly owing to less aggression when feeding. Through several changes in muscle physiological components brought about by exercise the fillet texture may increase and there are furthermore indications that fish welfare may be improved.

The project is coordinated by DTU Aqua.

National Food Institute
Section for Aquaculture
National Institute of Aquatic Resources
Aarhus University
University of Tasmania
Danforel A/S
Period: 01/01/2008 → 31/12/2011
Number of participants: 2
Research areas: Aquaculture & Fish Biology
Project participant:
Tomkiewicz, Jonna (Intern)
Project Manager, academic:
Rasmussen, Richard Skøtt (Intern)
Project

EFSA Quantitative Microbiological Risk Assessment on Salmonella in Slaughter and Breeder pigs
In this project we developed a generic Quantitative Microbiological Risk Assessment (QMRA) on Salmonella in slaughter and breeder pigs that could be used in all EU states. The aims of the QMRA were to assess the expected reduction of Salmonella cases in humans in EU countries by different interventions at different points of the food chain. In order to facilitate the investigation of interventions at different points of the food chain, a farm-to-consumption framework was adopted, so that we could model the prevalence of infection / contamination and the microbial load from the farm to the point of consumption of different pork products. The probability of illness could then be estimated by applying a dose-response model using the estimated amount of Salmonella bacteria ingested at consumption as an input.

Division of Microbiology and Risk Assessment
National Food Institute
Veterinary Laboratories Agency
National Institute of Public Health and the Environment
Period: 01/01/2008 → 02/03/2010
Number of participants: 10
Project participant:
Integrated characterization of food quality and microbiological safety

The microbiological stability and safety of foods have traditionally been evaluated by measurement of the water activity. Water activity is defined as the relative vapor pressure of the food. However, this definition has several restrictions. Most importantly, it reflects only the surface properties and not the mobility of water taking place in the interior of structured foods, such as meat and cheese. The dynamics of water molecules can be studied by Nuclear Magnetic Resonance (NMR) which is a molecular spectroscopic method. NMR offers a noninvasive determination of the dynamic properties of water in heterogeneous systems and can be used to characterize water mobility in complex materials such as foods. The aim of this project is to challenge the concept of water activity as the main indicator of food stability and safety. We want to develop NMR-based methods for simultaneous prediction of food quality and safety.

Division of Microbiology and Risk Assessment
National Food Institute
Aarhus University
Arla Foods
Danish Meat Association
Period: 01/01/2008 → 31/12/2011
Number of participants: 2
Project participant:
Hansen, Tina Beck (Intern)
Project Manager, organisational:
Bertram, Hanne Christine (Ekstern)

Modelling of pathogen survival in fermented products

"Control of foodborne infections from lightly preserved meat products through mathematical modelling and efficient HACCP-based control programmes". Acronym: Confood .

HACCP-based control programs are mandatory and are implemented by most enterprises but very often these have shown to be inefficient in ensuring inactivation of VTEC and Salmonella. The aim of the project is to generate data and develop mathematical models, which predict the reduction of Salmonella and verocytotoxigenic E. coli (VTEC) at different process and product conditions.

A web-based user-friendly tool will be developed, which will enable industry to assess their current recipes and processes and to develop new and safe products. In addition we will investigate for factors during processing, which are of possible importance for infectivity of VTEC and Salmonella. E.g gene expression studies will be included.

Project financing
The Danish Strategic Research Council.
The project was granted 9.5 mill dKr., which is approximately 90% of the project costs. The remaining was supplied by the Danish Meat Research Institute.

National Food Institute
Division of Food Microbiology
University of Copenhagen
Nordic monitoring on diet, physical activity and overweight

In July 2006, the Nordic Council of Ministers adopted a Nordic Plan of Action on better health and quality of life through diet and physical activity. As an important element in the common Nordic Plan of Action, the Nordic Council of Ministers decided to develop a common Nordic monitoring of diet, physical activity and overweight. In 2007, a Nordic working group was established to carry out this development. The Nordic Plan of Action emphasizes that the monitoring should be simple and low cost and preferably based on indicator questions. The monitoring project consists of three parts. Part 1 describes a common Nordic method for collecting representative data, including description of sample size and characteristics, as well as practical considerations of the implementation of the monitoring in the Nordic countries. Part 2 validates the proposed methods against an objective method (physical activity) or existing survey methods (diet). A network on childhood growth is also established in the part of the project. Part 3 will be the first collection of data in all Nordic Countries, if financing is provided. The working group consists of scientists from Nordic research institutions and has held two meetings and a combined workshop and meeting in 2008. Before, between and after the meetings the working group has worked together by e-mails. The working group has finished part 1 of the project and has with funding from NICe and NKMT started a validation study running in 2009-2010. It is suggested that the future monitoring is conducted as a telephone interview based on indicator questions. In 2009, the validation study will take place in Iceland, Denmark, Norway and Finland. Diet indicators will be validated in Iceland and Denmark and physical activity indicators will be validated in Iceland, Finland and Norway. Also in 2009, a network of monitoring child growth the Nordic countries will be established. The aim of the network is to coordinate and harmonize central monitoring using the same measures, standards and way of analyses and to compare the development in overweight in the Nordic countries. Objective of the validation project The objective is to validate indicator questions on diet and physical activity among children, adolescents and adults and to establish a network on monitoring of childhood growth. Hypotheses: 1) The validation study will show that the indicator questions on diet reflect the nutritional quality of the total diet assessed by a reference method; and the indicator questions about meeting the recommended level of physical activity reflect the objectively measured physical activity. 2) The network will facilitate improvement in monitoring childhood overweight and obesity in the Nordic Countries. Plan for validation project The project is covered by four work packages. WP1 will cover the activities regarding validation of the diet indicator questions, WP2 will cover the activities regarding the physical activity questions, WP3 will cover the activities regarding the network on monitoring childhood growth and WP4 will cover the coordination within the project, the communication about the project and finally gathering the results of WP1, WP2 and WP3 (see additional information box). Validation diet (WP1) It has been decided that Iceland and Denmark validate the diet indicator questions. The indicators on diet will be measured by a short food frequency questionnaire (FFQ) and validated against a reference method, which is planned to be a food record. It is planned that a pilot study will be conducted in spring 2009 and the data collection will take place in August-November 2009. Validation physical activity (WP2) It has been decided that Iceland, Finland and Norway validate the physical activity questions. The level of physical activity will be measured by a questionnaire indicating participation in moderate and/or vigorous intensity physical activities and exercise. The self-report questionnaires will be validated against objectively measured physical activity by using 7 to 14 days monitoring of PA by accelerometers. Network on childhood growth (WP3) Included in the validation study is also the establishment of a network of monitoring child growth in the Nordic countries. The aim of the network is to coordinate and harmonize central monitoring of child growth using the same measures, standards and way of analyses and to compare the development in overweight in the Nordic countries. Coordination and communication (WP4) Coordination within the project and communication about the project will take place through project group meetings, project group e-mails, common e-mails to reference group, national meetings for reference group members and information on web sites. Timetable Spring 2009: completion of common questionnaires, including translation and retranslation, pilot study During 2009: data collection, data processing and analyses During 2010: final analyses, report medio 2010 and scientific paper and project report by the end of 2010 All work packages are running the whole project period. The work packages are coordinated by the project group, where all WP leaders are represented. This will ensure sharing of information from WP1, WP2 and WP3. WP1 and WP2 run in parallel, since the validation studies on diet and physical activity are conducted by different institutions in the Nordic countries, as shown in additional information. Results from WP1 and WP2 are finally gathered in WP4 and presented in a common report, since both indicator questions on diet and indicator questions on physical activity should represent the future common Nordic monitoring system. Results from WP3 will also contribute to the proposal for a common Nordic monitoring system, since inclusion of a few general health parameters will be discussed in WP3. The Network group of WP3 will benefit from WP1 and WP2, since the project manager and WP1 leader are members of the network group, regarding the discussion about development of indicators of diet and physical activity to be used in monitoring programs in schools. Objectives and target groups for communication activities The objectives of the communication activities are: To disseminate the results of the project to a broad audience to ensure knowledge of the results, especially decision makers in the Nordic countries. To give decision makers the best possible scientific
background for deciding to finance a common Nordic monitoring system. Target groups for the communication activities Report to NKMT and NICE will disseminate the results, especially to the Nordic Council of Ministers and Nordic Food and Health authorities, but also politicians, commercial actors, scientists, NGO’s and the public. Web articles will disseminate the results primarily to the public and the press and a scientific article will disseminate the results to the scientific world. The NKMT has interest of the results to be able to present plans for a common Nordic monitoring of diet, physical activity and overweight to the Nordic Ministers in the summer of 2010. The project will give technical and science based advises in relation to that, if needed.

National Food Institute
Division of Nutrition
University of Oslo
National Institute for Health and Welfare
Public Health Institute of Iceland
Sveriges Livsmedelsverk
Period: 01/01/2008 → 31/07/2015
Number of participants: 9
Project participant:
Andersen, Lene Frost (Ekstern)
Borodulin, Katja (Ekstern)
Thorgeirsdottir, Holmfridur (Ekstern)
Matthiessen, Jeppe (Intern)
Serensen, Mette Rosenlund (Intern)
Barbieri, Helene (Ekstern)
Project Manager, organisational:
Fagt, Sisse (Intern)
Trolle, Ellen (Intern)
Project Manager, academic:
Knudsen, Vibeke Kildegaard (Intern)

Phthalates are high volume chemicals used in many technical applications, including certain food contact materials. With a few exceptions, phthalates have today been substituted with other plasticizers in such materials. However, processing equipment used in the food industry, such as plasticized tubing, gaskets and gloves, is a potential source of food contamination. More diffuse sources to contamination are atmospheric deposition of phthalates on crops and their release from vinyl floorings in industry and private homes.

The aims of the project are to use newly developed analytical GC-MS-based methods capable of determining selected phthalates reliably, even at low concentrations in plastics, in food simulants and in selected foodstuffs. The methods are currently used in the enforcement of the rather new more restrictive EU regulation (into force from June 2008). Further analysis of selected foodstuffs will possibly take place in 2010 with the purpose of improving current estimates of human exposure to phthalates.

Project financing:
Internal funding and Danish Veterinary and Food Administration

Project participants:
The network of EU Community and National Reference laboratories for improvement of quality of analytical work.

National Food Institute
Division of Food Chemistry
Period: 01/01/2008 → 01/01/2010
Number of participants: 1
Project Manager, organisational:
Petersen, Jens Hejslev (Intern)

Phthalate migration into foodstuffs and food simulants
Phthalates are high volume chemicals used in many technical applications, including certain food contact materials. With a few exceptions, phthalates have today been substituted with other plasticizers in such materials. However, processing equipment used in the food industry, such as plasticized tubing, gaskets and gloves, is a potential source of food contamination. More diffuse sources to contamination are atmospheric deposition of phthalates on crops and their release from vinyl floorings in industry and private homes.

The aims of the project are to use newly developed analytical GC-MS-based methods capable of determining selected phthalates reliably, even at low concentrations in plastics, in food simulants and in selected foodstuffs. The methods are currently used in the enforcement of the rather new more restrictive EU regulation (into force from June 2008). Further analysis of selected foodstuffs will possibly take place in 2010 with the purpose of improving current estimates of human exposure to phthalates.

Project financing:
Internal funding and Danish Veterinary and Food Administration

Project participants:
The network of EU Community and National Reference laboratories for improvement of quality of analytical work.

National Food Institute
equipment used in the food industry, such as plasticized tubing, gaskets and gloves, is a potential source of food contamination. More diffuse sources to contamination are atmospheric deposition of phthalates on crops and their release from vinyl floorings in industry and private homes. The aims of the project are to use newly developed analytical GC-MS-based methods capable of determining selected phthalates reliably, even at low concentrations in plastics, in food simulants and in selected foodstuffs. The methods are currently used in the enforcement of the rather new more restrictive EU regulation (into force from June 2008). Further analysis of selected foodstuffs will possibly take place in 2010 with the purpose of improving current estimates of human exposure to phthalates

National Veterinary Institute
Division of Food Chemistry

National Food Institute
Period: 01/01/2008 → 31/12/2010
Number of participants: 1
Project Manager, organisational:
Petersen, Jens Højslev (Intern)

Safety and gastronomic quality of new LTLT treatments of meat
In the food industry, in catering and in the molecular gastronomy society, new interest has emerged towards heating products of animal origin for longer time, but at much lower temperatures than seen up to now - a so-called LTLT treatment. LTLT treatment can give rise to better retention of colour as well as more juicy and tender meat but the temperatures are far below earlier recommendations for safe heating. Therefore, LTLT introduces new challenges and data are missing for evaluation of the safety. LTLT operates close to the limits for growth and inactivation of pathogens and the mathematical models, which normally have been applied for prediction of heat inactivation, are not appropriate for LTLT treatments. Through a multidisciplinary approach, the project aims at defining time-temperature-combinations that will ensure safe products as well as specific quality changes in various meat types.

Division of Microbiology and Risk Assessment
National Food Institute
University of Copenhagen
Danish Meat Association
Period: 01/01/2008 → 28/02/2011
Number of participants: 1
Project Manager, organisational:
Knøchel, Susanne (Ekstern)

Source account for Campylobacter infections in Denmark
The aim of this project is to develop the first source account for Campylobacter jejuni infections in Denmark based on results from Multi Locus Sequence Typing (MLST) and antibiotic resistance analyses of various Campylobacter jejuni isolates collected from relevant reservoirs (food, animals and environment) and from patients. Initially, the project will collect C. jejuni isolates from patients, production animals (pigs, cattle, lambs and broilers), Danish produced and imported meat (from broilers, turkeys, ducks and lambs) and environmental reservoirs. The isolates will primarily be collected through national surveillance programmes, but additional isolates from sources not included in the surveillance will also be sampled. Approximately 1,500 C. jejuni isolates will be collected in 2007-2008. The isolates will be sub-typed using MLST and analysed for resistance to selected antibiotics. The obtained data will, together with existing knowledge about occurrence, be used to develop a mathematical model describing the attribution of different sources to human infection with C. jejuni. For this purpose we will look into the existing source account models developed for food-borne bacterial pathogens. The approach will be to compare different subtypes from animal reservoirs, raw meat (domestic produced and imported) and humans, to determine the importance of different sources on human infections.

Division of Microbiology and Risk Assessment
Division of Poultry, Fish and Fur Animals
National Food Institute
National Veterinary Institute
Statens Serum Institut
Period: 01/01/2008 → 30/11/2010
Number of participants: 1
Acronym: CAMSA
Specific determination of dithiocarbamates in foods and exposure assessment

Development of an analytical method by which it is possible to determine the different DTCs qualitatively and quantitatively, which will be very useful for the authorities of the different EU Member States for enforcement purposes. Furthermore this will enable a more correct estimation of the residue levels in our food and the dietary intake of the different DTCs. Currently only a rough estimate of the human dietary intake of dithiocarbamates (DTCs) is known, due to lack of accuracy, specificity and selectivity of the currently applied analytical methods. The data produced will form the basis of a comprehensive assessment of the dietary exposure to DTCs. Aims: To develop a specific and selective analytical method which will enable enforcement of current regulation for dithiocarbamates, e.g. control of illegal use of dithiocarbamates or exceedances of MRLs. Perform DTC-conserving sample preparation by means of cryogenic homogenisation with liquid nitrogen. Detection of DTCs and their main degradation product, ETU and PTU with an analytical platform, which combine HPLC instrumentation for separation with state-of-the-art ICP-MS and ESI-MS/MS for simultaneous interference-free detection of sulphur in the DTCs as well as the associated manganese or zinc ions. To estimated the exposure of DTCs and ETU from fruit and vegetables. Analyses of 150 samples of Danish produced and imported fruit and vegetables Probabalistic intake calculations based on the residues found in fruit and vegetables.

Division of Food Chemistry

National Food Institute
Period: 01/01/2008 → 30/06/2011
Number of participants: 2
Project Manager, organisational:
Nielsen, Eva Møller (Ekstern)
Nielsen, Eva Møller (Intern)

Effects on Brain Development and Behavior after Exposure to Thyroid Toxicants during Development

National Food Institute
Period: 15/12/2007 → 22/06/2011
Number of participants: 5
Phd Student:
Petersen, Marta Axelstad (Intern)
Main Supervisor:
Hass, Ulla (Intern)
Examiner:
Larsen, John Christian (Intern)
Lilienthal, Hellmuth (Ekstern)
Østergaard, Grete (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Offentlig finansiering
Project: PhD

In Vitro Investigation of New Prebiotic Compounds

National Food Institute
Period: 01/12/2007 → 29/02/2012
Number of participants: 5
Phd Student:
Vigsnaes, Louise Kristine (Intern)
Main Supervisor:
Licht, Tine Rask (Intern)
Examiner:
Mølbak, Lars (Intern)
Ahrné, Siv (Ekstern)
Krogfelt, Karen Angeliki (Intern)
**Impact of Colonization on Immune System Development**

National Food Institute  
**Period:** 01/11/2007 → 02/07/2014  
**Number of participants:** 6  
**PhD Student:**  
Kristensen, Matilde Bylov (Intern)  
**Supervisor:**  
Frøkiær, Hanne (Intern)  
**Main Supervisor:**  
Licht, Tine Rask (Intern)  
**Examiner:**  
Hellgren, Lars (Intern)  
Pedersen, Anders Elm (Ekstern)  
Sanz, Yolanda (Ekstern)

**Financing sources**  
Source: Internal funding (public)  
Name of research programme: DTU, Samfinansiering  
Project: PhD

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**Modelling Salmonella from raw meat to ready meal**

This is a PhD project, which includes investigations on growth and survival of Salmonella in raw minced pork meat. Furthermore, the dissemination, growth and survival of Salmonella at storage and during meat handling (cross-contamination) will be examined for the most important processing steps in the meat grinding process.

The data acquired in these studies will be subjected to modelling in order to describe how data on transfer, growth and survival of Salmonella can be applied in predictive models for Salmonella and, subsequently, be used to assess the risk associated with the occurrence of Salmonella in the post processing environment.

The project is part of a larger project about catering and convenience products in the productive chain perspective.

National Food Institute  
Division of Food Microbiology  
**Period:** 01/11/2007 → 01/01/2012  
**Number of participants:** 3  
**Number of related Ph.D. students:** 1  
**Project participant:**  
Dalgaard, Paw (Intern)  
**Project Manager, organisational:**  
Hansen, Tina Beck (Intern)  
**PhD Student:**  
Møller, Cleide Oliveira de Almeida (Intern)  
**Project**

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**Modelling Salmonella in raw minced pork meat considering different conditions of storage, cross-contamination and biofilm formation during handling in the production**

This is a PhD project, which includes investigations on growth and survival of Salmonella in raw minced pork meat. Furthermore, the dissemination, growth and survival of Salmonella at storage, during meat handling (cross-contamination) and when established in biofilms will be examined for the most important processing steps in the meat grinding process. The data acquired in these studies will be subjected to modelling in order to describe how data on transfer, growth and survival of Salmonella can be applied in predictive models for Salmonella and, subsequently, be used to assess the risk associated with the occurrence of Salmonella in the post processing environment. The project is part of a larger project about catering and convenience products in the productive chain perspective.

Division of Microbiology and Risk Assessment
European Nutrition and Health Report 2009

The general aim of the ENHR II project is to provide a comprehensive and up-to-date report on the nutrition and health situation in Europe that focuses on diet, physical activity, tobacco use and alcohol consumption. The European Nutrition and Health Report 2009 will contribute to the identification of major nutrition and health problems in the EU regions and to the monitoring and evaluation of food and nutrition policies already in place within the Member States. The method implies collecting and critically reviewing available data on the most common indicators used for the assessment of nutrition and health situation of 25 European countries. The European Nutrition and Health Report 2009 will provide information on dietary habits, diet related health indicators as well as established food and nutrition policies in European countries. The European Nutrition and Health Report 2009 has been finalized and is available at www.univie.ac.at/enhr, including
national reports from each of the participating countries. At the 19th International Congress of Nutrition the European Nutrition and Health Report 2009 was presented by Prof. Elmadfa

Division of Nutrition

National Food Institute
Number of participants: 0

Project

**Smart Surface Materials in Industrial Food Frying**

National Food Institute
Period: 15/08/2007 → 20/04/2011
Number of participants: 7
Phd Student:
Ashokkumar, Saranya (Intern)
Supervisor:
Hinke, Jens (Ekstern)
Møller, Per (Intern)
Main Supervisor:
Adler-Nissen, Jens (Intern)
Examiner:
Risum, Jørgen (Intern)
Fontenay, Frank Le Sage De (Intern)
Paatsch, Wolfgang (Ekstern)

**Financing sources**
Source: Internal funding (public)
Name of research programme: ErhvervsPhD-ordningen VTU
Project: PhD

**Nutritional Immunology**
This project runs under the FoodDTU umbrella, and one of its purposes is to create new collaborations between different DTU institutes with ongoing research related to food science. The participating institutes are DTU-Food, DTU-Biosys and DTU-Aqua. The purpose is to elucidate the impact of specific dietary components including e.g. fish oil on the intestinal microbiota and thereby on the development of the immune system in early life. The results are expected to create a basis for better nutritional advice for pregnant women.

National Food Institute
Department of Systems Biology
University of Copenhagen
Number of participants: 14
Project participant:
Kristensen, Matilde Bylov (Intern)
Wilcks, Andrea (Intern)
Bergström, Anders (Intern)
Nellemann, Christine (Intern)
Kølln, Charlotte (Intern)
Jacobsen, Charlotte (Intern)
Nielsen, Nina Skall (Intern)
Horn, Anna Frisenfeldt (Intern)
Mathiassen, Jakob Hovalt (Intern)
Hellgren, Lars (Intern)
Fink, Lisbeth Nielsen (Intern)
Frekjær, Hanne (Ekstern)
Broeng Metzdorff, Stine (Ekstern)

Project Manager, organisational:
Effect of Fruit-Intervention in Workspaces on Bodyweight Management

National Food Institute
Period: 01/08/2007 → 23/05/2012
Number of participants: 5
Phd Student:
Alinia, Sevil (Intern)
Main Supervisor:
Tetens, Inge (Intern)
Examiner:
Rasmussen, Lone Banke (Intern)
Becker, Wulf (Ekstern)
Hansen, Gitte Laub (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Anden EU-finansiering
Project: PhD

Evaluation of food safety management systems in the Danish school meal sector
This project focuses on HACCP-based own-control systems in the catering industry, using the Danish school meal sector as an example. The background of the project emerges from an assumption that the management tools used by SMEs not always lead to the wanted consumer safety. The food safety systems and technologies used are often not adjusted to practise and are not fitted to the daily routines in the SMEs. Therefore, HACCP-based own-control systems may obstruct the innovation, may be inappropriate implemented or may be detached from the other management systems in SMEs. Finally, HACCP-based own-control systems may also be technologically over-dimensioned resulting in poorer eating quality. The aim is to evaluate the efficiency of food safety management systems in SMEs in order to improve and simplify them.

Division of Microbiology and Risk Assessment
National Food Institute
Department of Management Engineering
Period: 01/08/2007 → 31/12/2010
Number of participants: 2
Acronym: SAFEMAN
Project participant:
Hansen, Tina Beck (Intern)
Project Manager, organisational:
Christensen, Bjarke Bak (Intern)

Impact of Colonization on immune System Development
National Food Institute
Period: 01/08/2007 → 15/10/2007
Number of participants: 4
Phd Student:
Jensen, Hasse Brønnum (Intern)
Supervisor:
Fink, Lisbeth Nielsen (Intern)
Frøkiær, Hanne (Intern)
Main Supervisor:
Licht, Tine Rask (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Globaliseringsmidler
Project: PhD
Integreret sporbar kvalitet af fisk

National Food Institute
Period: 01/08/2007 → 27/06/2012
Number of participants: 6
Phd Student:
Rasmussen, Maria-Louise Randrup (Intern)
Supervisor:
Frederiksen, Marco Thorup (Intern)
Main Supervisor:
Jørgensen, Bo Munk (Intern)
Examiner:
Nielsen, Henrik Hauch (Intern)
Brunsø, Karen (Ekstern)
Pérez-Villarreal, Begoña (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Globaliseringsmidler
Project: PhD

New nordic food for youth - focusing on lifeskills, health and food identity
Healthcat is a network for stakeholders within the Nordic food service sector. We will put weight on exchange of knowledge, experiences and competence through workshops, seminars, newsletters and web-pages. The network shall contribute to an increased focus on the food service sector in the Nordic countries as an important arena for healthier and sounder food habits among consumers. The aim is to transfer the experiences already made in the public sector to the private food service sector. It is also the aim is to consolidate Norden as one of the leading regions in Europe in this field, and make the network function as a catalyst for larger international projects with both innovative and research perspectives.

National Food Institute
Period: 01/08/2007 → 01/12/2008
Number of participants: 1
Project Manager, organisational:
Mikkelsen, Bent Egberg (Intern)

Nutritional Immunology
This project runs under the FoodDTU umbrella, and one of its purposes is to create new collaborations between different DTU institutes with ongoing research related to food science. The participating institutes are DTU-Food, DTU-Biosys and DTU-Aqua. The purpose is to elucidate the impact of specific dietary components including e.g. fish oil on the intestinal microbiota and thereby on the development of the immune system in early life. The results are expected to create a basis for better nutritional advice for pregnant women.

National Food Institute
Department of Systems Biology
Period: 01/08/2007 → 31/12/2011
Number of participants: 13
Project participant:
Kristensen, Matilde Bylov (Intern)
Wilcks, Andrea (Intern)
Bergström, Anders (Intern)
Andersen, Jens Bo (Intern)
Nellemann, Christine (Intern)
Kellin, Charlotte (Intern)
Jacobsen, Charlotte (Intern)
Nielsen, Nina Skall (Intern)
Horn, Anna Frisenfeldt (Intern)
Mathiassen, Jakob Hovalt (Intern)
Frying in the food industry is today based on equipment and processes that in many ways are not satisfactory for the production of refined foodstuffs of high culinary quality and low fat content. The process technological problems are fundamental and demand e.g. better surface materials than the ones used today - which is stainless steel or Teflon coated steel. Both materials lack substantial properties (on stainless steel burnt layers are created that are fixed, Teflon has low durability and cannot tolerate temperatures that are high enough). In this project it will be investigated how the surface material influences the frying process as well as the tendency to create burnt layers. The achieved knowledge will be used to choose and test different surface coatings in order to enhance the influence of surface coatings on the product quality, to enhance the durability of the surface coating and to reduce or hinder the creation of burnt layers.
Development of Methods for Risk Assessment of Combined Actions of Substances in Food

National Food Institute
Period: 01/07/2007 → 29/02/2012
Number of participants: 6
Phd Student:
Reffstrup, Trine Klein (Intern)
Supervisor:
Meyer, Otto A. (Intern)
Main Supervisor:
Larsen, John Christian (Intern)
Examiner:
Hass, Ulla (Intern)
Alexander, Jan (Ekstern)
Mielke, Hans (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut/centerfinansieret
Project: PhD

Global Occurrence and Spread of Antimicrobial Resistant Salmonella and other Bacteria of Animal Origin

National Food Institute
Period: 01/07/2007 → 24/03/2010
Number of participants: 6
Phd Student:
Hendriksen, Rene S. (Intern)
Supervisor:
Wegener, Henrik Caspar (Intern)
Main Supervisor:
Aarestrup, Frank Møller (Intern)
Examiner:
Christensen, Bjarke Bak (Intern)
Schlundt, Jørgen (Intern)
Wagenaar, Jaap (Ekstern)

Financing sources
Risks and Recommendations Regarding Human Pathogens in Organic Vegetable Production Chains (PathOrganic)

Vegetables contaminated with human pathogens such as Salmonella and E. coli have been pointed to as a source of disease outbreaks in humans. However, available data on pathogen occurrence, survival and transmission in vegetables are scarce. The EU-project 'PathOrganic' focus on the risk of contaminating organic vegetables with human pathogens when livestock manure is used to fertilize vegetables as alternative to conventional fertilizers. A combination of field studies, laboratory experiments, questionnaires and risk modelling will be performed to improve our understanding of how factors such as manure type, plant genotype, environment, soil buffering, etc. affect spread and persistence of pathogens. The obtained information should enable a better control of human pathogens associated with fresh produce.

National Food Institute
Division of Food Microbiology
Austrian Institute of Technology
University of Natural Resources and Life Sciences, Vienna (BOKU)
Research Institute of Organic Farming
Agroscope
University of Copenhagen
Plant Research International
Wageningen IMARES
Lund University
Period: 01/07/2007 → 31/07/2010
Number of participants: 3
Project participant:
Baggesen, Dorte Lau (Intern)
Jensen, Annette Nygaard (Intern)
Project Manager, organisational:
Angela Sessitsch (Ekstern)

Relations
Activities:
22nd International ICFMH Symposium
Contamination of lettuce with antibiotic resistant E. coli after slurry application

Fresh and processed convenience foods with short shelf-life – optimization of quality in production and distribution
Collaboration between the Predictive Microbiology group at DTU Aqua, DTU Management, DTU Food and Risø DTU. Funded by the FoodDTU program

National Food Institute
Division of Industrial Food Research
Period: 01/05/2007 → 31/12/2009
Number of participants: 4
Project participant:
Mejlholm, Ole (Intern)
Devitt, Tina Dahl (Intern)
Samieian, Naderreh (Intern)
Project Manager, academic:
Dalgaard, Paw (Intern)

Financing sources
Source: Public research council
Name of research programme: FoodDTU program
Project
Healthy CanteenTakeAway at workplace
The idea behind CanteenTakeAway (CTA) is that healthy eating can be promoted by increasing accessibility of healthy meals from workplace canteens. The aim of the workpackage at the National food Institute is to develop and validate a novel canteen index and to use this tool in the evaluation of the effectiveness of improving the dietary intake among selected employees.

National Food Institute
Department of Management Engineering
Danish Cancer Society
University of Copenhagen
Period: 01/05/2007 → 30/04/2010
Number of participants: 0
Project

Prebiotics for Prevention of Lsiteria Infections
National Food Institute
Period: 01/04/2007 → 22/09/2010
Number of participants: 6
Phd Student:
Ebersbach, Tine (Intern)
Supervisor:
Poulsen, Morten (Intern)
Main Supervisor:
Licht, Tine Rask (Intern)
Examiner:
Gram, Lone (Intern)
Ingmer, Hanne (Ekstern)
Rastall, Robert (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Programbevilling
Project: PhD

Prebiotics for Prevention of Salmonella Infections
National Food Institute
Period: 01/04/2007 → 25/08/2010
Number of participants: 5
Phd Student:
Petersen, Anne (Intern)
Supervisor:
Poulsen, Morten (Intern)
Main Supervisor:
Licht, Tine Rask (Intern)
Examiner:
Aabo, Søren (Intern)
Kleerebezem, Michiel (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Forskningsrådsfinansiering
Project: PhD

New vision technology for multidimensional quality monitoring of food processes
The trained process operator plays a key role in today's food industry. His or her ability to judge processes such as continuous baking, roasting and frying processes by visual inspection is crucial. Automation has been slow due to inadequate technology. New forms of vision technology where the product is illuminated uniformly over a large area (50
cm²) and at specified wavelengths have the potential of matching much closer the visual judgement made by the trained process operator. The technology has proven its ability to difficult tasks in particle sorting and recent results indicate its large potential in food process control. The aim of the project is to investigate the potentials of this new vision technology and develop the technical/scientific basis for widespread use in process control of continuous baking, roasting and frying processes.

Division of Food Production Engineering
National Food Institute
Department of Systems Biology
Department of Informatics and Mathematical Modeling
Period: 15/03/2007 → 01/01/2012
Number of participants: 2
Project participant:
Adler-Nissen, Jens (Intern)

Project Manager, organisational:
Dissing, Bjørn Skovlund (Intern)

Content, bioavailability and health effects of trace elements and bioactive components in organic agricultural systems
The main objective is to study the impact of relevant organic agricultural practices on the ability of plants to assimilate trace elements from the soil and to synthesise bioactive secondary metabolites and antioxidant vitamins with health promoting effects. Moreover, in comparison with conventionally cultivated crops, the possible improved uptake rate of bioactive compounds in humans and animal models will be studied. The specific objectives are: 1. To screen the content of trace elements together with other relevant bioactive constituents in a wide selection of commonly consumed organic crops. Multivariate methods of data analysis will be employed to differentiate between the agricultural systems. 2. To characterise and optimise the content of trace elements and bioactive compounds in crop plants harvested from two well-defined organic cultivation systems that include combinations of plant species, soil type, crop rotations and fertilizers. 3. To assess the bioavailability of the bioactive compounds in human intervention studies employing prepared diets based on the crops produced within the systems. 4. To study the effects of foods on health and well being after long-term consumption using the rat as a model.

Division of Food Chemistry
National Food Institute
University of Copenhagen
Aarhus University
Period: 07/01/2007 → 31/12/2010
Number of participants: 7
Project participant:
Husted, Søren (Ekstern)
Larsen, Erik Huusfeldt (Intern)
Knuthsen, Pia (Intern)
Jakobsen, Jette (Intern)
Sloth, Jens Jørgen (Intern)
Kápolna, Emese (Intern)
Søltoft, Malene (Intern)

Nutritional Immunology
National Food Institute
Department of Systems Biology
National Institute of Aquatic Resources
Period: 04/01/2007 → 31/12/2011
Number of participants: 10
Project participant:
Wricks, Andrea (Intern)
Bergström, Anders (Intern)
Andersen, Jens Bo (Intern)
Metzdorff, Stine Broeng (Intern)
Fink, Lisbeth Nielsen (Intern)
Nielsen, Nina Skall (Intern)
Project Manager, organisational:
Licht, Tine Rask (Intern)
Frekiær, Hanne (Intern)
Hellgren, Lars (Intern)
Jacobsen, Charlotte (Intern)

Financing sources
Source: [Ordinær drift UK 10]
Name of research programme: [Ordinær drift UK 10]
Amount: 3,250,000.00 Danish Kroner
Project

The impact of pancreas disease (PD) on flesh quality of Atlantic salmon. Determine underlying causes and identify strategies accelerating muscle regeneration post-infection
Collaboration between AKVAFORSK, NORCONSERV, Veterinærinstituttet and MATFORSK in Norway and the Predictive Microbiology group at DIFRES in Denmark. Funded by the Research Council of Norway.

National Food Institute
Division of Industrial Food Research
Period: 01/01/2007 → 31/12/2009
Number of participants: 1
Acronym: PD-SALMON
Project participant:
Dalgaard, Paw (Intern)

Financing sources
Source: Public research council
Name of research programme: Research Council of Norway
Project

Detection of strongly histamine-producing and psychrotolerant bacteria in seafood
Postdoc project in collaboration between the Predictive Microbiology group at DTU Aqua and DTU Systems Biology.
Funded by the Danish Research Council for Technology and Production Sciences

National Food Institute
Division of Industrial Food Research
Section for Aquatic Microbiology and Seafood Hygiene
Period: 01/01/2007 → 31/03/2010
Number of participants: 2
Acronym: Hiproba
Project participant:
Emborg, Jette (Intern)
Project Manager, academic:
Dalgaard, Paw (Intern)

Financing sources
Source: Public research council
Name of research programme: Danish Research Council for Technology and Production Sciences
Project

Allergenicity of Aggregated Peptides from Food Allergens - a New Hypothesis on Food Allergy Sensitisation.
This project is a Ph.D. project, which aims to investigate the basis for the hypothesis that food allergens do not need to be presented to the immune system in intact form or as large fragments to be allergenic. The project will be carried out by studying the physico-chemical nature and allergenicity of break down products of food allergens after gastro-intestinal digestion, and thereby elucidate the significance of aggregation of peptides on the sensitising capacity. Model allergens will be Ara h 1 from peanut and casein from milk.
Biopolymer nanocomposite films and food packaging

Plastics produced from biodegradable polymers such as polylactide (PLA) are of increasing commercial interests. They are manufactured from renewable resources such as agricultural products and have the potential to meet environmental requirements. However, a wider use of PLA in food packaging requires further material development in order to achieve the necessary stability and permeability profile to gas or water vapour. In the NanoPack project we will investigate improvement of PLA properties through nanoscale reinforcement using reinforcing fillers based on natural clay silicates and metal hydroxides. The National Food Institute will characterise nanoparticles migrating from PLA film and perform in-vitro and in-vivo toxicological studies on relevant effect parameters. A thorough risk characterisation in the context of their use in food packaging will be performed by integrating results from exposure estimates and toxicological studies.

UNEP Risoe Centre on Energy, Climate and Sustainable Development (URC)

Systems Analysis Division

Risø National Laboratory for Sustainable Energy

Division of Food Chemistry

National Food Institute

University of Copenhagen
Period: 01/01/2007 → 01/07/2011
Number of participants: 3
Project participant:
Larsen, Erik Huusfeldt (Intern)
Project Manager, organisational:
Biopolymer nanocomposite films and food packaging

Plastics produced from biodegradable polymers such as polylactide (PLA) are of increasing commercial interests. They are manufactured from renewable resources such as agricultural products and have the potential to meet environmental requirements.

However, a wider use of PLA in food packaging requires further material development in order to achieve the necessary stability and permeability profile to gas or water vapour. In the NanoPack project we will investigate improvement of PLA properties through nanoscale reinforcement using reinforcing fillers based on natural clay silicates and metal hydroxides.

The National Food Institute will characterise nanoparticles migrating from PLA film and perform in-vitro and in-vivo toxicological studies on relevant effect parameters. A thorough risk characterisation in the context of their use in food packaging will be performed by integrating results from exposure estimates and toxicological studies.

Project financing:
About 15 mio. DKr. with 50% from The Danish Research and Innovations Agency (DSF-NABIIT). The total budget for the National Food Institute is approximately 4.7 mio DKr.

National Food Institute
Division of Food Chemistry
Department of Chemical and Biochemical Engineering
Risø National Laboratory
Faculty of Life Sciences
Faerch Plast A/S
Danish Meat Association
Period: 01/01/2007 → 01/06/2011
Number of participants: 3
Project participant:
Plackett, David (Intern)
Larsen, Erik Huusfeldt (Intern)
Project Manager, organisational:
Petersen, Jens Højslev (Intern)

Biosynthesis of cancer-preventive organoselenium compounds by metabolically engineered yeast (YESSEL)

Selenium is an essential element that may have cancer-preventive properties. By using biotechnological research methods, the YESSEL project will develop yeast strains as cell factories for synthesis of organic selenium compounds with promising properties towards prevention of disease. The hypothesis is that yeast can be engineered for improved production of target selenium species such as methylselenocysteine or selenium-sulphur conjugates. Furthermore, the project will test if these target compounds are safer than selenomethionine that is predominant in natural yeast. The project will map, engineer and optimise the metabolic routes in yeast leading to the target selenium compounds. The selenium compounds produced be the various strain modifications of yeasts will be characterised by advanced mass spectrometric methods, such as HPLC-ICP-MS and Q-TOF-MS.

Department of Systems Biology
Division of Food Chemistry
National Food Institute
Laboratoire Bio-inorganique et Environnement
University of Copenhagen
Pharma Nord Aps.
Period: 01/01/2007 → 31/12/2009
Number of participants: 11
Project participant:
Effects of bacterial colonization on immune maturation
The Gut Ecology group at the National Food Institute, Technical University of Denmark investigates effects of bacterial colonization on the maturation of the immune system in early life.

We do this by use of germ-free and monocolonized mouse models.

The project is closely related to other projects in the Gut Ecology research group, where we analyze the intestinal microbiota in infants.

Project financing:
Globalization funds (through FoodDTU)
National Food Institute
Division of Food Microbiology
Communications and Management Secretariat
Period: 01/01/2007 → 01/01/2012
Number of participants: 7
Number of related Ph.D. students: 1
Project participant:
Bergström, Anders (Intern)
Nellemann, Christine (Intern)
Frøkiær, Hanne (Intern)
Metzdorff, Stine Broeng (Intern)
Fink, Lisbeth Nielsen (Intern)

Evaluation of Prebiotic potential of novel carbohydrate preparations
This project constitutes workpackage 2 in the Prebiotic Center, headed by Anne Meyer at DTU Chemical Engineering. The task of the Gut Ecology group at the National Food Institutes, Technical University of Denmark in the Center approach is to test for effects of novel carbohydrate preparations on the intestinal microbiota which may be relevant for human health. Specifically, we focus on the possibilities to prevent outbreaks of Ulcerative Colitis (UC).

We perform small-scale batch fermentations in pure cultures as well as in intestinal communities derived from healthy subjects and from subjects suffering from UC.

We analyse microbiota composition and metabolites produced by host and bacteria.

Project financing:
Danish Strategic Research Council
Øresund Food network
FoodLab intervention
The aim of the FoodLab intervention study is to evaluate the effect and shaping of school meal interventions. Bent Egberg Mikkelsen is leading workpackage 1 in the evaluation study which focuses on the role of the social and learning climate at school on the shaping of eating habits among middle school students. The two other workpackages focuses on measuring the effect of the interventions as well as the role of childrens conception of the school meal.

FOU FoodVirus
Norovirus (NoV) polluted water can contaminate soft-fruits during growth. The lack of sensitive and accredited methods for concentrating and detecting NoVs in foods has hampered the implementation of routine monitoring programs and risk analysis. Knowledge on the survival of NoV in foods after different storage conditions is necessary to perform risk assessments and control. Information on appropriate treatments, for inactivation of viruses without affecting the quality and texture is needed. The aim is to provide laboratory data to better calculate the health risk of exposure to NoV contaminated soft-fruit. Specifically, we will develop rapid and sensitive detection and tracing methods for NoV in produce as well as examine the survival characteristics and possibilities for inactivation using cultivable model viruses.
Healthy, Nutritious and Tasty Fish for the Future
National Food Institute
Period: 01/01/2007 → 21/12/2011
Number of participants: 6
Phd Student:
Rentsch, Maria Louise (Intern)
Supervisor:
Lauritzen, Lotte (Ekstern)
Main Supervisor:
Jessen, Flemming (Intern)
Examiner:
Jørgensen, Bo Munk (Intern)
Højrup, Peter (Ekstern)
Yaqoob, Parveen (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Offentlig finansiering
Project: PhD

Improved bio-traceability of unintended microorganisms and their substances in food and feed chains
National Food Institute
Period: 01/01/2007 → 30/11/2010
Number of participants: 1
Project Manager, organisational:
Bouquin, Solveig Lind (Intern)

Interactions between Fish Probiotic Roseobacter and Fish Pathogenic Bacteria: Mode of Action and Application in Aquaculture
National Food Institute
Period: 01/01/2007 → 21/12/2010
Number of participants: 5
Phd Student:
Porsby, Cisse Hedegaard (Intern)
Main Supervisor:
Gram, Lone (Intern)
Examiner:
Jensen, Lars Bogø (Intern)
Bergh, Øivind (Ekstern)
Brinkhoff, Thorsten (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Forskningsrådsfinansiering
Project: PhD

Online måling af visuelle kvalitetsparametre efter varmebehandling
National Food Institute
Division of Industrial Food Research
Videometer A/S
Technical University of Denmark
Nakskov Mill Foods A/S
Period: 01/01/2007 → 30/04/2011
Number of participants: 1
Project Manager, organisational:
Online measurement of visual quality parameters after heat treatment

Many foodstuffs have the shape of small pieces or particles that are heat treated in continuous open processes (corn flakes e.g.). Such processes are monitored by trained process operators who visually evaluate the product quality. There is a great need to support the evaluations of the process operators with vision technological systems that quickly are able to reveal deviations from the desired visual quality and adjust the process hereafter. In the project a new advanced form of vision technology will be investigated, the device can because of its special design be expected to detect small differences in color and wrongly colored small particles. This vision technology differs from NIR (near infrared reflection) by giving detailed picture information and not just sporadic measurements. The aim is to obtain a robust, flexible vision technological solution that later can be implemented in different industrial food productions.

Prebiotics for Prevention of Gastrointestinal Infections

There is increasing evidence that (i) intestinal beneficial bacteria are selectively stimulated by ingestion of specific (prebiotic) carbohydrates, and that (ii) beneficial bacteria ingested as probiotics are capable of suppression of bacterial pathogens in the gut. The idea of this project is to utilize existing animal models to identify dietary (prebiotic) carbohydrates that inhibit infection with selected pathogenic bacterial challengers. Carbohydrates with the best potential for pathogen inhibition will then be further studied with respect to effects on beneficial gut bacteria, production of short-chain fatty acids (SCFAs), and immune modulation in the host animals. Visualization of pathogenic challengers as well as of prebiotic-stimulated beneficial species in the intestinal environment will reveal whether an observed inhibition of a given pathogen results e.g. from competition for adhesion sites. The results obtained will be analyzed in a multivariate approach, in order to determine which of the above-mentioned factors have important impact on the anti-pathogen effect of prebiotics.
Risk-based detection of cattle herds contaminated with Salmonella Dublin
Salmonella Dublin infections in cattle herds cause profit loss and despite a lowering in the number of contaminated herds in recent years, the numbers are still high in some regions. Therefore, Danish Dairy Board and Danish Veterinary and Food Administration together with research institutions have initiated an intervention campaign aiming to eradicate S. Dublin in cattle before 2014. To achieve this goal it is necessary to develop new methods for more efficient surveillance of S. Dublin spreading in and between herds in order to control the contamination. Then, info about trade patterns, specific risk factors associated with herds etc. will be used to build up a risk-based detection scheme. In addition, possible improvement of diagnostic tools will be assessed for better detection of contaminated herds.

Division of Microbiology and Risk Assessment
National Food Institute
National Veterinary Institute
University of Copenhagen
Aarhus University
Animal Health Service
Danish Veterinary and Food Administration
Danish Dairy Board
Period: 01/01/2007 → 31/12/2011
Number of participants: 1
Project participant:
Baggesen, Dorte Lau (Intern)

Relations
Publications:
Use of real-time PCR on faecal samples for detection of sub-clinical Salmonella infection in cattle did not improve the detection sensitivity compared to conventional bacteriology

The continuous wok
In Chinese cuisine the preparation of fine cut ingredients by stir-frying in a shallow cooking vessel (wok) is widespread. Optimal sensory quality is reached by a combination of intense heat transfer, rapid stirring, and short process time. Because the stir-frying process is characterized by high rates of heat and mass transfer, automation and scale-up of this process is difficult, however. Conventional industrial cooking and frying equipment cannot match the dynamics of the stir-
frying process in small scale. In collaboration with industrial partners we invented a set of new principles for carrying out continuous stir-frying successfully in large scale, and we have applied internationally for a patent. Based upon one of

Division of Food Production Engineering
National Food Institute
Period: 01/01/2007 → 01/01/2012
Number of participants: 1
Project Manager, organisational:
Adler-Nissen, Jens (Intern)

Workpackage 2 in Prebiotic Center : Gut microbiota and Immune Response Effects
The Prebiotic Center is a large research effort aiming to develop, synthesize and characterize new carbohydrates with beneficial effects on human health (e.g. prebiotics). This offers new possibilities for use of biological waste products. The Role of WP2 in Prebiotic Center is to reveal effects of putatively prebiotic carbohydrates on gut microbiota and immune function. We collaborate with Danisco and Herlev Hospital within this WP.

National Food Institute
Department of Chemical and Biochemical Engineering
University of Copenhagen
Danisco AS
Period: 01/01/2007 → 31/12/2011
Number of participants: 9
Project participant:
Wilcks, Andrea (Intern)
Hemmingsen, Lene (Intern)
Vigsnæs, Louise Kristine (Intern)
Sulek, Karolina (Intern)
Brynskov, Jørn (Ekstern)
Steenholdt, Casper (Ekstern)
Lahtinen, Sampo (Ekstern)
Project Manager, organisational:
Licht, Tine Rask (Intern)
Meyer, Anne S. (Intern)

Workpackage 2 in Prebiotic Center : Gut microbiota and Immune Response Effects
The Prebiotic Center is a large research effort aiming to develop, synthesize and characterize new carbohydrates with beneficial effects on human health (e.g. prebiotics). This offers new possibilities for use of biological waste products. The Role of WP2 in Prebiotic Center is to reveal effects of putatively prebiotic carbohydrates on gut microbiota and immune function. We collaborate with Danisco and Herlev Hospital within this WP.

National Food Institute
University of Copenhagen
Danisco AS
Period: 01/01/2007 → 31/12/2011
Number of participants: 8
Project participant:
Wilcks, Andrea (Intern)
Hemmingsen, Lene (Intern)
Vigsnæs, Louise Kristine (Intern)
Sulek, Karolina (Intern)
Byrnskov, Jørn (Ekstern)
Steenholdt, Casper (Ekstern)
Lahtinen, Sampo (Ekstern)
Project Manager, organisational:
Licht, Tine Rask (Intern)
WP2 in Prebiotic Center: Gut microbiota and Immune Response Effects
The Role of WP2 in Prebiotic center is to reveal effects of putatively prebiotic carbohydrates on gut microbiota and immune function. We collaborate with Danisco and Herlev Hospital within this WP.

National Food Institute
Period: 01/01/2007 → 31/12/2011
Number of participants: 3
Project participant:
Wilcks, Andrea (Intern)
Project Manager, organisational:
Licht, Tine Rask (Intern)
Meyer, Anne S. (Intern)

Financing sources
Source: Forskningsrådene - Andre
Name of research programme: Forskningsrådene - Andre
Amount: 3,436,000.00 Danish Kroner

European Food Consumption Validation
EFCOVAL aims at the further development and validation of a trans-European food consumption method to be used for estimation of the intake of foods, nutrients and potentially hazardous chemicals within the European adult population. As recommended by the EFCOSUM consortium, the computerized repeated 24-hour dietary recall method using EPIC-SOFT will be applied as the method for pan-European nutritional surveys to assess intake at an individual level. Within the project 4 main objectives can be distinguished: 1. To define, test and validate (relatively) a trans-European methodology for undertaking national representative dietary surveys among children, focusing on the age of 4 to 12 years. 2. Adaptation and improvement of the software (EPIC-SOFT). To facilitate the use of the software in all European countries, adaptation of the current version of EPIC-SOFT software to modern IT standards is necessary. For five selected countries, participating in the validation study (see 3), new (n=1) or revised (n=4) versions of EPIC-SOFT will be developed. For other countries best practice for the development of an own national version will be assessed. 3. Validation of the computerized 2x24-hour recall in five selected countries using biomarkers and already existing dietary information. Specific attention will be given to sources of uncertainty and methods will be developed to try quantifying these uncertainties. 4. Improvement of the methodologies to translate the collected food consumption data into the information needed by food policymakers. DTU Food has the lead f the work package (WP2) investigating objective 1.

Division of Nutrition
National Food Institute
German Institute of Human Nutrition
Ghent University
INRA Institut National de La Recherche Agronomique
International Agency for Research on Cancer
Istituto Nazionale di Ricerca per gli Alimenti e la Nutrizione
Wageningen IMARES
National Institute of Public Health
Prima informatics limited
Period: 01/10/2006 → 31/03/2010
Number of participants: 1
Project participant:
Trolle, Ellen (Intern)
project 4 main objectives can be distinguished: 1. To define, test and validate (relatively) a trans-European methodology for undertaking national representative dietary surveys among children, focusing on the age of 4 to 12 years. 2. Adaptation and improvement of the software (EPIC-SOFT). To facilitate the use of the software in all European countries, adaptation of the current version of EPIC-SOFT software to modern IT standards is necessary. For five selected countries, participating in the validation study (see 3), new (n=1) or revised (n=4) versions of EPIC-SOFT will be developed. For other countries best practice for the development of an own national version will be assessed. 3. Validation of the computerized 2x24-hour recall in five selected countries using biomarkers and already existing dietary information. Specific attention will be given to sources of uncertainty and methods will be developed to try quantifying these uncertainties. 4. Improvement of the methodologies to translate the collected food consumption data into the information needed by food policymakers. DTU Food has the lead f the work package (WP2) investigating objective 1.

National Food Institute
Public Health Division of Gipuzkoa
French Food Safety Agency
National Institute of Public Health and the Environment
Akademija Medicinskih Znanosti Hrvatske
University of Oslo
German Institute of Human Nutrition
Ghent University
INRA Institut National de La Recherche Agronomique
International Agency for Research on Cancer
Istituto Nazionale di Ricerca per gli Alimenti e la Nutrizione
Wageningen IMARES
National Institute of Public Health
Prima informatics limited
Period: 01/10/2006 → 31/03/2010
Number of participants: 1
Project Manager, organisational:
de Boer, Evelien (Ekstern)

Complementary and young child feeding (CYCF)
The project consists of 6 work packages exploring different aspects of CYCF from different disciplines. WP 1: Cohort study on diet, growth and other health parameters WP 2: Methodology for dietary assessment in children and a national survey WP 3: Early growth, CYCF, and obesity in the Danish National Birth Cohort WP 4: Iron, growth and infectious diseases WP 5: Early predictors of human food preferences WP 6: Parental thoughts about complementary feeding Department of Nutrition, National Food Institute, DTU is responsible for WP2 which aims at validating the dietary assessment method of 7 day pre-coded food record against 7 day weighed food records and energy expenditure estimated by the double labelled water method. Further the food and nutrient intake is estimated in the cohort study of WP1 and related to intake estimates of the national survey among infants and young children.

Division of Nutrition
National Food Institute
University of Copenhagen
Period: 01/09/2006 → 31/12/2010
Number of participants: 8
Project participant:
Mølgaard, Christian (Ekstern)
Holm, Lotte (Ekstern)
Schack-Nielsen, Lene (Ekstern)
Hausner, Helene (Ekstern)
Møller, Per (Ekstern)
Tetens, Inge (Intern)
Trolle, Ellen (Intern)
The influence of selenium status on thyroid function before and after iodine fortification

Some investigations have shown that selenium deficiency, like iodine deficiency, can be a risk factor for goiter and can influence thyroid function. The aim of the project is to study the influence of selenium status on thyroid function and the relation between selenium status, iodine status, and thyroid hormones. Blood samples have been collected, the thyroid volume and the iodine intake has been measured in the DanThyr study both before and after introduction of iodine fortification. In this study the blood samples will be analysed for selenium. Thyroid hormones and thyroid volume will be compared between 4 groups: 1. High iodine intake, high selenium intake, 2. High iodine intake, low selenium intake, 3. Low iodine intake, high selenium intake, 4. Low iodine intake, low selenium intake. Furthermore, multiple linear regression models with various parameters for thyroid function as the dependent variable and selenium and iodine status etc. as independent variables will be performed.

Intake of household salt in a Danish population

Intake of household salt in a Danish population Short project description The aim of the present study is to assess the intake of household salt and the part of the total salt which is derived from household salt in a cross section of the Danish population. 100 men and women between 20 and 55 years of age are recruited by advertising in some work places and in some supermarkets in the Copenhagen area. The subjects use a salt cellar with a known amount of lithium-tagged salt for 10 consecutive days. Before the 10 days and for the last 3 days of the 10 days period 24-h urine samples are collected. Urine samples are analysed for sodium content, to determine total salt intake and lithium content, to determine intake of household salt.
Analysis of insulin binding by systematic amino acid scanning mutagenesis. Importance of insulin B chain residues for receptor isoform binding

National Food Institute
Period: 01/05/2006 → 30/09/2010
Number of participants: 6
Phd Student: Rasmussen, Rie Romme (Intern)
Supervisor: Binderup, Mona-Lise (Intern)
Larsen, Thomas Ostenfeld (Intern)
Main Supervisor: Rasmussen, Peter Have (Intern)
Examiner: Jestoi, Marika Nadesta (Ekstern)
Purup, Stig (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Ansat eksternt
Project: PhD

Evolution and adaptation of antimicrobial resistance in bacterial populations

It is generally believed that evolution of resistance occurs as a series of random single point mutations. However, we believe that emergence of new characters occurs as multiple mutations probably in sub-populations as a consequence of fluctuating stresses caused by lethal substances, such as antibiotics, and that these populations are so limited in size that the selection process is greatly affected by chance (stochastic). We will combine expertise in bacteriology, molecular biology, microbial epidemiology, mathematical modelling and phylogeny to study the evolution and adaptation of antimicrobial resistance in bacterial populations. Focus will be on resistance in staphylococci and Pseudomonas because of the major clinical problems with resistance in these bacteria. The results are expected to be useful in predicting appearance of new antimicrobial resistance problems, guide intervention strategies for the future, lead to new treatment strategies and possible also lead to industrial development of new biotechnologies based on evolutionary concepts.

Division of Microbiology and Risk Assessment

National Food Institute

Department of Informatics and Mathematical Modeling

University of Copenhagen
Period: 30/04/2006 → 31/03/2010
Number of participants: 11
Project participant: Ingmer, Hanne (Ekstern)
Christensen, Henrik (Ekstern)
Ciofu, Oanu (Ekstern)
Andersen, Marianne T. (Ekstern)
Mandsberg, Lotte (Ekstern)
Jensen, Lars Bogé (Intern)
Hasman, Henrik (Intern)
Agersø, Yvonne (Intern)
Madsen, Henrik (Ekstern)
Christiansen, Lasse Engbo (Intern)
Project Manager, organisational: Aarestrup, Frank Møller (Intern)
**Benefit and Risk model.**
Major advancements in benefit and risk analysis require highly interdisciplinary work with epidemiologist, toxicologist, nutrition scientist, exposure assessors, risk analyst, and food authorities. This project will work with existing databases of food consumption and nutrition in 3 European countries. The models for quantitative calculation of benefit will focus on fish eating. The risk will be assessed for methylmercury. A number of human placentas will be compared with consumption data and cord blood concentration of contaminants.

**National Food Institute**

**KTL Finland**
Period: 01/04/2006 → 01/02/2008
Number of participants: 0
Acronym: **BENERIS**

**Enzymatic Lipophilisation of Bioactive Compounds**

National Food Institute
Period: 01/04/2006 → 30/06/2008
Number of participants: 7
Phd Student:
Lue, Bena-Marie (Intern)
Supervisor:
Guo, Zheng (Intern)
Jacobsen, Charlotte (Intern)
Jørgensen, Bo Munk (Intern)
Meyer, Anne S. (Intern)
Xu, Xuebing (Intern)
Main Supervisor:
Adler-Nissen, Jens (Intern)

**Financing sources**
Source: Internal funding (public)
Name of research programme: Forskningsrådsfinansiering
Project: PhD

**Klokken tolv har vi spisning**

National Food Institute

Division of Nutrition
Period: 01/04/2006 → 30/04/2007
Number of participants: 2
Contact person:
Christensen, Lene Møller (Intern)
Project participant:
Bruselius-Jensen, Maria Louisa (Intern)
Documents:
Danske elevers oplevelse af mad og maaltider i skoler med madordninger

**Quality and Integrity of Organic Eggs, Chicken Meat and Pork (QEMP)**
Organic piglets are born outdoor and stays with the sow longer than in conventional pig production, expected to provide better animal welfare. Nevertheless, organic pigs may still be challenged with weaning diarrhoea and exposure to parasites and pathogens. Our focus is how alternative feed types rich in fructan affect the intestinal microflora composition in weaning and slaughter pigs. In particular, if fructan-rich feed (prebiotic) promote growth of beneficial bacteria and possibly reduce the campylobacter excretion level. The later has implications for the food safety of pork. The overall objective of the collaborative project are to make a proposal for new and better production strategies for organic pork, chicken meat and eggs. These strategies should comply with the organic idea of integrated production and ensure organic products of high quality.
Division of Veterinary Diagnostics and Research
National Veterinary Institute
National Food Institute
Division of Food Microbiology
University of Copenhagen
Danish Meat Research Institute
Aarhus University
Period: 01/03/2006 → 31/07/2010
Number of participants: 3
Project participant:
Baggesen, Dorte Lau (Intern)
Jensen, Annette Nygaard (Intern)
Project Manager, organisational:
Kongsted, Anne Grete (Ekstern)

Relations
Activities:
21st International ICFMH Symposium
Effects of feeding prebiotic to pigs for just or 2 weeks before slaughter

Superfrøysning af fisk - optimering af kvalitet og økonomi
National Food Institute
Period: 01/03/2006 → 21/04/2010
Number of participants: 5
Phd Student:
Burgaard, Maria Garver (Intern)
Main Supervisor:
Jørgensen, Bo Munk (Intern)
Examiner:
Jessen, Flemming (Intern)
Arason, Sigurjón (Ekstern)
Karlsson, Anders H. (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Ansat eksternt
Project: PhD

Ultra Lav Temperatur Forsyningskæde for akvakultur produkter baseret på Ørred og Ørredkaviar
National Food Institute
Division of Industrial Food Research
Period: 05/01/2006 → 31/12/2007
Number of participants: 2
Project Manager, organisational:
Priess, Henning (Ekstern)
Project Manager, academic:
Jessen, Flemming (Intern)
Project

Analytical characterization of nanoparticles
The hypothesis is that the mere nanometre size of matter, and its associated large surface area, may lead to adverse effects in living organisms including humans. Therefore health risk assessment of nanomaterials is of importance. The specific scope of this project is to develop and apply methodologies for nanoparticle recovery, detection of their chemical composition and determination of their size and surface area. The methods will be applied to particles in suspension or
An intervention study with healthy adults. Free fruit at workplaces in prevention of overweight.

An intervention study with healthy adults. Free fruit at workplaces in prevention of overweight. Short project description

The aim of the present study is to investigate the efficacy of free fruit campaigns at workplaces on body weight management. A pilot study with a cohort of about 150 participants from 8 different workplaces is conducted in order to establish power for a full-scale intervention study at the European level. The cohort is divided into two groups: a control- and a fruit-campaign intervention group. Data on dietary intake, anthropometric measures and urine markers are collected at baseline and after 5 months follow-up. Based on the findings from the pilot study a full-scale intervention study of at least one-year duration will be designed. Workplaces in selected countries from the Northern- Southern- Western- and Eastern Europe that are willing to offer free fruit to their employees will be targeted and research institutes/universities corresponding to the National Food Institute, who can execute the practical work in each country under our management will be identified.

Division of Nutrition

National Food Institute

Period: 01/01/2006 → 30/06/2010
Number of participants: 2

Project participant:
Alinia, Sevil (Intern)

Project Manager, organisational:
Tetens, Inge (Intern)

Project

EC Specific support action

The project is a follow up to EC Fufose, Passclaim, and Fosie

Division of Toxicology and Risk Assessment

National Food Institute

International Life Sciences Institute

Period: 01/01/2006 → 31/12/2009
Number of participants: 1
Acronym: BRAFO-EC

Project Manager, organisational:
Hansen, Max (Intern)

Project
Ernæringsmæssige krav til skolemad

National Food Institute
Division of Nutrition
Period: 01/01/2006 → 30/04/2007
Number of participants: 2
Number of related Ph.D. students: 1
Project participant:
Sabinsky, Marianne (Intern)
Christensen, Lene Møller (Intern)
Documents:
Grundlag for ernæringsmæssige krav til skolemad

EU Reference Laboratory for Antimicrobial Resistance
The National Food Institute was in 2006 appointed EURL for antimicrobial resistance by the European Commission. It is the responsibility of the EURL to provide scientific advice to the Commission on matters in relation to antimicrobial resistance, in particular scientific advice in relation to the organisation, implementation and evaluation of monitoring schemes for antimicrobial resistance. In addition the EURL has the following responsibilities:

To organise an annual ring test for susceptibility testing of Campylobacter, staphylococci, enterococci, E. coli and Salmonella for the National Reference Laboratories (NRL’s)

To organise, host and participate in an annual workshop for the NRL’s on the results of the comparative studies and discussions on matters of relevance for harmonisation of susceptibility testing in the member countries. Additionally, the working plans for the EURL for the coming year as well as improvement and extension of the results of the NRL’s are discussed

- To collect information on activities at the NRL’s
- To disseminate knowledge on antimicrobial susceptibility testing methods to the NRL’s
- To provide specific assistance to individual laboratories through missions, site visits or individual training courses
- To provide confirmatory testing for NRL’s on bacterial isolates of particular relevance or on request by the Commission
- To participate in EU (EFSA, ECDC, EMEA) and international fora or committees related to antimicrobial resistance as requested by the Commission
- To keep contact to different international networks and important organizations or institutes, including WHO, FAO, OIE as well as CDC and FDA in the USA.

National Food Institute
Division of Epidemiology and Microbial Genomics
Period: 01/01/2006 → …
Number of participants: 2
Acronym: EURL-AR
Contact person:
Hendriksen, Rene S. (Intern)
Project Manager, academic:
Aarestrup, Frank Møller (Intern)

Financing sources
Source: EU research programme (public)
Name of research programme: EU
Amount: 400,000.00 Euro

Relations
Activities:
6th AMR Network meeting
Project

Intake of dietary polyphenolic compounds and risk of acute coronary heart syndrome. Use of a new biomarker in a nested case-control study
Heart disease is the primary cause of death in the Western world. It is well known that the disease can be prevented by a healthy lifestyle. There is strong evidence that a high intake of fruits and vegetables protect against heart disease, and it is thought that it is the high content of polyphenols in fruits and vegetables that are responsible for the protective effects. We have recently developed and validated a new biomarker for intake of dietary polyphenols. By use of this biomarker, we are investigating the potential associations between intake of polyphenols and the development of acute coronary heart
syndrome in the Danish follow-up study Diet, Cancer and Health.

National Food Institute
Aarhus University
Danish Cancer Society
Period: 01/01/2006 → 31/12/2009
Number of participants: 1
Project Manager, organisational:
Bredsdorff, Lea (Intern)

ISAFRUIT – FRUITSLIM
ISAFRUIT was a trans-European research project focusing on how to increase consumption of fruit in Europe. The project involved about 200 researchers from 60 different research and development institutions and SMEs in 16 countries. The main project terminated in the summer 2011, but the subproject, involving Division of Nutrition is still continuing.

Our specific objective is to investigate if there is an association between fruit intake and body weight and to increase consumption of fruit at workplaces by increasing availability and accessibility of fruit. Various types of studies have been and are being conducted to reach these objectives. They include: a systematic review of current studies on fruit intake and body weight; a cross-sectional study on data from a representative part of the population in five different European countries; a feasibility study at eight different workplaces in Denmark; and an intervention study at a large workplace in UK.

Project financing:
The project is both funded by EU and internally.

National Food Institute
Division of Nutrition
Newcastle University
University of Copenhagen
Period: 01/01/2006 → 31/12/2011
Number of participants: 2
Project participant:
Alinia, Sevil (Intern)
Project Manager, organisational:
Tetens, Inge (Intern)

Kvalitet af skolefrokost - udbud af mad og drikkevarer
National Food Institute
Division of Nutrition
Period: 01/01/2006 → 30/04/2007
Number of participants: 2
Contact person:
Christensen, Lene Møller (Intern)
Project participant:
Sabinsky, Marianne (Intern)

Documents:
Kvalitet_af_skolefrokost_-_mad_-og_drikkevand_i_danske_grundskoler

Nutritious and tasty omega-3 rich foods for a slim and healthy population
The increased prevalence of obesity represents the greatest challenge of public health today. Even slight modifications in the energy content of foodstuffs may facilitate the prevention of obesity. This could be achieved by replacing dietary fat with low-calorie fat (LCF). Moreover, new research results suggest that also omega-3 fatty acids from fish oil may have a preventive effect on obesity. Furthermore, it has been shown that omega-3 fatty acids from fish oil may prevent the development of other risk factors for heart disease. A new strategy to prevent obesity and risk factors for heart disease could be to substitute traditional fats with a combination of LCF and omega-3 fatty acids from fish oil. However, new technologies to incorporate these fatty acids into tasty foods with an acceptable shelf life are needed. It is also necessary
to investigate consumer perception of these products. Finally, the potential health economic effects of such products should also be investigated. The aim of the project is therefore to determine the potential of omega-3 fatty acids and LCF to improve the health of the Danish population. This will be investigated in three sub-projects. Sub-project 1. Health promoting and weight reducing effects of omega-3 fatty acids and low calory fats. The aim of sub-project 1 is to answer the following questions: Do omega-3 fatty acids from fish oil affect weight, insulin-resistance and markers of cardiovascular disease in overweight adolescents? Do LCF influence appetite? What are the mechanisms behind the effects of omega-3 fatty acids from fish oil? Do omega-3 fatty acids and LCF have any synergistic effects on weight loss and prevention of metabolic syndrome? Sub-project 2. Protection against oxidation in fish oil enriched foods. The aim of sub-project 2 is to investigate how new technologies such as enzyme technology can be utilised to prevent oxidation in foods enriched with omega-3 fatty acids. Enzyme technology will be employed to produce new antioxidants with optimised physico-chemical properties. The antioxidants will be evaluated in selected fish oil enriched foods. Moreover, investigations on how oxidation can be prevented in fish oil enriched mayonnaise salads, bread and liver pâté will be carried out, e.g. by determining the effect of the different ingredients on the oxidative stability of these foods. Sub-project 3. Consumer perception and health economic effects. The aim of sub-project 3 is to answer the following questions: Does labelling of the product influence the sensory perception of omega-3 enriched food products. What are the potential economical benefits to the Danish society of an increased intake of omega-3 fatty acids from fish oil? Participants: Project leader: Charlotte Jacobsen (Danish Institute for Fisheries Research, DTU) (DIFRES) Sub-project 1: Sub-project leader: Lotte Lauritzen (Department of Human Nutrition, Faculty of Life Science, University of Copenhagen) (HN) Lars Hellgren (BioCentrum-DTU) Majken Højgaard Pedersen (HN & BioCentrum-DTU) Christian Melgaard (HN) Lone B. Sørensen (HN) Arne Astrup (HN) Jesper T. Andersen (Kohberg A/S) Flemming Vang Sparse (Danisco) Sub-project 2: Sub-project leader: Xuebing Xu (BioCentrum-DTU) Mette Bruni Let (BioCentrum-DTU) Ann-Dorit Moltke Sørensen (DIFRES) Nina Skall Nielsen (DIFRES) Charlotte Jacobsen (DIFRES) Margit Olsen (Stryhns) Flemming Vang Sparse (Danisco) Jesper T. Andersen (Kohberg A/S) Frank Minck (Association for the Danish Fish Meal and Fish Oil Industry) Camilla Bang (Grästen Salater A/S) Sub-project 3: Sub-project 3 leader: Joachim Scholderer (MAPP Center, Århus University) Jan Sørensen (CAST, Syddansk University) Grethe Hyldig (DIFRES) Jesper T. Andersen (Kohberg A/S) Camilla Bang (Grästen Salater A/S) Project financing: Strategic Research Council (FØSU) and The Directorate for Food, Fisheries and Agri Business.

National Food Institute
Division of Industrial Food Research
Period: 01/01/2006 → 31/12/2009
Number of participants: 1
Acronym: Nu3Health
Contact person:
Jacobsen, Charlotte (Intern)
Project

Organic Aquaculture - the linkage between sustainable production and superior products
This project will contribute to the successful establishment of organic trout farming in Denmark. It will develop and optimise new recipes for organic fish feeds with high levels of organic vegetable protein of Danish origin. These will be fed to trout to investigate feed quality as digestibility, effects on the environment, feed conversion, and growth. Effects of the feeds upon general health and welfare, and immunocompetence (vaccination efficacy), will be assessed. Objective sensory and biochemical analyses will provide an overall picture of the eating quality of trout raised with the new organic feeds at an organic farm. Consumer preference for trout with pale coloured meat will be explored, plus other market issues for organic trout (supply chain, traceability, export). Results will be disseminated to industry, consumers and regulatory authorities with open workshops. Guidelines will be prepared for optimal rearing and marketing of organic trout.

National Veterinary Institute
National Food Institute
Division of Seafood Research
Division of Industrial Food Research
Danish Institute for Fisheries and Marine Research
Royal Veterinary and Agricultural University
Danish Technological Institute
Dansk Akvakultur
Period: 01/01/2006 → 31/12/2010
Number of participants: 11
Acronym: ORAQUA
Project ID: 22451
Project participant:
Jokumsen, Alfred (Ekstern)
Organotin compounds in food contact materials

Organotin compounds (mono-, di- and tri-substituted compounds) in food contact materials have several uses, such as heat stabilizers for PVC and as catalysts in polyurethanes and in silicones. Another possible use could be as biocide agents in both plastics and wood. During processing and storage, they can decompose into other known and unknown Sn containing substances. As they are loosely bound to the food contact material, they are at high risk of migrating upon contact with foods. Organotin compounds are generally very toxic and act as endocrine disruptors and exert immunotoxic effects. Recently (2005), the European Food Safety Agency (EFSA) issued a toxicological evaluation of organotin compounds and suggested a tolerable daily intake (TDI) as low as 0.25 µg/kg bodyweight for the sum of four organotin compounds (TBT, DBT, TPT and DOT), corresponding to a specific migration limit (SML) of 6 µg/kg.

Research at DFVF focus on developing the first organotin multimethod capable of meeting the new limits in plastics (PVC and aliphatic polyurethanes) and in silicone, which is performed by GC-ICPMS. The project includes a screening and identification of reaction and degradation products that have not formerly been reported. The data from enforcement surveys are used to assess human exposure via food contact materials and are compared with present recommendations for tolerable intake.
National Food Institute
Division of Food Chemistry
Period: 01/01/2006 → 01/01/2008
Number of participants: 3
Project participant:
Sloth, Jens Jørgen (Intern)
Larsen, Erik Huusfeldt (Intern)
Project Manager, organisational:
Trier, Xenia (Intern)

Financing sources
Source: Other public support (public)
Name of research programme: the Danish Veterinary and Food Administration
Amount: 800,000.00 Danish Kroner

Smoking of trout - The influence of process parameters on product quality (PAHs)
During production and preparation of food, mutagenic and carcinogenic polycyclic aromatic hydrocarbons (PAHs) can be formed. Smoking of foods can lead to the formation of PAHs, and the levels of PAH can be attributed to the processing methods used. The aim of this 2-year project is therefore to give a comprehensive survey of the relation between smoking process parameters, such as the type of generator, smoke temperature and wash of smoke, on the concentration of PAHs. Trout will be used as a model fish. The project will include a preliminary survey on the processes used for the production of smoked fish, trimming studies and a final risk evaluation.

National Food Institute
Danish Aquaculture Organisation
The Association of Danish Fish Retailers
Danish Seafood Organisation
Danmarks Fiskeindustri og Eksportforening
Danish Institute for Fisheries Research
Period: 01/01/2006 → 30/04/2008
Number of participants: 3
Project participant:
Binderup, Mona-Lise (Intern)
Duedahl-Olesen, Lene (Intern)
Project Manager, organisational:
Granby, Kit (Intern)

Standardization of microarray for characterization of Salmonella isolates: A novel tool in risk assessments

National Food Institute
Norwegian Food Research Institute
Lund University
Bundesinstitut für Risikobewertung
Kris Rahn
Period: 01/01/2006 → 12/01/2008
Number of participants: 2
Project participant:
Grønlund, Hugo Ahlm (Intern)
Project Manager, organisational:
Hoorfar, Jeffrey (Intern)
The safety of novel pre- and post harvest procedures

Pre- and post harvest techniques for apples developed in pillar 4 and 5 of the ISAFRUIT project will be investigated with respect to pollutants like pesticides and mycotoxins. Identification of critical steps for chemical contaminants in the chain from harvest to consumer will be identified, and sampling all along the chain from harvest through storage and distribution to the consumer’s table will be performed. The apple samples will be analysed for fungicides and patulin. Emphasis will also be on peak levels of contamination found in single fruits sampled at the consumer end of the chain. A comparison trial with new spraying techniques, which include 1. a Crop Identification System (CIS) to adjust spray application to the target characteristics, 2. a Crop Health Sensor (CHS) for the identification of tree health status determining pesticide application and, 3. Environmentally Dependent Application System (EDAS) for adjusting the spraying equipment according to the environmental circumstances A comparison trial of new spraying techniques will be performed in order to investigate the differences between the pesticide residue levels in apples derived from the standard sprayer and the newly developed techniques. Mean levels and peak levels of pesticide residues will be determined.

National Food Institute
Agroscope
University of Turin
Research Institute of Pomology and Floriculture
Wageningen University & Research
Period: 01/01/2006 → 30/06/2010
Number of participants: 3
Project participant:
Christensen, Hanne Bjerre (Intern)
Project Manager, organisational:
Poulsen, Mette Erecius (Intern)
Rasmussen, Peter Have (Intern)

Mycotoxins in maize silage to fed cattle

Maize silage is a widely used feed product at Danish cattle farms. Unfortunately growth of filamentous fungi is often seen on and in silage. This may result in mycotoxin contamination of the feed, which may harm the animals or result in toxins transferred to foodstuffs consumed by human. In this PhD project (2005 - 2010), the presence of mycotoxins in Danish maize silage are detected and evaluated by cytotoxicity testing: In vitro assays are applied to evaluate the toxicity of pure mycotoxins, extracts of fungi and silage. Mycotoxins in maize and silage will be quantitatively or qualitatively determined with existing and new chemical methods.

Department of Systems Biology
Division of Toxicology and Risk Assessment
National Food Institute
Aarhus University
Danish Plant Directorate
Danish Agricultural Advisory Service
Period: 01/12/2005 → 30/11/2008
Number of participants: 5
Project participant:
Larsen, Thomas Ostenfeld (Intern)
Thrane, Ulf (Intern)
Binderup, Mona-Lise (Intern)
Rasmussen, Peter Have (Intern)
Project Manager, organisational:
Rasmussen, Rie Romme (Intern)

Training risk-assessment in non-human antibiotic usage, TRAINAU

TRAINAU is a multidisciplinary early-stage training programme on identification, characterisation, and assessment of public health risks associated with non-human use of antimicrobials. The development of human resources capable to carry out this task requires multidisciplinary training. Accordingly, TRAINAU is bringing together early-stage researchers with different backgrounds and providing them the scientific and technological competences necessary to perform research and obtain substantial progress in this field. Descriptive and analytical epidemiological studies will investigate the
association between different antimicrobial usage patterns and occurrence of antimicrobial resistance in animals. Experimental research will include laboratory experiments to validate results from field studies and to provide quantitative data to be used by the risk assessment. The multidisciplinary approach of TRAINAU is expected to generate new information needed for assessment of risks to public health associated with non-human use of antimicrobials.

National Food Institute
University of Copenhagen
Statens Serum Institut
Period: 01/10/2005 → 30/09/2008
Number of participants: 12
Project participant:
Dalsgaard, Anders (Ekstern)
Guardabassi, Luca (Ekstern)
Ersbøll, Annette Kjaer (Ekstern)
Houe, Hans (Ekstern)
Olsen, John Elmerdal (Ekstern)
Halling-Sørensen, Bent (Ekstern)
Frimodt-Møller, Niels (Ekstern)
Hammerum, Anette Marie (Ekstern)
Emborg, Hanne-Dorthe (Intern)
Aarestrup, Frank Møller (Intern)
Jensen, Lars Boga (Intern)

Project Manager, organisational:
Wegener, Henrik Caspar (Intern)

The Prevalence, Cost and Basis of Food Allergy Across Europe
EuroPrevall is an EU-funded project, which aims to improve the quality of life for food allergic people. To achieve this EuroPrevall will develop and spread new information material on food allergy for use by food allergic consumers, health professionals, food industries, and food control authorities. The results of the research activities in EuroPrevall as well as existing knowledge form the basis for this work. The research activities in EuroPrevall is focused are organised in five themes

Division of Toxicology and Risk Assessment
National Food Institute
Period: 01/06/2005 → 31/12/2009
Acronym: EuroPreval
Number of participants: 3
Project participant:
Nørhede, Pia (Intern)
Kroghsbo, Stine (Intern)

Project Manager, organisational:
Madsen, Charlotte Bernhard (Intern)

Development of a Lab-on-a-Chip system suitable for rapid screening and early detection of colon cancer
Department of Micro- and Nanotechnology
BioLabChip
National Food Institute
Division of Food Microbiology
Period: 01/05/2005 → 30/04/2008
Number of related Ph.D. students: 1
Number of participants: 3
Project participant:
Wolff, Anders (Intern)
Bang, Dang Duong (Intern)
Guðnason, Haukur (Intern)

**Relations**

**Publications:**
- Immobilization of DNA to polymerized PDMS by direct UV-cross-linking
- Development of a lab-on-a-chip device for point-of-care genetic diagnostics
- Immobilisation of DNA to various substrates by direct UV linking
- DNA detection methods for a lab-on-a-chip system for rapid screening and early detection of colon cancer
- An inexpensive and simple method for thermally stable immobilization of DNA on an unmodified glass surface: UV linking of poly(T)10-poly(C)10-tagged DNA probes.
- Comparison of multiple DNA dyes for real-time PCR: effects of dye concentration and sequence composition on DNA amplification and melting temperature

**Project**

**Social inequality in relation to overweight and obesity**

The aim of this project is to expand our knowledge about the relationship between socio-economic status and overweight and obesity in Denmark. The role of cultural norms, psychological factors, dietary practices and physical activity as possible mechanisms involved in the development of overweight and obesity will be investigated. The significance of biological factors as subjectively perceived by overweight and obese individuals will be highlighted too. It is generally recognised that the causes of overweight and obesity are closely related to social and cultural phenomena. Systematic research in such areas is therefore important for the development of health promotion strategies in the field of obesity. The project consists of a quantitative and a qualitative part. The quantitative part is based on analysis of data from the Danish National Survey of Dietary Habits 2000-2002. Analysis will include associations between relative weight and dimensions of socio-economic status as well as influence of attitudes, dietary habits and physical activity. Qualitative interviews with 30 selected participants from the survey will include participants’ life story, perception of own weight and determinants of weight.

Division of Nutrition
National Food Institute
Royal Veterinary and Agricultural University

**Period:** 01/05/2005 → 01/05/2008
**Number of participants:** 7
**Project participant:**
- Holm, Lotte (Ekstern)
- Schmidt, Louise Hardman (Ekstern)
- Fagt, Sisse (Intern)
- Hartkopp, Henrik Bach (Intern)
- Matthiessen, Jeppe (Intern)
- Biltoft-Jensen, Anja Pia (Intern)
**Project Manager, organisational:**
- Groth, Margit Velsing (Intern)

**Balancing microbiological safety against other food quality parameters**

The project focuses on microbiological food safety, treating this as one of several consumer-driven quality parameters of animal production. It will provide general policy recommendations for food safety strategies in diversified food production systems in order to support and strengthen a diverse and viable food production. In this project we will assess the level of microbiological food safety in different production systems and study consumers and producers' perception of microbiological food safety risks. We will study consumers' valuation of food quality parameters and their willingness to pay for food safety in the context of other quality parameters of animal products. Based upon the results we will investigate strategies for increased microbiological food safety that respect consumer concerns about other food quality parameters as well.

Division of Microbiology and Risk Assessment
National Food Institute
Danish Centre for Bioethics and Risk Assessment
University of Copenhagen
Balancing microbiological safety against other food quality parameters (QUALYSAFE)
The project focuses on microbiological food safety, treating this as one of several consumer-driven quality parameters of animal production. It will provide general policy recommendations for food safety strategies in diversified food production systems in order to support and strengthen a diverse and viable food production. In this project we will assess the level of microbiological food safety in different production systems and study consumers and producers perception of microbiological food safety risks. We will study consumers' valuation of food quality parameters and their willingness to pay for food safety in the context of other quality parameters of animal products. Based upon the results we will investigate strategies for increased microbiological food safety that respect consumer concerns about other food quality parameters as well.

Division of Microbiology and Risk Assessment
National Food Institute
University of Copenhagen
Period: 01/04/2005 → 31/12/2009
Number of participants: 14
Project participant:
Sandøe, Peter (Ekstern)
Lassen, Jesper (Ekstern)
Korzen-Bohr, Sara (Ekstern)
Christensen, Tove (Ekstern)
Lund, Mogens (Ekstern)
Denver, Sigrid (Ekstern)
Dejgaard, Jørgen (Ekstern)
Lawson, Larney G. (Ekstern)
Mørkbak, Morten (Ekstern)

Project Manager, organisational:
Wingstrand, Anne (Intern)
enteropathogens on pig carcasses. This model formed the basis of a quantitative risk assessment of decontamination of pig carcasses on the consumer risk. Consumer acceptance of decontamination was also be investigated. This work included an interview based investigation of consumer perception of decontamination of fresh meat, in particular pork meat, including the perception of safety and quality pork and food in general. The interview will also display the willingness of the consumer to pay for the increased food safety. An economical analysis of the cost-efficiency of decontamination, and a study of the consumer willingness to pay was included.

Division of Microbiology and Risk Assessment
National Food Institute
University of Copenhagen
Danish Technological Institute
Period: 01/04/2005 → 31/12/2009
Number of participants: 1
Project Manager, organisational:
Aabo, Søren (Intern)

Risk perception and cost benefit analysis of interventions to control Campylobacter
The objective of the project was to identify optimal reduction strategies for the control of Campylobacter in the Danish broiler production and thereby to reduce the number of human food-borne illnesses. For the first time, options to control a food-borne pathogen (Campylobacter) in a chain perspective (from rearing of broilers to consumption of chicken meat) were given in consideration of technical feasibility, costs, public perception of Campylobacter risk, the public acceptance of suggested reduction methods, the consumer's willingness to pay for low-risk products and the saved socio-economic costs due to the expected lower number of human infections.

Division of Microbiology and Risk Assessment
National Food Institute
Division of Poultry, Fish and Fur Animals
University of Copenhagen
Period: 01/04/2005 → 31/12/2009
Number of participants: 1
Project Manager, organisational:
Rosenquist, Hanne (Intern)

SAFEFOODS, A new integrated risk analysis approach for foods
SAFEFOODS consist of several work-packages where the National Food Institute participates in WP 3 – Quantitative Risk Assessment of Combined Exposure to Food Contaminants and Natural Toxins. In this WP the final goal is to determine the health impact of human exposure to combinations of food contaminants (pesticides, mycotoxins) and natural toxins. To fulfil this goal we will develop a model for integrating exposure and effect into a quantitative risk assessment model. The exposure will be estimated using a model for probabilistic assessment of human exposure. The Division for Nutrition and the Division of Food Chemistry participate in this project by delivering consumption and residue data and carry out probabilistic modelling for e.g. pesticides.

National Food Institute
RIKILT
National Institute of Health
National Institute of Public Health and the Environment
National Food Administration
National Institute of Nutrition and Food Safety
National Institute of Public Health
INRA Institut National de La Recherche Agronomique
Institute for Risk Assessment Sciences
Period: 01/04/2005 → 31/03/2008
Number of participants: 3
Project participant:
**Development of a new, sensitive and robust 12 hours Salmonella-test to the meat industry.**

National Food Institute  
Tican Fresh Meat A/S  
Danish Crown A/S  
Lantmännen Danpo A/S  
AnalyCen A/S  
Slagteriernes Forskningsinstitut  

Period: 01/03/2005 → 01/03/2007  
Number of participants: 2  

Krause, Michael (Intern)  

Hoorfar, Jeffrey (Intern)  

**Trimming of fat from the fillet of salmon as a mean to reduce the content of dioxins and PCB**

Wild salmon from the Baltic Sea has contents of dioxins and PCB, which for many of the fish exceed the maximum levels allowed for commercial fishing. Dioxins and PCB accumulates in the fatty tissues of the fish. These tissues include muscle meat and fat layers under the skin as well as other external fatty tissues. The project studies the effect of extensively trimming the salmon in order to reduce the levels of dioxins and PCB in the final fillet.

Division of Food Chemistry  
National Food Institute  
Danish Institute for Fisheries Research  

Period: 17/01/2005 → 01/12/2006  
Number of participants: 2  

Heinrich, Timm (Ekstern)  

Cederberg, Tommy Licht (Intern)  

**Allergenicity of 2S Albumin from Brazil nut**

The aim of this project was to examine the effect of gastro-duodenal digestion on the allergenic potential of the major food allergen Ber e 1 (2S albumin) from Brazil nut.

The model food allergen, Ber e 1, was purified at Institute of Food Research (IFR) and digested using their simulated gastro-intestinal digestion model. Examination of the allergenic potential of the intact and digested Brazil nut allergen was performed at the National Food Institute.

The project included a scientific visit at IFR for seven weeks.

National Food Institute  
Division of Toxicology and Risk Assessment  

Period: 01/01/2005 → 01/06/2006  
Number of participants: 3  
Number of related Ph.D. students: 1  

Madsen, Charlotte Bernhard (Intern)  
Phd Student:
Allergenic potential of intact and digested 2S albumin from Brazil nut.
The aim of this project was to examine the effect of gastro-duodenal digestion on the allergenic potential of the major food allergen Ber e 1 (2S albumin) from Brazil nut. The model food allergen, Ber e 1, was purified at Institute of Food Research (IFR) and digested using their simulated gastro-intestinal digestion model. Examination of the allergenic potential of the intact and digested Brazil nut allergen was performed at the National Food Institute. The project included a scientific visit at IFR for seven weeks.

Division of Toxicology and Risk Assessment
National Food Institute
Quadram Institute
Period: 01/01/2005 → 31/05/2006
Number of participants: 3
Project participant:
Kroghsbo, Stine (Intern)
Mills, Clare (Ekstern)
Project Manager, organisational:
Madsen, Charlotte Bernhard (Intern)

Azole fungicides
The overall aim is to investigate and compare three widely used azole fungicides potential interaction with the endocrine system (sex and thyroid hormones) including effects on brain development. Azole fungicides are used for the control of fungal infections in cereals and on fruit and vegetables. In general these fungicides are having a low acute toxicity, but only little is known on potential adverse health effects after prolonged exposure to low levels. Recently, we showed that the azole fungicide, prochloraz, is having multiple mechanisms of action and that the compound causes feminization of the male rat offspring after perinatal exposure. In this project the most widely used azoles in Denmark (epoxyconazole, tebuconazole and propiconazole) will be evaluated for their effects in vitro on the estrogen, androgen, and the Ah receptor as well as their effects on aromatase activity, sex hormone synthesis and thyroid receptor-mediated proliferation. In vivo experiments are conducted to evaluate any feminizing effects on rat male pups after gestational and lactational exposure. The results will provide new knowledge on the toxic mechanisms of action of the azole fungicides and their potential adverse effects on the reproductive system and on brain development and is therefore expected to contribute to a better risk assessment of these fungicides.

Division of Toxicology and Risk Assessment
National Food Institute
University of Southern Denmark
Period: 01/01/2005 → 31/12/2008
Number of participants: 4
Project participant:
Taxvig, Camilla (Intern)
Hass, Ulla (Intern)
Boberg, Julie (Intern)
Project Manager, organisational:
Nellemann, Christine (Intern)

Brominated flame retardants in food
Flame retardants are substances used in plastics, textiles, electronics and other materials to prevent fires. Some of the technical flame retardant products contain brominated organic compounds including polybrominated diphenyl ethers (PBDE), hexabromocyclododecane (HBCD) and tetrabromobisphenol A (TBBPA).

Many of the brominated flame retardants (BFR) are persistent and have been shown to bioaccumulate. One of the routes of human exposure to BFR is the result of industrial discharge and environmental pollution in general. Eventually BFR enters the marine environment and the concentrations are magnified through the food chain.
Toxicological data are very limited, but the occurrence of BFR in food is a cause of concern for human health.

The project focuses on the estimation of the Danish human exposure to BRF via food intake. The research work includes analytical method developments and measurements of PBDE, HBCD and TBBPA in Danish food.

National Food Institute
Division of Food Chemistry
Period: 01/01/2005 → 31/12/2008
Number of participants: 3
Project participant:
Fromberg, Arvid (Intern)
Granby, Kit (Intern)

Project Manager, organisational:
Cederberg, Tommy Licht (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: the National Food Institute
Amount: 4,000,000.00 Danish Kroner

Cell models in nanotoxicity testing
Owing to their inherent great surface-to-volume ratio, nanomaterials may be biologically active and pose a potential risk to human health and to the environment. Establishing knowledge regarding the risk of nanoparticles includes development of in vitro methods for toxicological testing of nanoparticles. This research is divided into three parts: In vitro testing in cells representing potential target organs of common effects and underlying mechanisms Uptake, distribution, persistence, and toxic effects in cellular systems Genotoxicity, immunology, oxidative stress, apoptosis, and inflammatory reactions Cellular uptake, intracellular distribution, cytotoxicity and cell proliferation are the basic investigations in these projects. These techniques are followed by mechanistic studies involving genotoxic effects, changes in cytokine levels, stress and apoptotic responses as well as changes in expression of relevant genes.

Division of Toxicology and Risk Assessment
National Food Institute
Period: 01/01/2005 → 31/12/2007
Number of participants: 3
Project participant:
Lam, Henrik Rye (Intern)
Binderup, Mona-Lise (Intern)

Project Manager, organisational:
Nellemann, Christine (Intern)

Project
Development of a new, sensitive and robust 12 hours Salmonella-test to the meat industry
National Food Institute
Division of Risk Assessment and Nutrition
Period: 01/01/2005 → 31/12/2007
Number of participants: 1
Project participant:
Christensen, Julia (Intern)

Project

Fish oil enrichments
An increasing amount of evidence suggests that omega-3 fatty acids have a number of positive nutritional benefits in the human body (cardioprotective effect, prevention of inflammatory and various neurological diseases etc.). Increased attention from the media on these issues has lead to an increased consumer knowledge about omega-3 fatty acids, which in turn has lead to a growing intake of fish oil capsules. An alternative way of increasing the consumption of omega-3 fatty acids could be by adding fish oil to foods. Recently, several fish oil enriched foods have been launched in other European countries. This is not the case in Denmark. This may be due to different reasons. At the consumer side a barrier could be a lack of confidence in the taste of the product. In the food industry a barrier could be the uncertain situation w.r.t. health claims as well as problems related to the susceptibility of fish oil enriched foods to lipid oxidation. Finally, more studies are needed to determine whether the bioavailability of omega-3 fatty acids from fish oil enriched foods is similar to that of fish
Nutrients in biscuits and cakes
A survey of industrial produced biscuits and cakes serve as the basis for the food sampling of 211 samples representing 25 general food types of biscuits and cakes. All samples were purchased in ordinary consumer stores and have been analysed for nitrogen, fat, fatty acids, dry matter, ash, sugars, starch, dietary fiber, thiamin, riboflavin, vitamin B6, folate, niacin, pantothenic acid, sodium, potassium, calcium, magnesium, iron, copper, zinc, manganese, phosphorus, chloride, nickel, chromium, cadmium, selenium and iodine.

National Veterinary Institute
Division of Food Chemistry
National Food Institute
Period: 01/01/2005 → 31/12/2008
Number of participants: 2
Project participant:
Knuthsen, Pia (Intern)
Project Manager, organisational:
Saxholt, Erling (Intern)

Nutrients in fish
After a food survey on the Danish market of fish and fish products in 2004, the analytical project have started. 125 samples representing 23 general food types of fish and fish products have been sampled. All samples were purchased in ordinary consumer stores and have been analysed for nitrogen, fat, fatty acids, dry matter, ash, sugars, starch, dietary fiber, retinol, vitamin D3, 25-OH-D3, tokoferol, thiamin, riboflavin, vitamin B6, folate, niacin, pantothenic acid, biotine, folate, vitamin B12, ascorbic acid, dehydrosacorbic acid, sodium, potassium, calcium, magnesium, iron, copper, zinc, manganese, phosphorus, chloride, nickel, chromium, cadmium, selenium, iodine and cholesterol.

National Veterinary Institute
Division of Food Chemistry
National Food Institute
Period: 01/01/2005 → 31/12/2008
Number of participants: 2
The European Food Information Resource Network, EUROFIR

EuroFIR, the world-leading European Network of Excellence on Food Composition Databank systems is a partnership between 46 universities, research institutes and small-to-large sized enterprises (SMEs) from 25 European countries. EuroFIR aims to develop and integrate a comprehensive, coherent and validated databank providing a single, authoritative source of food composition data in Europe.

Division of Food Chemistry
National Food Institute
Period: 01/01/2005 → 30/06/2010
Number of participants: 5
Project participant:
- Christensen, Tue (Intern)
- Saxholt, Erling (Intern)
- Pilegaard, Kirsten (Intern)
- Eriksen, Folmer Damsted (Intern)
- Bysted, Anette (Intern)

Vitamin D activity of food and supplements

The aim of the project is to assess the relative potency of each of the vitamin D active compounds in order to be able to calculate vitamin D activity through dietary intake, and to investigate the possibility of producing meat high in vitamin D. Firstly, the potency of 25-hydroxyvitamin D3 relative to vitamin D3 will be investigated. This will include nutritional studies connected to ongoing feeding trials in pigs, and the initiation of a human intervention study i.e. A feeding trial in slaughter pigs with vitamin D3 and 25-hydroxyvitamin D3. The end-points are vitamin D status assessed as 25-hydroxyvitamin D in serum and the content of vitamin D3 and 25-hydroxyvitamin D3 in meat. A human intervention study with supplements of vitamin D3, vitamin D2 and 25-hydroxy vitamin D3, in which the end-points are vitamin D status and PTH. A feeding trial in slaughter-pigs with vitamin D3 and 25-hydroxyvitamin D3 for further investigation of the impact of vitamin D in feed on vitamin D in food. Secondly, quantification of dihydroxy vitamin D3 derivatives will be included in the quantification of the total activity of vitamin D via the dietary intake of pork meat. Stable isotope, 13C-labelled vitamin D3, will be used to assess bioavailability and to investigate if it is possible to produce meat high in vitamin D.

Division of Food Chemistry
National Food Institute
Period: 01/01/2005 → 31/12/2008
Number of participants: 2
Project participant:
- Bysted, Anette (Intern)

Forbruger orienteret sensorisk kvalitets model for fisk og fiskeprodukter

National Food Institute
Period: 01/11/2004 → 23/06/2010
Number of participants: 7
Phd Student:
- Green-Petersen, Ditte (Intern)
Supervisor:
- Jørgensen, Bo Munk (Intern)
Nielsen, Jette (Intern)
Main Supervisor:
- Hyldig, Grethe (Intern)
Examiner:
DANED
This project focuses on health effects of plant components with hormone-like activity in the human diet. The aim is to elucidate beneficial and/or adverse effects of mixtures of isoflavones and lignans on human health. Focus is on breast cancer and reproductive health that will be investigated in cell cultures and animal models. Mixtures of isoflavones, of lignans and of both isoflavones and lignans will be screened for estrogen, androgen and dioxin receptor activation as well as their effects on aromatase activity, sex hormone synthesis, and thyroid receptor-mediated proliferation. The results from these studies will form the basis for the design of later in vivo rat studies, in which mixtures will be given during gestation and lactation and effects will be investigated on newborn and adult offspring. Part of the project includes investigations for the presence of endocrine disrupters in waste water and in human and cow milk.

Division of Toxicology and Risk Assessment
National Food Institute
Danish Cancer Society
Aarhus University
University of Copenhagen
Scan Research A/S
Period: 01/09/2004 → 30/05/2009
Number of participants: 2
Project participant:
Boberg, Julie (Intern)
Project Manager, organisational:
Hass, Ulla (Intern)

Fleksible Måltidsløsninger - Netværkssamarbejde set fra et virksomhedsperspektiv
National Food Institute
Period: 15/05/2004 → 04/03/2009
Number of participants: 6
Phd Student:
Olsen, Johanne Rønnow (Intern)
Supervisor:
Harmsen, Hanne (Ekstern)
Main Supervisor:
Friis, Alan (Intern)
Examiner:
Jørgensen, Bo Munk (Intern)
Grunert, Klaus G. (Ekstern)
Jongen, Wim M. F. (Ekstern)

SAFE FOOD
The objective of the project is: To design a European working-procedure for early identification of emerging chemical or microbial risk in food production chain in an expanding European market. The integrated project will focus on the improvement of risk assessment methods and risk analysis practices. The project will develop methods of quantitative risk assessment of combined exposure to food contaminants and natural toxins.
Focus on nutritional status and nutritional risk factors in old nursing home residents
Recent studies show that 60% of elderly Danes receiving full-time or part-time care are underweight, and 20% are (directly) undernourished. It is still not fully known what are major reasons for poor eating, how it affects well-being and functional capacity and finally, what can be done to improve the nutritional condition among the elderly. Also the association between the optimal BMI range (24-29) and maximal physical, mental and social wellbeing needs further investigation. So the National Food Institute has initiated a three-year project to look for answers to these questions. Two studies are performed. The first study involves residents at 11 nursing homes situated in Denmark, which is followed for 1-year with regard to the presence of different nutritional risk factors and the significance of weight loss. The second study involves residents at seven nursing homes where half of the participants undergo an intervention to improve energy intake and muscle strength.

Enzymatic Modification of Palm Oil For Margarine Fat Production

National Food Institute
Period: 01/01/2004 → 16/05/2008
Number of participants: 5
PhD Student:
Ibrahim, Nuzul Amri Bin (Intern)
Main Supervisor:
Xu, Xuebing (Intern)
Examiner:
Adler-Nissen, Jens (Intern)
Adlercreutz, Patrick (Ekstern)
Fredriksen, Henrik K. (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Stipendie fra udlandet
Project: PhD

Healthier Eating In Worksite Canteens From A Social Shaping Perspective
The purpose of the study is to analyze the long term sustainability of a worksite canteen intervention of healthier eating. The focus of the study is on the interrelationship between sustainability of the intervention and on the social and technological development of the worksite. The innovative being the social shaping approach to analyze a health promotion intervention. In a 6-a-day worksite canteen model study 5 different canteens has been increasing the amount of fruit and vegetables (F&V) and the results of the original intervention and the social and technological development of the worksite have been analysed in a 5-year follow-up study. The consumption of F&V was measured by weighting the amount of F&V at the original study canteens. Later on different relevant actors is being interviewed at the same worksites based on an Actor-Network-Theory understanding. Findings so far indicate that worksite canteen has proven to be a promising setting for promoting healthier eating. This study shows that future worksite canteen interventions should be based on: participatory approach, long-term intervention and networking among worksite canteens.
Influence of Food Environment on the infective potential of Listeria

National Food Institute
Division of Veterinary Diagnostics and Research
National Veterinary Institute
Period: 01/01/2004 → 31/12/2006
Number of participants: 4
Project participant:
Andersen, Jens Bo (Intern)
Christensen, Bjarke Bak (Intern)
Boye, Mette (Intern)
Project Manager, organisational:
Licht, Tine Rask (Intern)

Financing sources
Source: Forskningsrådene - Andre
Name of research programme: Forskningsrådene - Andre
Amount: 2,100,000.00 Danish Kroner

Lipophilic marine biotoxins
The research and development activities in this project are closely connected to the Danish Veterinary and Food Administration as 1) the Danish EU reference laboratory on marine biotoxins and as 2) part in the running Danish monitoring program on toxic algae and marine biotoxins. The research and development activities are naturally affected by demands from EU and from present problems in the Danish monitoring program. The acute toxic effect of marine biotoxins is an important factor in relation to food safety issues for seafood products. One of the aims of this project is to set up LC/MS methods for the determination of the following groups of lipophilic marine biotoxins: DSP toxins and related toxins such as pectenotoxins, yessotoxins and azaspiracids. Other issues dealt with are: the biotransformation of marine biotoxins in algae, seafood products and humans, the distribution of marine biotoxins in seafood products and fishing/production areas in relation to representative sampling and the ecology of toxic algae and factors that are important for the production of marine biotoxins and their accumulation in seafood products.

Division of Food Chemistry
National Food Institute
Period: 01/01/2004 → 31/12/2010
Number of participants: 1
Project Manager, organisational:
Jørgensen, Kevin (Intern)

Mad og måltider i fritidsklubber
National Food Institute
Division of Nutrition
Fødevarestyrelsen
Period: 01/01/2004 → 31/12/2006
Number of participants: 1
Contact person:
Christensen, Lene Møller (Intern)

Nutrients in fastfood
Fastfood from restaurants have been investigated and described in a food survey. 250 samples of 45 different fastfood dishes have been sampled and analysed for nitrogen, fat, fatty acids, dry matter, ash, dietary fiber, thiamin, riboflavin, sodium, potassium, calcium, magnesium, iron, copper, zinc, manganese, phosphorus and chloride. All samples are taken
from street- and to-go-restaurants in metropols, major cities, villages, kiosks and highway service stations to represent
demografic distributions. Samples for registration og ingredients are treated separately from analytical samples. Analytical
samples are taken directly to sample pretreatment in the lab.

National Veterinary Institute
Division of Food Chemistry

National Food Institute
Period: 01/01/2004 → 31/12/2008
Number of participants: 2
Project participant:
Knuthsen, Pia (Intern)
Project Manager, organisational:
Saxholt, Erling (Intern)

Optimal Ripening of Salted Herrings -Hemoglobin Friend or Foe?
Blood is believed to be important for the development of characteristic organoleptic properties of salted herings. However,
no research has until now focused on the underlying mechanisms. The aim of the project is to investigate the optimal
ripening conditions for production of marinated fish products of superior quality and highlight the role of hemoglobin by
combining basic research and applied investigations.

National Food Institute
Division of Industrial Food Research
Period: 01/01/2004 → 30/06/2006
Number of participants: 1
Project Manager, academic:
Baron, Caroline P. (Intern)

Organotin speciation in seafood
Organotin compounds in nature comprise mono-, di- and tri- (alkyl- or aryl-) substituted compounds and are used in a
variety of different industrial applications (e.g. biocide agents and plastic stabilisers). Organotin compounds are introduced
to the aquatic environment by the use of organotin compounds as antifouling agents, mainly tributyltin (TBT), on ships.
Organotin compounds are generally very toxic and act as endocrine disruptors and exert immunotoxic effects. Recently
(2005) the European Food Safety Agency (EFSA) issued a toxicological evaluation of organotin compounds and
suggested a tolerable daily intake (TDI) as low as 0.25 µg/kg bodyweight for the sum of four organotin compounds
occurring in nature. The research at The National Food Institute focus on the determination of organotin levels in
seafood samples, which is performed using GC-ICPMS. The data are used to assess human exposure via seafood and
compared with present recommendations for tolerable intake.

Division of Food Chemistry
National Food Institute
Period: 01/01/2004 → 31/12/2009
Number of participants: 2
Project participant:
Larsen, Erik Huusfeldt (Intern)
Project Manager, organisational:
Sloth, Jens Jørgen (Intern)

Quantitative risk assessment strategies for novel foods
The overall objective of this project is to develop and validate the scientific methodology, which is necessary for
quantitative risk assessment of second generation of novel foods to be marketed in EU. The project is designed to
address both the risk assessment (including hazard identification, hazard characterization, exposure assessment and risk
characterization) and the risk/benefit equation. The project addresses the scientific challenge of developing state of the art
approaches to assess the safety, nutritional adequacy and efficacy of novel foods in a comprehensive and interlinked set
of studies. The novel approaches deployed will be tested on three model examples which are either already on, or may be
introduced to, the market. The models selected are (i) genetically modified (GM) and conventionally bred potato tubers
with altered content and balance of inherent toxicants (glycoalkaloids), (ii) a conventionally bred rice mutated line low in an
anti-nutritional constituent (phytic acid), and (iii) functional food ingredients of natural origin (phytosterol and phytostanol
esters). The proposed methodology takes us beyond the current state of the art since it aims at: Deploying precise
genomic and non-targeted profiling approaches for comprehensive characterisation of the novel foods as the primary
basis for subsequent in-vivo and in-vivo studies. Performing sensitive in-vitro studies supported by profiling approaches to identify early biomarkers of toxicity and efficacy as additional tools for designing tailored in-vivo studies. Introducing a de-minimis diet for sensitive in-vivo studies, supported by profiling approaches and addressing safety, nutritional adequacy, and efficacy in a common approach. Conducting exposure assessment by innovative probabilistic techniques based on recipe databases on tailored software code. Combining the outcomes of hazard/efficacy assessment, exposure assessment in a risk-benefit analysis. Taking into account whether the risk/benefit evaluation carried out will sufficiently address the problems with the respective foods as understood by the general public. Summarising the results of the project in an appropriate form for subsequent communication to the wider stakeholder audience. The project is coordinated by the National Food Institute, Division of Toxicology and Risk Assessment.

**Structured lipids for fish feed for rainbow trouts**

Intake of n-3 polyunsaturated fatty acids (PUFA) from fish is important for human health, due to the positive health effects of these PUFA. Feed for farmed fish has traditionally contained ingredients of marine origin high in n-3 fatty acids. However, marine resources might be in shortage for future feed production due to an increasing aquaculture production and stable or declining catches for fish-meal and -oil production.

Alternative sources of oil for fish feed have been investigated. Substitution of fish oil with vegetable oil may not affect the growth of fish, but will be reflected in the tissue of the fish by a reduced content of n-3 PUFA such as EPA and DHA. A major challenge is to influence fatty acid metabolism to save EPA and DHA for storage.

Medium chain fatty acids may preferably be oxidised to provide energy especially when positioned in the sn-1 and -3 positions as demonstrated in mammals. Due to the high fat content in the diets fat accumulation in trout is sometimes too high. In mammals, addition of diacylglycerols to the diet has been shown to reduce fat accumulation.

**Objectives:**

To determine the specificity of lipase in trout
To investigate whether it is possible to increase the relative incorporation of EPA in a low n-3 PUFA diet by feeding trout specific structured triacylglycerols with n-3 PUFA in the sn-2 position and medium chain fatty acids in the sn-1,3 positions
To investigate whether addition of diacylglycerols (DAG) in a fish diet could reduce fat accumulation in trout.

**National Food Institute**

**Division of Industrial Food Research**

**Communications and Management Secretariat**

**Acronym:** Lipids for fish feed

**Project participant:**

Nielsen, Nina Skall (Intern)
Nielsen, Henrik Hauch (Intern)
Jørgensen, Jane (Ekstern)
Mu, Huiling, (Ekstern)
Göttche, Jesper R. (Ekstern)
Xu, Xuebing (Ekstern)
Holm, Jørgen (Ekstern)

**Project Manager, organisational:**

Jacobsen, Charlotte (Intern)

**Structured lipids for fish feed for rainbow trouts**

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**Objectives:**

To determine the specificity of lipase in trout
To investigate whether it is possible to increase the relative incorporation of EPA in a low n-3 PUFA diet by feeding trout specific structured triacylglycerols with n-3 PUFA in the sn-2 position and medium chain fatty acids in the sn-1,3 positions
To investigate whether addition of diacylglycerols (DAG) in a fish diet could reduce fat accumulation in trout.
The effects of plant growth regulator on male gonads and fertility – toxicity study on pigs
Possible effects of the plant growth regulator chlormequat on male reproduction in the pig are being investigated. Pig was chosen as a model for humans, since it was anticipated that this species was closer to the human with regard to sensitivity to chlormequat than conventional laboratory animals. The investigation was performed on male reproduction traits, because male animals are more sensitive to environmental disrupters than female animals and are thus preferred in order to reduce the risk of a false negative result. Hypothesis: consumption of chlormequat equal to the ADI-value will compromise reproduction traits compared to no consumption of chlormequat. The experiment was conducted as an oral toxicity study in pig. Three groups of sows were fed a diet with or without chlormequat, respectively, during pregnancy and subsequent lactation. For the two groups who were given chlormequat spiked feed, the levels were equivalent to ADI or ½ ADI (ADI = 0.05 mg per kg body weight per day). The concentration of chlormequat in the feed was controlled by an accredited method based on LC/MS/MS. Piglets from each sow were sacrificed immediately after birth, at 4 weeks and at 4 months of age to assess the various effects of chlormequat. In order to investigate a possible transfer of chlormequat from mother to offspring, samples of mothers milk and blood were collected and analysed for chlormequat. Additionally, residues of chlormequat in human milk and placenta were performed.

Division of Food Chemistry
National Food Institute
Aarhus University
University of Copenhagen
Period: 01/01/2004 → 31/12/2006
Number of participants: 2
Project participant:
Andersen, Jens Hinge (Intern)
Project Manager, organisational:
Poulsen, Mette Erelius (Intern)

Fate of Bacillus thuringiensis bacteria, applied for biological pest control, in the gastro-intestinal tract.
Bacillus thuringiensis (Bt), which forms specific insecticidal toxins during sporulation, constitutes the active organism in many products used for biological control of insects. Bt is therefore often present on treated fruits and vegetables sold for consumption. The aim of the project is to assess specific putative risks associated with ingestion of Bt spores. The project seeks to answer the following questions: (i) Do Bt spores germinate in the intestinal tract, (ii) does heat treatment prior to ingestion induce the germination, (iii) do they influence the composition of the intestinal microflora, (iv) do they produce enterotoxins in the gut, and (v) are they capable of exchanging genetic material with the indigenous gut microorganisms?

National Food Institute
Aarhus University
National Research Center for Working Environment
Period: 01/12/2003 → 01/12/2006
Number of participants: 2
Project participant:
Wilcks, Andrea (Intern)
Project Manager, organisational:
Licht, Tine Rask (Intern)

Mikrobiologiske plantebeskyttelesmiders skæbne i mave-tarmkanalen
Division of Microbiology and Risk Assessment
National Food Institute
Period: 01/12/2003 → 01/01/2006
Number of participants: 2
Project participant:
Wilcks, Andrea (Intern)
Project Manager, organisational:
Licht, Tine Rask (Intern)

Financing sources
Process Development for the Enzymatic Production of Partial Acylglycerol

National Food Institute
Period: 01/11/2003 → 27/10/2008
Number of participants: 9
Phd Student:
Damstrup, Marianne (Intern)
Supervisor:
Jensen, Anker Degn (Intern)
Kiil, Søren (Intern)
Sparsø, Flemming Vang (Ekstern)
Xu, Xuebing (Intern)
Main Supervisor:
Adler-Nissen, Jens (Intern)
Examiner:
Jacobssen, Charlotte (Ekstern)
Adlercreutz, Patrick (Ekstern)
Balchen, Steen (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Ansat eksternt
Project: PhD

Prediction of technological and sensory quality of trout
Manufacturing food of high and uniform quality requires good knowledge of the characteristics of the raw material, and knowledge of how these characteristics vary between different raw materials. It is also necessary to know how suitable a given raw material is for different types of product, and how the interaction between raw materials and production technology affects the sensory quality of the final product.

The most important differences between fish raw materials will be reflected in the pheno type of the fish, irrespective of whether the cause of this is genetic or environmental. Characterization of pheno type will thus we appropriate to identifying the characteristics of the raw material (protein markers) that will be included in a model to predict the technological and sensory quality of the final product.

The project will produce a number of frozen and smoked products from different raw materials. Characterisation of pheno types will take place through proteom analyses, where image analysis of 2DE gels will reveal protein markers that can potentially relate the quality of the final product to the characteristics of the original raw material. These proteins will be identified using mass spectroscopy and antibodies against them will be raised. The antibodies will be used to develop rapid immune chemical methods. The quality of both the different varieties of raw materials and the
**Måltidselementer - Optimering af produktion af distribuerede måltider**

National Food Institute  
Period: 01/08/2003 → 30/04/2008  
Number of participants: 6  
Phd Student:  
Engelund, Eva Høy (Intern)  
Supervisor:  
Jacobsen, Peter (Intern)  
Main Supervisor:  
Friis, Alan (Intern)  
Examiner:  
Nielsen, Jette (Intern)  
Christiansen, Thomas Bøhm (Intern)  
Creed, Philip (Ekstern)  

**Financing sources**  
Source: Internal funding (public)  
Name of research programme: Offentlig finansiering  
Project: PhD

**Development of indicative screening analyses for dioxins in the fish industry**  
The project aims at developing cost effective indicative screening analyses for dioxins and PCB in order to support the fishermen and the fish industry in finding a new technology for eliminating these pollutants from fish oil and fish meal. It has been shown, that fluorescence spectroscopy can be used on fish oil to reveal fluorophores indirectly correlated to dioxins and PCBs by indicating the trophic level of the catch or to the quenching of the fluorescent signal from natural fluorophores. The project will study the scientific basis for using spectro-fluorimetry in combination with predictive mathematical models as a screening method for dioxin and PCB. In parallel the fatty acid pattern of the fish oil will be studied as an alternative to fluorescence spectroscopy. This analytical procedure will be developed further as a possible candidate for an inexpensive analysis. If successful, the method could also be used on consumer fish.

Division of Food Chemistry  
National Food Institute  
University of Copenhagen  
Period: 01/05/2003 → 31/12/2006  
Number of participants: 3  
Project participant:  
Engelsen, Søren Balling (Ekstern)  
Bassompierre, Marc (Ekstern)  
Project Manager, organisational:  
Cederberg, Tommy Licht (Intern)  
Project

**Influence of food environment on the infective potential of Listeria monocytogenes**  
The main hypothesis behind this project is that not only the number of pathogenic bacteria in a given food product, but also their physiological condition, is decisive for whether or not the contaminated food will cause disease after ingestion. The influence of a number of food-related environmental conditions on the infectivity of Listeria in vitro and in vivo is investigated. The observations of infectivity are coupled to the expression patterns of Listeria monocytogenes as monitored by use of micro arrays. The obtained results will be highly relevant for risk assessment of Listeria in various types of food.

National Food Institute  
Period: 01/03/2003 → 31/12/2006  
Number of participants: 4  
Project participant:  
Andersen, Jens Bo (Intern)
Assessment and Critical Evaluation of Antibiotic Resistance Transferability in the Food Chain
ACE-ART is a EU STREP project under the 6th framework programme. The main aim of the project is to generate knowledge on the source of food-related antibiotic resistant bacteria, their genetic composition and potential for resistance transfer. The bacteria of interest include Lactobacillus, Bifidobacterium, Lactococcus and Streptococcus thermophilus. The National Food Institute (Andrea Wilcks) is coordinator for WP2: Transfer of antibiotic resistance genes in non-pathogenic bacteria associated with the food chain.

National Food Institute
Universita Cattolica del Sacro Cuore
Chr. Hansen A/S
Statens Serum Institut
IBB
TEAGASC
RIKILT
Ghent University
Period: 01/01/2003 → 30/06/2007
Number of participants: 9
Project participant:
Morelli, Lorenzo (Ekstern)
Wind, Anette (Ekstern)
Krogfelt, Karen (Ekstern)
Bardowski, Jacek (Ekstern)
Bolton, Declan (Ekstern)
Aarts, Henk (Ekstern)
Huys, Geert (Ekstern)
Licht, Tine Rask (Intern)
Project Manager, organisational:
Wilcks, Andrea (Intern)
Project
Flavonoids: a new biomarker for intake of fruits and vegetables

The primary cause of death in Denmark is cancer and heart disease. Many studies have shown that a diet rich in fruits and vegetables can prevent development of these diseases, but it is yet unclear what compounds in fruits and vegetables that have the disease preventive properties. The use of biomarkers in population studies is a new tool to study the intake of individual compounds in our diet. Traditionally only dietary records and interviews have been used to estimate the intake of certain foods, but the biomarkers can give us more exact measures of the ingested diet. Carotenoids are a group of fat-soluble pigments widely distributed in nature. They are especially abundant in yellow-orange fruits and vegetables and dark green, leafy vegetables. Therefore, plasma carotenoids are often chosen as biomarker for intake of fruits and vegetables. In the present study we investigate the validity of a new biomarker for intake of fruits and vegetables. The biomarker is a measure of the content of flavonoids in urine samples collected from 250 subjects participating in “Inter99”. Flavonoids is a group of polyphenols found in fruits and vegetables, that are thought to have health preventive properties. The Inter99 study is a population study conducted by Centre for Prevention and Health, Glostrup University Hospital. We participate in the validation of the food registration used in this study by use of the carotenoid and flavonoid biomarkers.

Division of Toxicology and Risk Assessment

National Food Institute

University of Copenhagen

Period: 01/01/2003 → 31/12/2009

Number of participants: 1

Project Manager, organisational:

Krogholm, Kirstine Suszkiewicz (Intern)

Metal Release by Corrosion and Wear in the Food Industry

The objectives of this project are to identify the sources of metal contamination from stainless steel equipment in food industry, analyse the impact of the contamination and finally to suggest solutions for the problem. Metal release can cause a health risk for consumers with nickel allergy and the acquisition of data on metal content in not only raw products but also in manufactured food and ready-to-eat dishes will be an improvement of the present status. The role of the National Food Institute is to analyse trace elements in processed raw materials and foodstuffs sampled at various sites along the process line in the food industry. The trace element content is determined by Inductively Coupled Plasma Mass Spectrometry (ICPMS) equipped with a collision/reaction cell for interference reduction/removal. The obtained data on food products will be analysed and the health risk evaluated by comparison with the estimated daily intake. By materials selection and development of more wear and corrosion resistant surfaces the general food quality can be improved, metal release reduced and longer lifetime of process equipment obtained – all leading to better products. So by technological solutions safe and high quality food production can be made possible.

Department of Management Engineering

Division of Food Chemistry

National Food Institute

University of Copenhagen

Period: 01/01/2003 → 31/07/2007

Number of participants: 4

Project participant:

Møller, Per (Ekstern)

Poulsen, Lars K. (Ekstern)
Metal Release by Corrosion and Wear in the Food Industry
The objectives of this project are to identify the sources of metal contamination from stainless steel equipment in food industry, analyse the impact of the contamination and finally to suggest solutions for the problem. Metal release can cause a health risk for consumers with nickel allergy and the acquisition of data on metal content in not only raw products but also in manufactured food and ready-to-eat dishes will be an improvement of the present status.

The role of the National Food Institute is to analyse trace elements in processed raw materials and foodstuffs sampled at various sites along the process line in the food industry. The trace element content is determined by Inductively Coupled Plasma Mass Spectrometry (ICPMS) equipped with a collision/reaction cell for interference reduction/removal. The obtained data on food products will be analysed and the health risk evaluated by comparison with the estimated daily intake.

By materials selection and development of more wear and corrosion resistant surfaces the general food quality can be improved, metal release reduced and longer lifetime of process equipment obtained – all leading to better products. So by technological solutions safe and high quality food production can be made possible.

Project financing:
The project is funded by The Directorate for Food, Fisheries and Agri Business, DFFE and has a total budget of 6.1 mill kroner. The National Food Institute has a budget of 0.9 mill kr.

National Food Institute
Division of Food Chemistry
Department of Mechanical Engineering
Materials and Surface Engineering
Rigshospitalet
Period: 01/01/2003 → 01/01/2007
Number of participants: 4
Project participant:
Larsen, Erik Huusfeldt (Intern)
Møller, Per (Intern)
Poulsen, Lars Kærgaard (Intern)
Project Manager, organisational:
Sloth, Jens Jørgen (Intern)
Minerals and trace elements in drinking Water
Regarding drinking water as an important component of diet the aim of this project is to measure the content of minerals and trace elements in drinking water in Denmark. 150 samples of tap water from 50 different places, representative for the geographically different areas of Denmark were collected 2 times within one year. The samples were stored at -18°C and analysed for sodium, potassium, magnesium, calcium, chromium, iron, copper, zinc, cadmium, lead, mercury and iodine.

National Veterinary Institute
Division of Food Chemistry
National Food Institute
Period: 01/01/2003 → 31/12/2007
Number of participants: 2
Project participant:
Larsen, Erik Huusfeldt (Intern)
Project Manager, organisational:
Saxholt, Erling (Intern)
**Toxicogenomics in Test Development**

Use of the sensitive -omics techniques holds a great promise for the development of in vitro alternatives to animal testing. As example one project with the scope of using molecular markers to study the effects of a mixture of 12 polycyclic aromatic hydrocarbons (PAHs) in two breast cancer cell lines was carried out. Results showed that expression of seven out of 14 breast cancer relevant genes were differently regulated by a mixture of 12 PAHs compared to the PAH benzo[a]pyren (B[a]P). The level of apoptosis was increased by the PAH mixture whereas no single PAH had this effect. The level of DNA strand breaks was increased for the mixture of PAHs but not for B[a]P. The conclusion was that B[a]P cannot be used as a model compound for PAH toxicity, that a mixture of 12 PAHs could be involved in breast cancer initiation and propagation, and that mixtures of PAHs show effects not able to predict from the effects of the single PAHs.

**Division of Toxicology and Risk Assessment**

**National Food Institute**

Period: 01/01/2003 → 31/12/2005
Number of participants: 3
Project participant:
Sørensen, Ilona Kryspin (Intern)
Binderup, Mona-Lise (Intern)

**Endocrine disruptors: Exploring new endpoints, low dose- and mixture-effects in humans, aquatic wildlife and laboratory animals**

EDEN was a very large EU-funded project, which aimed to address major knowledge gaps in relation to whether exposure to endocrine disrupting chemicals (EDC) from the environment plays any causal role for male reproductive health. The research activities in EDEN were organised in four themes working with: Exposure assessment of complex EDC mixtures in human and fish tissues Mechanism of EDC action, novel endpoints and biomarkers Indicators of impaired reproductive function in European men Low-dose and mixture effects of EDC, providing empirical evidence and exploring implications for regulation and testing. The National Food Institute, Technical University of Denmark had a major role in the work in theme 4. In this theme, we performed experimental studies of low dose and mixture effects in laboratory animals. In addition, we contributed to exploring the implications for regulatory testing of chemicals.

**Division of Toxicology and Risk Assessment**

**National Food Institute**

Period: 01/12/2002 → 01/05/2007
Number of participants: 5
Project participant:
Nellemann, Christine (Intern)
Christiansen, Sofie (Intern)
Petersen, Marta Axelstad (Intern)
Boberg, Julie (Intern)

**Acrylamide in food: formation, occurrence and mitigation**

Acrylamide is a Maillard reaction products formed in thermally processed foods. The precursors of the acrylamide are mainly asparagine and reducing sugars present in e.g. potatoes, cereals or other fruits and vegetables. Since 2002, the National Food Institute has made accredited analysis of acrylamide in food. In addition an LC-MS/MS method for simultaneously analysis of the precursors asparagine, glucose and fructose was developed. The institute has cooperated with Universities and Danish and Nordic industries on reducing acrylamide in different food products like French fries, crisps, breakfast cereals and bread. Processing temperature, time, water activity, pH, radical contents influenced the acrylamide levels. It was also found that acrylamide was reduced by treatments like soaking in water, citric acid, antioxidants; blanching with water, sodium chloride solution or a solution of the enzyme asparaginase. The mechanisms and kinetic of acrylamide formation was studied in a model system with different relative concentrations of asparagine and reducing sugars and at different water activities. The rate determining intermediate was found to be different depending on the temperature and the activation energy for the two intermediates of the two formation routes were determined. The dietary intakes of acrylamide are estimated for children and adults.

**Division of Food Chemistry**

**National Food Institute**
Prevention of Cancer by Intervention with Selenium (PRECISE)
In order to test the possible role of selenium in cancer prevention, a group of researchers from Denmark, Sweden and from the UK have designed the Prevention of Cancer by Intervention with Selenium (PRECISE) study. Over a period of 8 years a planned total of 42000 Europeans will be randomised to supplementation with yeast-selenium at 100, 200 and 300 µg/day or placebo. Pilot studies have been conducted in Denmark and in the UK from 1999-2004, and the biomarkers of selenium intake show good response and compliance to the supplements. No adverse effects were recorded. The task of the National Food Institute is to aid in the study design and assure quality of the selenium supplementation tablets to be used. In case of a positive outcome of the PRECISE trial, the National Food Institute will devise ways to raise the selenium intake in the general population.

The Effect of Gastrointestinal Digestion on the Allergenicity of Foods QLRT-2000-01239
The main objective of this EU-project is to expand current allergenicity assessment strategies regarding GMO’s. In view of the apparent link between poor digestibility of food proteins and their ability to act as allergens, protein digestion is one of the criteria currently used in assessing the risks which may be posed to consumers by novel food and GMO’s. At the present time the concept has been accepted as relevant for the assessment of the allergenicity even though exceptions to this rule have been observed. One of the objectives of this project is to demonstrate the basis for linking the lack of digestibility of food allergens with their allergenic reactivity. The role of the National Food Institute is to study the sensitising capacity of allergens digested in an in vitro model mimicking human digestion. The allergens are from peanut, Ara h 1, and from milk, beta-lactoglobulin and beta-casein.

The confederation of Industries (including cooperation with five food processing industries)
Arsenic speciation in seafood

Arsenic is introduced into the environment via both anthropogenic and natural sources. Biotransformation processes in nature are responsible for the existence of a large number of naturally occurring arsenic compounds. Especially samples of marine origin may contain high concentrations of arsenic (up to several hundred mg/kg). A large variation in toxicity among the various arsenic species is found. Inorganic arsenic is the most toxic form, whereas organic bound arsenic is considered less toxic and some compounds even innocuous. Dietary exposure to arsenic comes mainly from seafood. In order to carry out a correct assessment of possible health risks associated with the ingestion of arsenic in food, the dramatic variation in toxicity must be taken into account. Consequently speciation analysis is needed. Methodologies for arsenic speciation analysis is based on various forms of liquid chromatography coupled to ICPMS as an arsenic-specific detector (HPLC-ICPMS) and the use of solid phase extraction for selective extraction of inorganic arsenic followed by determination by atomic absorption spectrometry (SPE-AAS). Electrospray Ionisation Mass spectrometry is used for the structural identification of arsenic compounds and for the structural elucidation of novel arsenic species.

Division of Food Chemistry
National Food Institute
National Institute for Nutrition and Seafood Research
National Food Administration
RIKILT
Period: 01/01/2001 → 31/12/2011
Number of participants: 5
Project participant:
Haldorsen, Anne-Katrine (Ekstern)
Jorhem, Lars (Ekstern)
de Jong, Jacob (Ekstern)
Larsen, Erik Huusfeldt (Intern)
Sloth, Jens Jørgen (Intern)

Selenium speciation and bioavailability

The aim of the project is to characterise molecular forms (species) of selenium in food of plant and animal origin. Furthermore, the research aims at assessing the bioavailability in humans of selenium. The selenium contained in plants from the onion family (e.g. garlic and onion) and in selenium-enriched yeast was extracted using aqueous solvents or proteolytic enzymes. The selenium species (ppt-file) were identified by liquid chromatography coupled with the selenium-selective ICP-MS detector. For assessment of the selenium bioavailability (ppt-file) in humans, yeast enriched by the stable selenium isotope 77Se was used as the intervention substance. The bioavailability was estimated by time-resolved appearance of 77Se in blood, urine and faecal samples.

Division of Food Chemistry
National Food Institute
Institute for Plant Research
Centre National de la Recherche Scientifique
Pharma Nord Aps.
Period: 01/01/2001 → 31/12/2007
Number of participants: 2
Project participant:
Sloth, Jens Jørgen (Intern)
Larsen, Erik Huusfeldt (Intern)
Project
Towards a strategy for optimal vitamin D fortification, OPTIFORD
The overall research plan for the project included five specific objectives achieved through five work packages, of which Danish Institute for Food and Veterinary Research (DFVF) participated in two: To assess the dose necessary to replenish vitamin D status in an immigrant population group with minimal sun exposure and to determine the effect on bone mass (WP3) To examine the influence of dissimilarities in environmental and behaviouristic patterns on supply levels of vitamin D between different European countries (WP4) Besides, Division of Nutrition was the scientific, administrative and financial coordinator of the project.

Division of Nutrition
National Food Institute
University of Helsinki
Royal Veterinary and Agricultural University
University College Cork
Universidad Complutense

National Food and Nutrition Institute
Period: 01/01/2001 → 30/06/2004
Number of participants: 4
Project participant:
Andersen, Rikke (Intern)
Jakobsen, Jette (Intern)
Mejborn, Heddie (Intern)
Project Manager, organisational:
Trolle, Ellen (Intern)

World Health Organization Collaborating Center Global Foodborne Infection Network
The Global Foodborne Infections Network (formerly Global Salm-Surv (GSS)) is a global network of laboratories and individuals involved in surveillance, isolation, identification and antimicrobial resistance testing of various foodborne pathogens. It is part of endeavours of WHO to strengthen the capacities of its Member States in the surveillance and control of major foodborne diseases and to contribute to the global effort of containment of antimicrobial resistance in foodborne pathogens.

The objective of the network is to strengthen and enhance the capacities of national and regional laboratories in the surveillance of major foodborne pathogens, e.g. the work with antimicrobial resistance in Salmonella and Campylobacter from humans, food and animals.

The National Food Institute, Technical University of Denmark conducts:
External Quality Assurance System (EQAS) on serotyping and susceptibility testing of Salmonella and Shigella as well as identification and MIC determination of Campylobacter and an unknown foodborne pathogen
Training courses in isolation, identification, serotyping, PFGE and susceptibility testing of major foodborne pathogens.
Individual training
Reference testing of problem strains
Participation in various research projects with member countries.

National Food Institute
Division of Epidemiology and Microbial Genomics
OzFoodNet
Centers for Disease Control and Prevention
U.S. Food and Drug Administration
World Health Organization
Institut Pasteur du Maroc
Public Health Agency of Canada
European Centre for Disease Prevention and Control
National Institute of Public Health
Organochlorine compounds in Danish human milk
Humans are exposed to persistent organic environmental contaminants mainly through the intake of food. The compounds are distributed throughout the human body in the various fatty tissues. Human milk has for many years been used for monitoring purposes, as the samples are relatively easy to get and, if proper standardised, the chemical data can be compared between countries and used for time trends studies. The Danish surveys have been performed on milk samples collected from mothers aged 25-29 and giving birth for the first time. In 1986 and 1993-94 the collecting of samples was coordinated with the WHO human milk studies.

National Veterinary Institute
Division of Food Chemistry
National Food Institute
Period: 01/01/2000 → 31/12/2004
Number of participants: 1
Project Manager, organisational:
Cederberg, Tommy Licht (Intern)
Project

Combinatorial synthesis of quorum sensing inhibitors
This program embrace the generation of targeted combinatorial libraries aimed against intercellular communication for applications within e.g. food preservation and infectious disease area. Using solid-phase synthesis and combinatorial chemistry, modulators of quorum sensing is developed.

Department of Organic Chemistry
Department of Microbiology
National Food Institute
Department of Systems Biology
Department of Chemistry
Period: 01/01/1999 → 31/12/2002
Number of participants: 5
Project participant:
Olsen, Jacob Alsbæk (Intern)
Molin, Søren (Intern)
Givskov, Michael Christian (Intern)
Gram, Lone (Intern)
Project Manager, organisational:
Nielsen, John (Intern)
Project
The Danish investigation of iodine intake and thyroid diseases (DanThyr)
The aim of the study is to monitor the iodine fortification in Denmark, which was initiated in 1998. The monitoring program consists of two main parts: 1. The DanThyr cohort study. Repeated investigation of cohorts, including the iodine status of the population, the intake of iodine-rich diet and supplements, the prevalence rate of goitre, and possible confounding factors. A cohort of 4649 subjects living in either Aalborg or Copenhagen was investigated in 1997-1998 before iodine fortification was started and a second cohort consisting of 3500 subjects from the same cities was investigated in 2004-2005 about 5 years after iodine fortification was started... 2. The DanThyr Register. Continuous monitoring of both overt hyper- and hypothyroidism. All new blood samples analysed for TSH in a population of about 500,000 people in Northern Jutland and Copenhagen are registered. This was started in 1997 and is planned to continue until 2009.

Division of Nutrition
National Food Institute
Aalborg University Hospital
University of Copenhagen
Period: 01/03/1997 → 31/01/2011
Number of participants: 4
Project participant:
Laurberg, Peter (Ekstern)
Perrild, Hans (Ekstern)
Ovesen, Lars (Ekstern)
Project Manager, organisational:
Rasmussen, Lone Banke (Intern)

Residues of veterinary drugs and hormones in food of animal origin
The project deals with method development and science based consultancy for the Danish Veterinary and Food Administration (Fødevararestyrelsen) on residues of veterinary drugs and hormones in food of animal origin and in feed. This includes responsibilities as national reference laboratory within this area.
The analytical methods are primarily based on liquid chromatography (U)HPLC and specific mass spectrometry, either MS/MS or (Q)TOF.

National Food Institute
Division of Food Chemistry
Period: 01/01/1996 → …
Number of participants: 5
Contact person:
Pedersen, Mikael (Intern)
Frandsen, Henrik Lauritz (Intern)
Project participant:
Rugbjerg, Helene (Ekstern)
Ørtoft, Inga (Ekstern)
Project Manager, academic:
Andersen, Jens Hinge (Intern)

Seafood Spoilage and Safety Predictor
The project has developed and distributed the Seafood Spoilage Predictor (SSSP) software to predict shelf-life, histamine formation and growth of Listeria monocytogenes. SSSP v. 3 from Dec. 2008 is available at sssp.dtuacqua.dk. The software is used by more than 3500 individuals or institutions from 104 different countries.

Department of Systems Biology
National Food Institute
Period: 01/01/1996 → …
Number of participants: 1
Acronym: SSSP
Project participant:
Dalgaard, Paw (Intern)
Content and intake of trans fatty acids
Trans fatty acids (TFA) occur naturally in dairy products and fats from ruminants (R-TFA) as a result of bacterial biohydrogenation. In addition, TFA are formed industrially by partial hydrogenation of unsaturated fatty acids from vegetable and marine oils (IP-TFA). The project consists of investigations of TFA in foods in response to the Danish regulation specifying a maximum of 2 g IP-TFA per 100 g fat from 1 January 2004. The studies include analyses of foods sold in Denmark (comparison with levels obtained before the Danish regulation came into force), and in foreign countries. The results are collected in a database with the TFA contents in foods from 1992 to 2010, which is used to calculate the intake of TFA for subjects in different research projects e.g. DanORC (The Danish Obesity Research Center). In addition, the intake of R-TFA was estimated for the Danish population by combining the content of R-TFA in butter and ruminant meat with information on food intake from the National Dietary Survey in 1995.

Division of Food Chemistry
National Food Institute
University of Copenhagen
Region Hovedstaden
Statens Serum Institut
Period: 01/01/1992 → 12/07/2012
Number of participants: 1
Project Manager, organisational:
Bysted, Anette (Intern)

Drogelisten
National Food Institute
Division of Toxicology and Risk Assessment
Period: 01/01/1989 → …
Number of participants: 3
Project participant:
Ravn-Haren, Gitte (Intern)
Olesen, Pelle Thonning (Intern)
Project Manager, organisational:
Pilegaard, Kirsten (Intern)

Activities:

Consumer preferences for coffee in Denmark
Period: 2018
Gitte Ravn-Haren (External examiner)
National Food Institute
Research Group for Risk-Benefit

Description
Master Thesis
Degree of recognition: Local
Activity: Examinations and supervision › Supervisor activities

Intake of food supplements among female fitness athletes and their possible harmful effects - with a focus on green tea
Period: 2018
Gitte Ravn-Haren (Main supervisor)
Kirsten Pilegaard (Supervisor)
National Food Institute
Risks and benefits associated with a moderate alcohol intake  
Period: 2018  
Gitte Ravn-Haren (Main supervisor)  
National Food Institute

Salt and risk of cardiovascular disease  
Period: 2018  
Gitte Ravn-Haren (Main supervisor)  
National Food Institute

The benefits of salt reduction and the associated microbiological risks in soups  
Period: 2018  
Gitte Ravn-Haren (Supervisor)  
National Food Institute

The effects of β-glucan consumption on colonic fermentation, measured by exhaled gases and short chain fatty acids in a randomized, parallel, controlled trial  
Period: 2018  
Gitte Ravn-Haren (External examiner)  
National Food Institute

FSSP – Food Spoilage and Safety Predictor. Oral presentation and software demonstration at ICPMF Software Fair for Predictive Microbiology and Risk Assessment Tools, FoodMicro 2018  
Period: 3 Sep 2018
Paw Dalgaard (Invited speaker)
National Food Institute
Research Group for Analytical and Predictive Microbiology

Description
Degree of recognition: International

Related event
26th International ICFMH Conference - FoodMicro 2018
03/09/2018 → 06/09/2018
Berlin, Germany
Activity: Talks and presentations › Conference presentations

Organizer of ICPMF Software Fair for Predictive Microbiology and Risk Assessment Tools, FoodMicro 2018, Berlin, Germany.
Period: 3 Sep 2018
Paw Dalgaard (Other)
National Food Institute

Description
Degree of recognition: International

Documents:
Homepage-060618-final

Related event
26th International ICFMH Conference - FoodMicro 2018
03/09/2018 → 06/09/2018
Berlin, Germany
Activity: Talks and presentations › Conference presentations

5th International Vitamin Conference
Period: 8 Aug 2018 → 10 Aug 2018
Jette Jakobsen (Chairman)
National Food Institute
Research Group for Bioactives – Analysis and Application
Degree of recognition: International

Related event
5th International Vitamin Conference
08/08/2018 → 10/08/2018
Sydney, Australia
Activity: Attending an event › Participating in or organising a conference
EFSA expert panel on Biological Hazard (External organisation)
Period: 1 Jul 2018 → 30 Jun 2021
Maarten Nauta (Member)
National Food Institute
Research Group for Risk-Benefit

Description
Member
Degree of recognition: International
Links:
http://www.efsa.europa.eu/en/panels/biohaz (Description of Biohaz panel)

Related external organisation
EFSA expert panel on Biological Hazard
European Food Safety Authority, Parma, Italy
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

Predictive Microbiology – Food Spoilage and Safety Predictor (FSSP) software. Mini-course at Microbial Food Quality and Safety – Analytical Methods, UC-HEALTH, Copenhagen (20 participants).
Period: 19 Jun 2018
Paw Dalgaard (Guest lecturer)
National Food Institute
Research Group for Analytical and Predictive Microbiology

Description
Degree of recognition: International

Related event
Microbial Food Quality and Safety – Analytical Methods
19/06/2018 → 19/06/2018
Copenhagen, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Characterization of nanoparticles in food using ICP-MS – How far have we come in the last 10 years?
Period: 12 Jun 2018
Katrin Löschner (Invited speaker)
National Food Institute
Research Group for Nano-Bio Science
Degree of recognition: International

Related event
9th Nordic Conference on Plasma Spectrochemistry
10/06/2018 → 13/06/2018
Loen, Norway
Activity: Talks and presentations › Conference presentations

Carbapenemase epidemiology in bacteria of animal and environmental origin: the One Health prospective
Period: 8 Jun 2018
Valeria Bortolaia (Guest lecturer)
National Food Institute
Research Group for Genomic Epidemiology
Degree of recognition: International

**Related event**

**ASM Microbe 2018**
07/06/2018 → 11/06/2018
Atlanta, United States
Activity: Talks and presentations › Conference presentations

**Training School in Food Allergy Animal Models**
Period: 5 Jun 2018 → 7 Jun 2018
Katrine Lindholm Bøgh (Guest lecturer)
National Food Institute
Research Group for Gut Microbiology and Immunology
Degree of recognition: International

**Related external organisation**

**Medical University of Vienna**
Austria
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

**Characterizing molecular mechanisms for short anogenital distance**
Period: 4 Jun 2018 → 6 Jun 2018
Camilla Victoria Lindgren Schwartz (Speaker)
Anne Marie Vinggaard (Other)
Terje Svingen (Other)
National Food Institute
Research Group for Molecular and Reproductive Toxicology
Copenhagen Center for Health Technology

**Related event**

**5th European Doctoral College on Environment and Health (EDCEH): Endocrine Disruptors: an update**
04/06/2018 → 06/06/2018
Activity: Talks and presentations › Conference presentations

**Exposure to ethinyl estradiol may delay ovary development**
Period: 4 Jun 2018 → 6 Jun 2018
Hanna Katarina Lilith Johansson (Other)
Terje Svingen (Other)
Julie Boberg (Other)
National Food Institute
Research Group for Molecular and Reproductive Toxicology

**Related event**

**5th European Doctoral College on Environment and Health (EDCEH): Endocrine Disruptors: an update**
04/06/2018 → 06/06/2018
Activity: Talks and presentations › Conference presentations

**Risk-benefit assessment of foods**
Period: 1 Jun 2018
Maarten Nauta (Guest lecturer)
National Food Institute
**Research Group for Risk-Benefit**
Degree of recognition: International

**Related external organisation**

**Unilever R&D**
Netherlands
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

**Insects for food & feed: how to translate EU food & feed safety requirements on the ground?**
Period: 29 May 2018
Dorte Lau Baggesen (Organizer)
National Food Institute
Degree of recognition: International

**Related event**

**Insects for food & feed: how to translate EU food & feed safety requirements on the ground?: IPIFF workshop**
29/05/2018 → 29/05/2018
Madrid, Spain
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Characterizing novel molecular mechanisms for short AGD – a biomarker of fetal testicular function**
Period: 23 May 2018 → 27 May 2018
Camilla Victoria Lindgren Schwartz (Speaker)
Anne Marie Vinggaard (Other)
Sofie Christiansen (Other)
Frederic Chalmel (Other)
Terje Svingen (Other)
National Food Institute
Research Group for Molecular and Reproductive Toxicology
Copenhagen Center for Health Technology

**Related event**

**20th European Testis Workshop**
23/05/2018 → 27/05/2018
Obedos, Portugal
Activity: Talks and presentations › Conference presentations

**Glyphosate alone does not adversely affect testicular androgen function in mature rats**
Period: 23 May 2018 → 27 May 2018
Hanna Katarina Lilith Johansson (Other)
Lene Narby Nielsen (Other)
Anne Marie Vinggaard (Other)
Martin Iain Bahl (Other)
Terje Svingen (Speaker)
National Food Institute
Research Group for Molecular and Reproductive Toxicology
Copenhagen Center for Health Technology
Research Group for Gut Microbiology and Immunology
Degree of recognition: International

**Related event**

**20th European Testis Workshop**
12th European Pesticide Residue Workshop
Period: 22 May 2018 → 25 May 2018
Susan Strange Herrmann (Participant)
National Food Institute
Research Group for Analytical Food Chemistry
Degree of recognition: International

Related event

12th European Pesticide Residue Workshop
22/05/2018 → 25/05/2018
Münich, Germany
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Mikrobiologisk kvalitet af fisk og fiskeprodukter. Forelæsning ved KU-SUND
Period: 7 May 2018
Paw Dalgaard (Guest lecturer)
National Food Institute
Research Group for Analytical and Predictive Microbiology

Description
Mikrobiologisk kvalitet af fisk og fiskeprodukter (2 x 35 min.). Fødevaremicrobiologi (270009), KU-SUND, 7. maj 2016, 150 studerende.

Related event

Kursus i Fødevaremicrobiologi
07/05/2018 → 07/05/2018
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

UMR 6303 CNRS / University of Burgundy
Period: 1 May 2018 → 31 May 2018
Katrin Löschner (Visiting researcher)
National Food Institute
Research Group for Nano-Bio Science

Description
Invited researcher by CNRS (French National Center for Scientific Research) in the (Bio-)Hybrid Nanoparticles & Nanostructures (BH2N) team of Prof. Nadine Millot in the Nanoscience Department of the Laboratoire Interdisciplinaire Carnot de Bourgogne (ICB)
Degree of recognition: International
Activity: Visiting an external institution › Visiting another research institution

Scientific Committee of the Med-Vet-Net Association (MVNA) (External organisation)
Period: Apr 2018 → …
Johanne Ellis-Iversen (Member)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: International

Related external organisation

Scientific Committee of the Med-Vet-Net Association (MVNA)
**ORION First Full Consortium Meeting & Requirement Analysis Workshop**  
**Period:** 18 Apr 2018 → 20 Apr 2018  
**Johanne Ellis-Iversen (Organizer)**  
National Food Institute  
Division of Risk Assessment and Nutrition  
Degree of recognition: International

**Related event**

**ORION First Full Consortium Meeting & Requirement Analysis Workshop**  
18/04/2018 → 20/04/2018  
Berlin, Germany  
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Analysis of engineered nanomaterials in food - Challenges in relation to labelling requirements and risk assessment**  
**Period:** 11 Apr 2018  
**Katrin Löschner (Invited speaker)**  
National Food Institute  
Research Group for Nano-Bio Science

**Description**  
Session "Analytical Challenges from Implementing Consumer-Oriented Legislation" organized by The European Commission, Joint Research Centre  
Degree of recognition: International

**Related event**

**Analytica Conference 2018**  
10/04/2018 → 12/04/2018  
Munich, Germany  
Activity: Talks and presentations › Conference presentations

**Evidenssynthese til Campylobacter handlingsplanen**  
**Period:** 10 Apr 2018  
**Johanne Ellis-Iversen (Invited speaker)**  
National Food Institute  
Division of Risk Assessment and Nutrition  
Degree of recognition: National

**Related organisation**

**Evidenssynthese til Campylobacter handlingsplanen**  
Ellis-Iversen, J. (Invited speaker)  
10 Apr 2018  
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

**CPH MINK**  
**Period:** 9 Apr 2018  
**Nanett Kvist Nikolaisen (Guest lecturer)**  
National Food Institute  
Bacteriology & Parasitology  
Degree of recognition: International

**Related external organisation**
Development of sustainable technologies for protein extraction from brewer’s spent grains
Period: 5 Apr 2018
Solange I. Mussatto (Main supervisor)
Fen Qin (Supervisor)
Timothy John Hobley (Supervisor)
Novo Nordisk Foundation Center for Biosustainability
Biomass Conversion and Bioprocess Technology
National Food Institute
Research Group for Microbial Biotechnology and Biorefining

One Health Risk Communication in Policy on Emerging Risks - the English Experience
Period: 16 Mar 2018
Johanne Ellis-Iversen (Guest lecturer)
National Food Institute
Division of Risk Assessment and Nutrition

Risk-Benefit assessment of a moderate alcohol intake
Period: Feb 2018 → Jun 2018
Gitte Ravn-Haren (Main supervisor)
National Food Institute
Research Group for Risk-Benefit

Risk assessment of food additives in the EU
Period: 21 Feb 2018
Lea Bredsdorff (Guest lecturer)
National Food Institute
Division of Risk Assessment and Nutrition

Tænketanken Frej
Peder Skrams Gade 8, 1054, København, Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Nordic Food Lab, KU: Invited presentation on safety and quality at 'Monday Aperitivo - Squid s of the north'
Period: 29 Jan 2018
Paw Dalgaard (Panel member)
National Food Institute

Research Group for Analytical and Predictive Microbiology

**Description**
Nordic Food Lab, KU: Invited presentation on safety and quality at 'Monday Aperitivo - Squid s of the north'
Degree of recognition: National

**Links:**
http://nordicfoodlab.org/ (Nordic Food Lab)

**Related event**
Nordic Food Lab, KU: Invited presentation on safety and quality at 'Monday Aperitivo - Squid s of the north'
29/01/2018 → 29/01/2018
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**ORION WP-leader kick off Workshop**
Period: 22 Jan 2018 → 23 Jan 2018
Johanne Ellis-Iversen (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: International

**Related event**
ORION WP-leader kick off Workshop
22/01/2018 → 23/01/2018
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Yoko Aoyama**
Start date: 17 Jan 2018
Johanne Ellis-Iversen (Host)
National Food Institute
Division of Risk Assessment and Nutrition

**Description**
Yoko Aoyama and delegation seeking advice on Risk Assessment of AMR
Degree of recognition: International
Activity: Hosting a guest lecturer

**Danish Fish Levy Fond (External organisation)**
Period: 2017
Charlotte Jacobsen (Participant)
National Food Institute
Research Group for Bioactives – Analysis and Application

**Description**
Board member

**Related external organisation**
Danish Fish Levy Fond
Denmark
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar
Danish Seaweed Organisation (DSO) (External organisation)
Period: 2017 → …
Susan Løvstad Holdt (Chairman)
National Food Institute
Research Group for Bioactives – Analysis and Application

Description
Board member, treasurer of the Danish Seaweed Organisation (DSO)
Degree of recognition: National

Related external organisation

Danish Seaweed Organisation (DSO)
Activity: Membership › Board duties in companies, associations, or public organisations

EU CEN 454 standardisation of algae (External organisation)
Period: 2017 → …
Susan Løvstad Holdt (Chairman)
National Food Institute
Research Group for Bioactives – Analysis and Application

Description
Chair of the national mirror committee of the EU CEN 454 standardisation of algae
Degree of recognition: International

Related external organisation

EU CEN 454 standardisation of algae
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

EUREKA expert (External organisation)
Period: 2017
Susan Løvstad Holdt (Chairman)
National Food Institute
Research Group for Bioactives – Analysis and Application

Description
EUREKA Expert (invited member of the EUREKA expert database) to evaluate project proposals
Degree of recognition: International

Related external organisation

EUREKA expert
Activity: Membership › Membership in review committee

International Journal of Food Microbiology (Journal)
Period: 2017
Ana Sofia Ribeiro Duarte (Reviewer)
National Food Institute
Research Group for Genomic Epidemiology
Degree of recognition: International

Related journal

International Journal of Food Microbiology
0168-1605
Central database
Activity: Research › Peer review of manuscripts

Journal of Applied Phycology (Journal)
Period: 2017
Susan Løvstad Holdt (Reviewer)
National Food Institute
Research Group for Bioactives – Analysis and Application

Description
Invited as guest editor of the issue on the proceedings of the International Seaweed Symposium, Copenhagen, June 2016
Degree of recognition: International

Related journal
Journal of Applied Phycology
0921-8971

Central database
Activity: Research › Peer review of manuscripts

Late effects of early exposures to endocrine disrupting chemicals in rats
Period: 2017
Julie Boberg (Guest lecturer)
National Food Institute
Research Group for Molecular and Reproductive Toxicology

Description
Invited talk in session "Modes of action of non-genotoxic carcinogens: Recent advances in the light of human relevance"

Related event
Eurotox 2017: 53rd Congress of the European Societies of Toxicology
10/09/2017 → 13/09/2017
Bratislava, Slovakia
Activity: Talks and presentations › Conference presentations

LOC for International Conference of Animal Health Surveillance (External organisation)
Period: 2017 → …
Johanne Ellis-Iversen (Chairman)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Head of Scientific Committee
Member of Local Organising Committee
Degree of recognition: International

Related external organisation
LOC for International Conference of Animal Health Surveillance
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

Moderate alcohol intake and blood pressure
Period: 2017
Gitte Ravn-Haren (External examiner)
National Food Institute
Research Group for Risk-Benefit

**Description**
Bachelor project
Degree of recognition: Local
Activity: Examinations and supervision › Supervisor activities

**National Food Institute (Organisational unit)**
Period: 2017 → …
Silvia Bonomo (Participant)
National Food Institute
Research Group for Molecular and Reproductive Toxicology

**Description**
Founder and Board Member of the Early Career Researcher (ECR) Network.
The ECR Network provides opportunities for ECRs to better equip themselves for challenges that lay ahead, being it a career in academia or private industry.

**Related organisation**

**National Food Institute (Organisational unit)**
Bonomo, S. (Participant)
2017 → …
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

**Organizer and co-chair of the education course "Hormones and Brain Development"**
Period: 2017
Marta Axelstad Petersen (Organizer)
National Food Institute
Research Group for Molecular and Reproductive Toxicology

**Related event**

**Organizer and co-chair of the education course "Hormones and Brain Development" : European Teratology Society 2017**
04/09/2017 → 04/09/2017
Budapest, Hungary
Activity: Attending an event › Participating in or organising a conference

**PLoS ONE (Journal)**
Period: 2017 → …
Silvia Bonomo (Reviewer)
National Food Institute
Research Group for Molecular and Reproductive Toxicology

**Related journal**

**PLoS ONE**
1932-6203
Indexed in DOAJ
Central database
Activity: Research › Peer review of manuscripts

**Scientific Reports (Journal)**
Period: 2017 → …
Terje Svingen (Reviewer)
The effect of a moderate alcohol consumption on biomarkers for Type 2 Diabetes
Period: 2017
Gitte Ravn-Haren (External examiner)
National Food Institute
Research Group for Risk-Benefit

Challenges in Communicating the Results of Public Health Benefit-risk Assessments
Period: 13 Dec 2017
Maarten Nauta (Panel member)
National Food Institute
Research Group for Risk-Benefit

Predictive food microbiology
Period: 11 Dec 2017
Tina Beck Hansen (Guest lecturer)
National Food Institute
Research Group for Microbial Food Safety

Documents:
predictive_micro_111217_Tina Beck
Related external organisation

University of Copenhagen
Thorvaldsensvej 40, DK-1871 Frederiksberg C, Copenhagen, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Lessons from developing ICRA, a catalogue for risk assessments
Period: 7 Dec 2017
Maarten Nauta (Invited speaker)
National Food Institute
Research Group for Risk-Benefit
Degree of recognition: International

Related event
Approaches to Connecting, Sustaining and Advancing FDA-iRISK and a Community of Risk Assessment and Predictive Modeling Resources
07/12/2017 → 08/12/2017
Greenbelt, United States
Activity: Talks and presentations › Conference presentations

Predictive microbiology for the dairy industry at Shelf-life Mejeriprodukter Seminar for Mejeriteknisk Selskab on 7th December 2017, Billund.
Period: 7 Dec 2017
Veronica Martinez Rios (Invited speaker)
National Food Institute
Research Group for Analytical and Predictive Microbiology

Description
Predictive food microbiology is a highly useful tool for risk assessment, product innovation, reformulation and documentation of food safety. However, the gap between scientific development and practical implementation in the dairy sector has been a challenge. Therefore, an overview of available predictive food microbiology models for dairy products and related software will be presented. Special focus will be on practical examples to show how these mathematical models can contribute to innovation in product formulation and distribution conditions within the dairy sector.

Related event
Shelf-life-Mejeriprodukter
07/12/2017 → 07/12/2017
Billund, Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Natural antioxidants derived from seaweed material
Period: 6 Dec 2017
Ditte Baun Hermund (Other)
National Food Institute
Research Group for Bioactives – Analysis and Application
Degree of recognition: Local

Related event
DTU Sustain 2017
06/12/2017 → 06/12/2017
Kgs. Lyngby, Denmark
Activity: Other

Sustain 2017
Period: 6 Dec 2017
Annette Nygaard Jensen (Participant)
National Food Institute
Research Group for Microbial Food Safety

Related event

Sustain 2017
06/12/2017 → 06/12/2017
Kgs. Lyngby, Denmark
Activity: Attending an event › Participating in or organising a conference

AlgaEurope 2017
Period: 5 Dec 2017 → 7 Dec 2017
Alireza Naseri (Speaker)
National Food Institute
Research Group for Bioactives – Analysis and Application

Description
Multiextraction of bioactive compounds from red seaweed
Eucheuma denticulatum (spinosum)
Degree of recognition: International

Related event

AlgaEurope 2017
05/12/2017 → 07/12/2017
Berlin, Germany
Activity: Talks and presentations › Conference presentations

Training course on the application of HRAMS in routine for pesticide residues in food of plant origin – EURL/NRL training course
Period: 4 Dec 2017 → 5 Dec 2017
Susan Strange Herrmann (Organizer)
Mette Erecius Poulsen (Organizer)
National Food Institute
Research Group for Analytical Food Chemistry
Degree of recognition: International

Related event

Training course on the application of HRAMS in routine for pesticide residues in food of plant origin – EURL/NRL training course: HRSMS training course
04/12/2017 → 05/12/2017
Almeria, Spain
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Analytical challenges for nanomaterials in risk assessment
Period: 30 Nov 2017
Katrin Löschner (Speaker)
National Food Institute
Research Group for Nano-Bio Science
Degree of recognition: International

Related event

Joint International Symposium: Global Past, Present and Future Challenges in Risk Assessment – Strengthening Consumer Health Protection
30/11/2017 → 01/12/2017
Berlin, Germany
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

**Fighting unknown chemicals: analytical strategies for risk prioritization**

**Period:** 30 Nov 2017

Eelco Nicolaas Pieke (Guest lecturer)
National Food Institute
Research Group for Analytical Food Chemistry

**Description**
In chemical risk assessment, we have always relied on an availability or attainability of exposure and hazard assessments. Although this never was easy, it has nowadays become nigh impossible because relevant data is rarely and scarcely available, while the number of known chemicals is merely the tip of the iceberg of total available chemicals. To investigate, elucidate, and assess the poorly-understood potential risk of unknown chemicals, we need novel analytical methodologies and a change in the mind-set of risk assessment.

Degree of recognition: International

**Related event**

Global Past, Present and Future Challenges in Risk Assessment - Strengthening Consumer Health Protection: Joint International Symposium hosted by the NIFDS, ANSES, DTU and BfR
30/11/2017 → 01/12/2017
Berlin, Germany
Activity: Talks and presentations › Conference presentations

**Risk-Benefit Assessment of foods**

**Period:** 30 Nov 2017

Maarten Nauta (Invited speaker)
National Food Institute
Research Group for Risk-Benefit

Degree of recognition: International

**Related event**

Joint International Symposium: Global Past, Present and Future Challenges in Risk Assessment – Strengthening Consumer Health Protection
30/11/2017 → 01/12/2017
Berlin, Germany
Activity: Talks and presentations › Conference presentations

**Annual meeting of the EFSA Network on Nanotechnologies**

**Period:** 28 Nov 2017 → 29 Nov 2017

Katrin Löschner (Participant)
National Food Institute
Research Group for Nano-Bio Science

Degree of recognition: International

**Related event**

Annual meeting of the EFSA Network on Nanotechnologies
28/11/2017 → 29/11/2017
Parma, Italy
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**How Quantitative Risk Assessment makes criteria risk-based**

**Period:** 27 Nov 2017

Maarten Nauta (Speaker)
Description
Presentation Institute Network for Microbiological Modelling, Epidemiology and Risk Assessment, theme: Does Risk Assessment make a difference? The case of the Campylobacter criterion
Degree of recognition: Local

Related organisation

How Quantitative Risk Assessment makes criteria risk-based
Nauta, M. (Speaker)
27 Nov 2017
Activity: Talks and presentations › Conference presentations

Coagulants et cultures pour le lait de chamelle
Period: 20 Nov 2017
Egon Bech Hansen (Guest lecturer)
National Food Institute
Research Group for Gut Microbiology and Immunology
Degree of recognition: International
Documents:
Coagulants et cultures pour le lait de chamelle

Related event

3ème MGIBR Workshop International : "Le lait: Production, Conservation et Valorisation"
20/11/2017 → 20/11/2017
Tlemchen, Algeria
Activity: Talks and presentations › Conference presentations

Uncertainty and variability are different. This is of crucial importance for risk assessment
Period: 17 Nov 2017
Maarten Nauta (Lecturer)
National Food Institute
Research Group for Risk-Benefit

Description
Seminar for GDSI
Degree of recognition: Local

Related organisation

Uncertainty and variability are different. This is of crucial importance for risk assessment
Nauta, M. (Lecturer)
17 Nov 2017
Activity: Talks and presentations › Conference presentations

DANMAP seminar: I anledning af Europæisk Antibiotikage 2017
Period: 15 Nov 2017
Annette Nygaard Jensen (Participant)
National Food Institute
Research Group for Microbial Food Safety

Related event

DANMAP seminar: I anledning af Europæisk Antibiotikage 2017
15/11/2017 → 15/11/2017
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

The Annual Congress of The Danish Microbiological Society (DMS)
Period: 13 Nov 2017
Annette Nygaard Jensen (Participant)
National Food Institute
Research Group for Microbial Food Safety

Related event
The Annual Congress of The Danish Microbiological Society (DMS)
13/11/2017 → 13/11/2017
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising a conference

The Annual Congress of The Danish Microbiological Society (DMS)
Period: 13 Nov 2017
Tina Beck Hansen (Participant)
National Food Institute
Research Group for Microbial Food Safety
Degree of recognition: National

Related event
The Annual Congress of The Danish Microbiological Society (DMS)
13/11/2017 → 13/11/2017
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising a conference

Application of seaweeds in food and feed - analysis of toxic elements and implications for food/feed safety
Period: 9 Nov 2017
Jens Jørgen Sloth (Speaker)
Susan Løvstad Holdt (Other)
Max Hansen (Other)
Arne Duinker (Other)
National Food Institute
Research Group for Nano-Bio Science
Research Group for Bioactives – Analysis and Application
Division of Risk Assessment and Nutrition
Degree of recognition: International

Related event
8th International Symposium on Recent Advances in Food Analysis
07/11/2017 → 10/11/2017
Prague, Czech Republic
Activity: Talks and presentations › Conference presentations

Detection of lead nanoparticles in game meat by single particle ICP-MS following use of lead-containing bullets
Period: 9 Nov 2017
Katrin Lüschnner (Speaker)
National Food Institute
Research Group for Nano-Bio Science
Degree of recognition: International

Related event

**8th International Symposium on Recent Advances in Food Analysis**

*07/11/2017 → 10/11/2017*

Prague, Czech Republic

**Activity: Talks and presentations › Conference presentations**

Predictive Microbiology – Food Spoilage and Safety Predictor (FSSP) software. Mini-course at Microbial Food Quality and Safety – Analytical Methods, 9 Nov. 2017, UC-HEALTH, Copenhagen (20 participants).

*Period: 9 Nov 2017*

Paw Dalgaard (Guest lecturer)

National Food Institute

Research Group for Analytical and Predictive Microbiology

**Description**


Degree of recognition: International

Related event

**Microbial Food Quality and Safety – Analytical Methods, 9 Nov. 2017, UC-HEALTH, Copenhagen (20 participants).**

*09/11/2017 → 09/11/2017*

Copenhagen, Denmark

**Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities**

8th International Symposium on Recent Advances in Food Analysis

*Period: 7 Nov 2017 → 10 Nov 2017*

Susan Strange Herrmann (Participant)

National Food Institute

Research Group for Analytical Food Chemistry

**Description**

Degree of recognition: International

Related event

8th International Symposium on Recent Advances in Food Analysis

*07/11/2017 → 10/11/2017*

Prague, Czech Republic

**Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.**

Do pesticides affect the intestinal bacterial community and does this have health implications?

*Period: 3 Nov 2017*

Martin Iain Bahl (Invited speaker)

National Food Institute

Research Group for Gut Microbiology and Immunology

**Description**

Talk at DSTF Annual Meeting

Degree of recognition: National

**Documents:**

v2 abstract template DSTF-annual meeting 2-3. Nov_MBAH.

Related event
Aquatic food - safety and microbial hazards. Invited keynote presentation at 5th Workshop in Food Safety. 30-31 October 2016, Florianopolis, Brazil (120 participants).
Period: 30 Oct 2017 → 31 Oct 2017
Paw Dalgaard (Keynote speaker)
National Food Institute
Research Group for Analytical and Predictive Microbiology

Description
Degree of recognition: International

Related event
5th Workshop in Food Safety, 30-31 October 2017, Florianopolis, Brazil (120 participants).
30/10/2017 → 31/10/2017
Florianopolis, Brazil
Activity: Talks and presentations › Conference presentations

Food Spoilage and Safety Predictor (FSSP) software - application to food safety. Mini-course at 5th Workshop in Food Safety. 30-31 October 2016, Florianopolis, Brazil (60 participants).
Period: 30 Oct 2017
Paw Dalgaard (Organizer)
National Food Institute
Research Group for Analytical and Predictive Microbiology

Description
Dalgaard, P. (2017). Food Spoilage and Safety Predictor (FSSP) software - application to food safety. Mini-course at 5th Workshop in Food Safety. 30-31 October 2016, Florianopolis, Brazil (60 participants).
Degree of recognition: International

Related event
Food Spoilage and Safety Predictor (FSSP) software - application to food safety. Mini-course at 5th Workshop in Food Safety. 30-31 October 2016, Florianopolis, Brazil (60 participants).
30/10/2017 → 30/10/2017
Florianopolis, Brazil
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Reference Material Review Panel (RMRP) for European Commission Joint Research Centre (JRC/F/06) (External organisation)
Period: 26 Oct 2017 → 30 Sep 2020
Katrin Löschner (Member)
National Food Institute
Research Group for Nano-Bio Science

Description
Expert Contract with European Commission as expert for particle characterisation in Reference Material Review Panel (RMRP)
Degree of recognition: International

Related external organisation
Reference Material Review Panel (RMRP) for European Commission Joint Research Centre (JRC/F/06)
Geel, Belgium
Activity: Membership › Membership of research networks or expert groups

Sample preparation is critical both for substances and products
Period: 24 Oct 2017
Katrin Löschner (Speaker)
National Food Institute
Research Group for Nano-Bio Science
Degree of recognition: International

Related event

2nd NanoDefine Industry-focused Workshop: "Measurement and classification of nanomaterials according to the EU definition"
24/10/2017 → 24/10/2017
Frankfurt/Main, Germany
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

The electrospinning of xanthan gum: from solution to nanofiber formation
Period: 18 Oct 2017 → 20 Oct 2017
Elhamalsadat Shekarforoush (Guest lecturer)
Adele Faralli (Guest lecturer)
Ana Carina Loureiro Mendes (Guest lecturer)
Ioannis S. Chronakis (Guest lecturer)
National Food Institute
Research Group for Nano-Bio Science
Degree of recognition: International
Documents:
ANNIC2017_Book_Of_Abstracts

Related event

Applied NANOTECHNOLOGY and NANOSCIENCE International Conference
18/10/2017 → 20/10/2017
Activity: Talks and presentations › Conference presentations

Nanoparticles in food – an overview
Period: 13 Oct 2017
Katrin Löschner (Invited speaker)
National Food Institute
Research Group for Nano-Bio Science

Description
Meeting organized by the Danish Consumer Council (Tænk) for project leaders from other (mainly European) Consumer Councils - Focus: Testing of food
Degree of recognition: International

Related external organisation

Danish Consumer Council (Tænk)
Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

47th Conference of the West European Fish Technologists' Association
Period: 12 Oct 2017
Brais Martinez Lopez (Participant)
National Food Institute
Research Group for Food Production Engineering
Degree of recognition: International

Related event

47th Conference of the West European Fish Technologists' Association: WEFTA
09/10/2017 → 12/10/2017
Dublin, Ireland
Activity: Attending an event › Participating in or organising a conference

Vartorvs Videnskab - Bakterierne i kroppen og sindet
Period: 12 Oct 2017
Henrik Munch Roager (Invited speaker)
National Food Institute
Research Group for Gut Microbiology and Immunology

Description
Fortalte om samspillet mellem kost og tarmbakterier
Degree of recognition: Regional

Related organisation

Vartorvs Videnskab - Bakterierne i kroppen og sindet
Roager, H. M. (Invited speaker)
12 Oct 2017
Activity: Talks and presentations › Conference presentations

7th NORDIC SEAWEED CONFERENCE, SEAWEED AND SUSTAINABILITY
Period: 11 Oct 2017 → 12 Oct 2017
Aliereza Naseri (Speaker)
National Food Institute
Research Group for Bioactives – Analysis and Application

Description
Enzymatic extraction and characterization of protein from Eucheuma denticulatum (Eucheuma Spinosum)

Related event

7th Nordic seaweed conference: Seaweed and sustainability
11/10/2017 → 12/10/2017
Grenaa, Denmark
Activity: Talks and presentations › Conference presentations

Food Labelling and Claims
Period: 11 Oct 2017
Heddie Mejborn (Guest lecturer)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: Local

Related event

Integreert produktudvikling i fødevaraindustrien
11/10/2017 → ...
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Functional ingredients from S. latissima for cosmetic applications
Period: 11 Oct 2017 → 12 Oct 2017
Ditte Baun Hermund (Speaker)
National Food Institute
Research Group for Bioactives – Analysis and Application
Degree of recognition: International

Related event

7th Nordic seaweed conference: Seaweed and sustainability
11/10/2017 → 12/10/2017
Grenaa, Denmark
Activity: Talks and presentations › Conference presentations

Is it possible to define a “Threshold of Concern for Allergic Sensitisation”?
Period: 11 Oct 2017
Charlotte Bernhard Madsen (Guest lecturer)
National Food Institute
Research Group for Gut Microbiology and Immunology
Degree of recognition: International

Related event

3rd ImpARAS Conference
10/10/2017 → 12/10/2017
Elsinore, Denmark
Activity: Talks and presentations › Conference presentations

3rd ImpARAS Conference
Period: 10 Oct 2017 → 12 Oct 2017
Charlotte Bernhard Madsen (Organizer)
Katrine Lindholm Bøgh (Organizer)
National Food Institute
Research Group for Gut Microbiology and Immunology

Description
Improving Allergy Risk Assessment Strategy for new food proteins (ImpARAS)
Degree of recognition: International

Related event

3rd ImpARAS Conference
10/10/2017 → 12/10/2017
Elsinore, Denmark
Activity: Attending an event › Participating in or organising a conference

Uppsala Health Summit 2017 - Tackling Infectious Disease Threats – Prevent, Detect, Respond with a One Health Approach
Period: 10 Oct 2017 → 11 Oct 2017
Johanne Ellis-Iversen (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: International

Related event

Uppsala Health Summit 2017 - Tackling Infectious Disease Threats – Prevent, Detect, Respond with a One Health Approach
10/10/2017 → 11/10/2017
Activity: Attending an event › Participating in or organising a conference
The minimum resting period for Atlantic cod (Gadus morhua) to regain pre-stressor status after pumping in a capture-based aquaculture operation. Abstract and poster presentation at 47th Conference of the West European Fish Technologists' Association, in Dublin, Ireland.

Period: 9 Oct 2017 → 12 Oct 2017
Jonas Steenholdt Sørensen (Other)
Ole Mejlholm (Other)
Paw Dalgaard (Other)
Flemming Jessen (Other)

National Food Institute
Research Group for Analytical and Predictive Microbiology
Research Group for Food Production Engineering

Description
Sørensen, J.S., Mejlholm, O., Dalgaard, P., Jessen, F. (2017). The minimum resting period for Atlantic cod (Gadus morhua) to regain pre-stressor status after pumping in a capture-based aquaculture operation. Abstract and poster at 47th Conference of the West European Fish Technologists Association, 9-12 October, Dublin, Ireland.
Degree of recognition: International

Related event
47th Conference of the West European Fish Technologists' Association: WEFTA
09/10/2017 → 12/10/2017
Dublin, Ireland
Activity: Talks and presentations › Conference presentations

Påvirker pesticider tarmens bakteriesamfund – og hvad kan det betyde for sundheden?
Period: 5 Oct 2017
Martin Iain Bahl (Invited speaker)

National Food Institute
Research Group for Gut Microbiology and Immunology
Degree of recognition: National

Related event
Temadag arrangeret af Sundhedsstyrelsens Rådgivende Videnskabelige Udvalg for Miljø og Sundhed
05/10/2017 → 05/10/2017
København, Denmark
Activity: Talks and presentations › Conference presentations

Temadag: Hvad betyder kroppens egne bakterier for sundheden?
Period: 5 Oct 2017
Henrik Munch Roager (Invited speaker)

National Food Institute
Research Group for Gut Microbiology and Immunology

Description
Sundhedsstyrelsens Rådgivende Videnskabelige Udvalg for Miljø og Sundhed
Degree of recognition: National

Related organisation
Temadag: Hvad betyder kroppens egne bakterier for sundheden?
Roager, H. M. (Invited speaker)
5 Oct 2017
Activity: Talks and presentations › Conference presentations
RDTU - Kompetenceudvikling i forskningsbaseret rådgivning
Period: 2 Oct 2017 → 30 Oct 2017
Annette Nygaard Jensen (Participant)
National Food Institute
Research Group for Microbial Food Safety
Description
A four day course

Related event

RDTU - Kompetenceudvikling i forskningsbaseret rådgivning
02/10/2017 → 30/10/2017
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Better Training for Safer Food - Risk Assessment in Nutrition (Tallinn, Estonia)
Period: Sep 2017
Gitte Ravn-Haren (Lecturer)
National Food Institute
Research Group for Risk-Benefit
Description
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

International Committee for Predictive Modelling Food (ICPMF) (External organisation)
Period: 29 Sep 2017 → …
Maarten Nauta (Member)
National Food Institute
Research Group for Risk-Benefit
Description
Member of committee
Degree of recognition: International
Links:
http://www.icpmf.org

Related external organisation

International Committee for Predictive Modelling Food (ICPMF)
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

Can stochastic Consumer Phase Models in Microbial Risk Assessment be simplified to a single factor?
Period: 28 Sep 2017
Maarten Nauta (Speaker)
National Food Institute
Research Group for Risk-Benefit
Degree of recognition: International

Related event

10th International Conference on Predictive Modelling in Food: ICPMF10
26/09/2017 → 29/09/2017
Cordoba, Spain
Veterinær etik og Videnskabsteori - Zoonoser og fødevaresikkerhed
Period: 28 Sep 2017
Johanne Ellis-Iversen (Guest lecturer)
National Food Institute
Division of Risk Assessment and Nutrition

Related external organisation
University of Copenhagen
Thorvaldensvej 40, DK-1871 Frederiksberg C, Copenhagen, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

10th International Conference on Predictive Modelling in Food
Period: 26 Sep 2017 → 29 Sep 2017
Tina Beck Hansen (Participant)
National Food Institute
Research Group for Microbial Food Safety
Degree of recognition: International

Related event
10th International Conference on Predictive Modelling in Food: ICPMF10
26/09/2017 → 29/09/2017
Cordoba, Spain
Activity: Attending an event › Participating in or organising a conference

10th International Conference on Predictive Modelling in Food (Event)
Period: 26 Sep 2017 → 29 Sep 2017
Ana Sofia Ribeiro Duarte (Reviewer)
National Food Institute
Research Group for Genomic Epidemiology

Description
Member of Scientific Committee
Degree of recognition: International

Related event
10th International Conference on Predictive Modelling in Food: ICPMF10
26/09/2017 → 29/09/2017
Cordoba, Spain
Activity: Research › Peer review of manuscripts

Period: 26 Sep 2017 → 29 Sep 2017
Paw Dalgaard (Other)
National Food Institute
Research Group for Analytical and Predictive Microbiology

Description
Degree of recognition: International
Related event

10th International Conference on Predictive Modelling in Food: ICPMF10
26/09/2017 → 29/09/2017
Cordoba, Spain
Activity: Talks and presentations › Conference presentations

Joint EURL FV/CF/AO/SRM-Workshop for Pesticide Residues in Food and Feed
Period: 26 Sep 2017 → 29 Sep 2017
Susan Strange Herrmann (Organizer)
National Food Institute
Research Group for Analytical Food Chemistry

Description

Degree of recognition: International

Related event

Joint EURL FV/CF/AO/SRM-Workshop for Pesticide Residues in Food and Feed
26/09/2017 → 29/09/2017
Freiburg, Germany
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

'Modelling effects of food characteristics on interaction between lactic acid bacteria and Listeria monocytogenes' at 10th International Conference on Predictive Modelling in Food, Cordoba, Spain
Period: 26 Sep 2017 → 29 Sep 2017
L.M. Laursen (Other)
R.L. Pedersen (Other)
Ole Mejlholm (Other)
Paw Dalgaard (Speaker)
National Food Institute
Research Group for Analytical and Predictive Microbiology

Description

Degree of recognition: International

Related event

10th International Conference on Predictive Modelling in Food: ICPMF10
26/09/2017 → 29/09/2017
Cordoba, Spain
Activity: Talks and presentations › Conference presentations


Period: 26 Sep 2017 → 29 Sep 2017
Paw Dalgaard (Other)
National Food Institute
Research Group for Analytical and Predictive Microbiology

Description


Description
Degree of recognition: International
**Related event**

1. **IT-workshop i projektet “Nye trends - nye modeller til vurdering af fødevaresikkerhed”**  
   20/09/2017 → 20/09/2017  
   Glostrup, Denmark  
   Activity: Public and private sector consultancy › Public sector consultancy

**Sampling and sample preparation is critical**  
Period: 19 Sep 2017  
Katrin Löschner (Speaker)  
National Food Institute  
Research Group for Nano-Bio Science  
Degree of recognition: International

**Related event**

**NanoDefine Final Outreach Event: Classification of nanomaterials according to the EU definition**  
19/09/2017 → 20/09/2017  
Brussels, Belgium  
Activity: Talks and presentations › Conference presentations

**Risk assessment of AMR**  
Period: 17 Sep 2017  
Johanne Ellis-Iversen (Invited speaker)  
Lis Alban (Invited speaker)  
National Food Institute  
Division of Risk Assessment and Nutrition  
Degree of recognition: International

**Related external organisation**

**Antimicrobials advice ad-hoc Group (AMEG), European Medicines Agency**  
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

**Bevilling - A.N. Neergaard og Hustrus Fond**  
Period: 14 Sep 2017  
Ditte Baun Hermund (Other)  
National Food Institute  
Research Group for Bioactives – Analysis and Application  
Activity: Other

**EURO - Campylobacter workshop 2017**  
Period: 14 Sep 2017 → 15 Sep 2017  
Annette Nygaard Jensen (Participant)  
National Food Institute  
Research Group for Microbial Food Safety

**Related event**

**EURO - Campylobacter workshop 2017**  
14/09/2017 → 15/09/2017  
Nantes, France  
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Turkish Journal of Fisheries and Aquatic Sciences (Journal)**  
Period: 13 Sep 2017
Ditte Baun Hermund (Reviewer)
National Food Institute
Research Group for Bioactives – Analysis and Application

Related journal
Turkish Journal of Fisheries and Aquatic Sciences
1303-2712
Scopus rating (2017): SJR 0.277 SNIP 0.619, Web of Science (2018): Indexed yes
Central database
Activity: Research › Peer review of manuscripts

Better Training for Safer Foods
Period: 11 Sep 2017 → 15 Sep 2017
Heddie Mejborn (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Training coordinator and tutor
Degree of recognition: International

Related event
Better Training for Safer Foods
11/09/2017 → 15/09/2017
Tallinn, Estonia
Activity: Talks and presentations › Conference presentations

Policy Risk Assessment methodologies
Period: 11 Sep 2017
Johanne Ellis-Iversen (Guest lecturer)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: National

Related external organisation
Danish Veterinary and Food Administration
Mørkhøj Bygade 19, 2860, Søborg, Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

CHRO 2017
Period: 10 Sep 2017 → 14 Sep 2017
Annette Nygaard Jensen (Other)
National Food Institute
Research Group for Microbial Food Safety

Description
Poster presentation

Related event
19th International Workshop on Campylobacter, Helicobacter and Related Organisms: CHRO 2017
10/09/2017 → 14/09/2017
Nantes, France
Activity: Talks and presentations › Conference presentations
Sikker fremstilling af fermenterede fødevarer - pølser og kål som cases
Period: 5 Sep 2017
Tina Beck Hansen (Invited speaker)
National Food Institute
Research Group for Microbial Food Safety
Documents:
fermentering_food_050917

Related event
Afdelingsmøde Fødevare København
05/09/2017 → 05/09/2017
Glostrup, Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

UV-treatment of foods and animals as a vitamin D enrichment approach
Period: 5 Sep 2017
Jette Jakobsen (Invited speaker)
National Food Institute
Research Group for Bioactives – Analysis and Application
Degree of recognition: International

Related event
ODIN Vitamin D and Health in Europe: Current and future perspectives
05/09/2017 → 06/09/2017
Cork, Ireland
Activity: Talks and presentations › Conference presentations

EAAP 2017 Annual Meeting
Period: 31 Aug 2017
Dorte Lau Baggesen (Invited speaker)
National Food Institute
Description
Legislation as framework conditions and challenges for the upcoming insect industry

Related event
EAAP 2017 Annual Meeting: Safety, regulatory issues and consumer acceptance of insects
26/08/2017 → 01/09/2017
Tallin, Estonia
Activity: Talks and presentations › Conference presentations

EAAP 2017 Annual Meeting: One-day insect seminar
Period: 31 Aug 2017
Annette Nygaard Jensen (Speaker)
National Food Institute
Research Group for Microbial Food Safety
Description
European Federation of Animal Science (EAAP)

Related event
EAAP 2017 Annual Meeting: Safety, regulatory issues and consumer acceptance of insects
26/08/2017 → 01/09/2017
Ernaering 23732
Period: 31 Aug 2017 → 28 Nov 2017
Gitte Ravn-Haren (Lecturer)
National Food Institute
Research Group for Risk-Benefit

Description
Course
Degree of recognition: Local
Activity: Other

Children's genuine participation and development of social capital in the school setting
Period: 29 Aug 2017 → 1 Sep 2017
Nanna Wurr Stjernqvist (Speaker)
Nicole Thualagant (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition

Description
This presentation presents the findings from a exploratory qualitative research study
Documents:
Presentation - Children's genuine participation and development of social capital in the school setting

Related organisation
Children's genuine participation and development of social capital in the school setting
Stjernqvist, N. W. (Speaker), Nicole Thualagant (Speaker)
29 Aug 2017 → 1 Sep 2017
Activity: Talks and presentations › Conference presentations

Journal of Aquatic Food Product Technology (Journal)
Period: 29 Aug 2017
Ditte Baun Hermund (Reviewer)
National Food Institute
Research Group for Bioactives – Analysis and Application

Related journal
Journal of Aquatic Food Product Technology
1049-8850
Central database
Activity: Research › Peer review of manuscripts

The use of Risk Assessment to support control of Salmonella in pork
Period: 23 Aug 2017
Maarten Nauta (Keynote speaker)
National Food Institute
Research Group for Risk-Benefit
Degree of recognition: International
Links:
Related event

**SAFEPORK 2017**
21/08/2017 → 24/08/2017
Foz do Iguacu, Brazil
Activity: Talks and presentations › Conference presentations

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**Toxoplasma gondii and the role of pork**
Period: 21 Aug 2017
Sara Monteiro Pires (Speaker)
National Food Institute
Research Group for Risk-Benefit

**Description**
Overview of the global and regional burden of disease of toxoplasmosis and the need for studies estimating the relative role of the most important sources of infection
Degree of recognition: International

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**12th SafePork: 12th International Symposium on the Epidemiology and Control of Biological, Chemical and Physical Hazards in Pigs and Pork**
21/08/2017 → 24/08/2017
Foz de Iguacu, Brazil
Activity: Talks and presentations › Conference presentations

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**Genome dynamics of vancomycin-resistant Enterococcus faecium in clinical samples**
Period: 1 Aug 2017 → 1 Feb 2018
Valeria Bortolaia (Supervisor)
National Food Institute
Research Group for Genomic Epidemiology

**Description**
Master project by Yasmin Kamel
Degree of recognition: International
Activity: Examinations and supervision › Supervisor activities

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**Metod for monitoring bacteria from air samples**
Period: 26 Jul 2017
Julia Christensen (Speaker)
Research Group for Diagnostic Engineering
Division of Food Microbiology
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: Local

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**Related event**

**Metod for monitoring bacteria from air samples**
26/07/2017 → 26/07/2017
København
Activity: Talks and presentations › Conference presentations

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**EU capacity building projects: ENGAGE and COMPARE**
Period: 12 Jul 2017
Valeria Bortolaia (Guest lecturer)
Related event

Genomics in foodborne pathogen surveillance and outbreak investigation: INNUENDO summer course
12/07/2017 → 13/07/2017
Vitoria-Gasteiz, Spain
Activity: Talks and presentations › Conference presentations

Phenotype prediction using WGS data: resistome and virulome
Period: 12 Jul 2017
Valeria Bortolaia (Guest lecturer)

Related event

Genomics in foodborne pathogen surveillance and outbreak investigation: INNUENDO summer course
12/07/2017 → 13/07/2017
Vitoria-Gasteiz, Spain
Activity: Talks and presentations › Conference presentations

INRA Institut National de La Recherche Agronomique (External organisation)
Period: 4 Jul 2017
Maarten Nauta (Participant)

Description
Jury Member PhD examination committee (rapporteur) Geraldine Boue, Nantes, France. Thesis "Public Health Risk-Benefit Assessments of Foods"
Degree of recognition: International

Related external organisation

INRA Institut National de La Recherche Agronomique
France
Activity: Membership › Membership in review committee

Repportering af nationale overvågningsdata til den Europæiske Fødevaresikkerhedsautoritet, EFSA
Period: 1 Jul 2017
Julia Christensen (Other)

Description
Editor
Degree of recognition: International
Activity: Other

23836 Quantitative Microbiological Risk Assessment
Period: Jun 2017
Ana Sofia Ribeiro Duarte (Participant)
Description
Course Lecturer

Related event

23836 Quantitative Microbiological Risk Assessment 2017
01/06/2017 → 30/06/2017
Denmark
Activity: Other

Annual Report on Zoonoses in Denmark (Journal)
Period: 29 Jun 2017
Julia Christensen (Editor)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: National

Related journal
Annual Report on Zoonoses in Denmark
1600-3837
Local database
Activity: Communication › Series editor

inVALUABLE project meeting
Period: 29 Jun 2017 → 30 Jun 2017
Annette Nygaard Jensen (Speaker)
National Food Institute
Research Group for Microbial Food Safety

Related event

inVALUABLE project meeting
29/06/2017 → 30/06/2017
Aarhus, Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Zoonoseseminar i forbindelse med publicering af Annual Report on Zoonoses in Denmark 2016
Period: 29 Jun 2017
Julia Christensen (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: National

Related event

Zoonoseseminar i forbindelse med publicering af Annual Report on Zoonoses in Denmark 2016
29/06/2017 → 29/06/2017
København
Activity: Attending an event › Participating in or organising a conference

'Evaluation and management of microbial spoilage in the aquatic food industry' at Microbial Spoilers in Food 2017, Quimper, France.
Period: 28 Jun 2017 → 30 Jun 2017
Paw Dalgaard (Keynote speaker)
National Food Institute
Research Group for Analytical and Predictive Microbiology

Description
Degree of recognition: International

Related event
Microbial Spoilers in Food 2017
28/06/2017 → 30/06/2017
Quimper, France
Activity: Talks and presentations › Conference presentations

Interessent møde i FVST
Period: 28 Jun 2017
Dorte Lau Baggesen (Speaker)
National Food Institute

Description
Fødevarestyrelsens Strategiske Interessentudvalg
Interessentnetværk for fødevarer, produkter og forbruger
Degree of recognition: National
Documents:
FVSTs interessentmøde d. 28.6.2017_version 2

Related event
Interessent møde i FVST
28/06/2017 → 28/06/2017
Glostrup, Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Scientific committee for Microbial spoilers in food 2017 (Event)
Period: 28 Jun 2017 → 30 Jun 2017
Paw Dalgaard (Chairman)
National Food Institute
Research Group for Analytical and Predictive Microbiology

Description
Scientific committee for 'Microbial spoilers in food', 28-30 June 2017, Quimper, France.
Degree of recognition: International

Related event
Scientific committee for Microbial spoilers in food 2017
28/06/2017 → 30/06/2017
Quimper, France
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

Stability of Salmonella and Campylobacter DNA in human and veterinary fecal samples preserved and stored at different conditions (Journal)
Period: 27 Jun 2017
Julia Christensen (Editor)
National Food Institute
Stability of Salmonella and Campylobacter DNA in human and veterinary fecal samples preserved and stored at different conditions

Related event

Strategidag for kemi mellem DTU Food og FVST fredag den 23. juni
Period: 23 Jun 2017
Vibe Meister Beltoft (Participant)
Elsa Ebbesen Nielsen (Participant)

National Food Institute
Division of Risk Assessment and Nutrition

Description
Strategidagen leverer input til arbejdspgrammet for 2018.

Adsorption of microplastics to the edible Fucus vesiculosus and possible wash off before food application

Period: 22 Jun 2017
Nanna B. Hartmann (Speaker)
Clara G. Villaro (Speaker)
Ida D.W. Koch (Speaker)
Kasper B. Sundbæk (Speaker)
Niclas S. Rasmussen (Speaker)
Susan Løvstad Holdt (Speaker)

National Food Institute
Research Group for Bioactives – Analysis and Application
Department of Environmental Engineering
Environmental Chemistry

Description
The growing demand for food accessibility, due to rapidly growing population of the world, has raised the interest of macroalgae as a food source also in the Western world. However, this combined with increased food awareness trigger a concern that accumulated microplastics in the oceans might pollute the seaweed and influence food safety and thereby applicability. One of the most common types of seaweed in Denmark is bladder wrack, Fucus vesiculosus (FC), and this specimen is also popular for the use in e.g. pesto and flour in Denmark. This study investigated if fluorescent polystyrene (PS) microplastic particles (diameter: 20 μm) adsorb to the macroalga FC and if they can be washed off afterwards with filtered seawater.

Degree of recognition: International
Documents:
ISAP_2017_abstract_Hartmann et al-Microplastic on Fucus

Related external organisation

University of Nantes
France
Activity: Talks and presentations › Conference presentations
Seaweed at stake
Period: 21 Jun 2017
Susan Løvstad Holdt (Organizer)
National Food Institute
Research Group for Bioactives – Analysis and Application
Degree of recognition: International

Related event
Seaweed at stake: Seaweed stakeholder meeting
21/06/2017 → 21/06/2017
Nantes, France
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Antioxidant composition and activity of seaweed Saccharina latissima: a seasonal perspective
Period: 19 Jun 2017
Goncalo Silva Marinho (Speaker)
Ann-Dorit Moltke Sørensen (Speaker)
Hamed Safafar (Speaker)
Anja H. Pedersen (Speaker)
Susan Løvstad Holdt (Speaker)
National Food Institute
Research Group for Bioactives – Analysis and Application

Description
Safety concerns regarding reported toxicity of artificial antioxidants lead the search for novel natural antioxidants. In this context, seaweeds have been receiving increasing attention as a promising source of antioxidants such as phenolic compounds (e.g. phenolic acids and flavonoids), carotenoids (e.g. fucoxanthin and β-carotene), and phycobiliproteins. Nevertheless, seaweed composition generally presents marked seasonal variations. The present study aimed at evaluating seasonal variations in the antioxidant composition and activity of sugar kelp, Saccharina latissima, cultivated at two different sites; in close proximity to a blue mussel and rainbow trout farm (IMTA), and at a reference/control site (REF), outside Horsens fjord, Denmark.

Degree of recognition: International
Documents:
Abstract_ISAP 2017-Marinho et al_FINAL

Related external organisation
University of Nantes
France
Activity: Talks and presentations › Conference presentations

Fractional factorial design to assess zinc speciation in Atlantic salmon (Salmo salar) feeds
Period: 19 Jun 2017 → 22 Jun 2017
Jens Jørgen Sloth (Other)
National Food Institute
Research Group for Nano-Bio Science

Description
Poster
Degree of recognition: International

Related event
15th Scandinavian Symposium on Chemometrics
19/06/2017 → 22/06/2017
Naantali, Finland
Activity: Talks and presentations › Conference presentations
Is nitrogen-to-protein conversion factor for seaweed dependent on season?
Period: 19 Jun 2017
Goncalo Silva Marinho (Speaker)
Susan Løvstad Holdt (Speaker)
National Food Institute
Research Group for Bioactives – Analysis and Application

Description
Recently an effort has been made to establish nitrogen-to-protein conversion factors specific for seaweeds, as the tradition conversion factor of 6.25 overestimates their protein content. Nevertheless, potential seasonal variation of this conversion factor has not yet been considered. This paper evaluates the seasonal nitrogen budget of Saccharina latissima and discusses the importance of more specific nitrogen-to-protein conversion factors, also taking season into account.
Degree of recognition: International
Documents:
Abstract_ISAP 2017-Marinho and Holdt-Nitrogen-to-protein-factor

Related external organisation
University of Nantes
France
Activity: Talks and presentations › Conference presentations

Characterization of nanoparticles in food and biological samples by single particle ICP-MS
Period: 14 Jun 2017
Katrin Löschner (Speaker)
National Food Institute
Research Group for Nano-Bio Science
Degree of recognition: International

Related event
European Workshop on Nanoparticle Analysis: Thermo Fisher Scientific
14/06/2017 → 14/06/2017
Hemel Hempstead, United Kingdom
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Netværksmøde i Dansk Insektnetværk
Period: 13 Jun 2017
Annette Nygaard Jensen (Participant)
National Food Institute
Research Group for Microbial Food Safety

Related event
Netværksmøde i Dansk Insektnetværk
13/06/2017 → …
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Workshop on establishing an infrastructure for the harmonisation of food allergen measurements
Period: 13 Jun 2017 → 14 Jun 2017
Charlotte Bernhard Madsen (Participant)
National Food Institute
Research Group for Gut Microbiology and Immunology
Related event

**Workshop on establishing an infrastructure for the harmonisation of food allergen measurements**
13/06/2017 → 14/06/2017
Geel, Belgium
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**KOMET-projektet (Test af energiforbrug og måling af kostindtag med to metoder)**
Period: 9 Jun 2017 → 15 Oct 2017
Julia Christensen (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: International
Activity: Other

**Nordic Dairy Congress, 7-9 June 2017, Copenhagen, Denmark**
Period: 7 Jun 2017 → 9 Jun 2017
Veronica Martinez Rios (Participant)
National Food Institute
Research Group for Analytical and Predictive Microbiology

Description
‘Predictive modelling to improve and document safety of dairy products’ at Nordic Dairy Congress, Copenhagen, Denmark.

Degree of recognition: International

Related event

**Nordic Dairy Congress, 7-9 June 2017, Copenhagen, Denmark: Adding value**
07/06/2017 → 09/06/2017
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising a conference

‘Predictive modelling to improve and document safety of dairy products’ at Nordic Dairy Congress, Copenhagen, Denmark.

Degree of recognition: International

Related event

**Prevalence of Listeria monocytogenes in European cheeses: A systematic review and meta-analysis**
Period: 7 Jun 2017 → 9 Jun 2017
Veronica Martinez Rios (Speaker)

Degree of recognition: International

Related event

Nordic Dairy Congress 2017
07/06/2017 → 09/06/2017
Copenhagen, Denmark
Activity: Talks and presentations › Conference presentations

Scientific committee for 44th Nordic Dairy Congress (Event)
Period: 7 Jun 2017 → 9 Jun 2017
Paw Dalgaard (Member)

Degree of recognition: International

Related event

Scientific committee for 44th Nordic Dairy Congress: Adding Value to Dairy
07/06/2017 → 09/06/2017
Copenhagen, Denmark
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

Estimating the burden of foodborne diseases: an integrated approach
Period: 2 Jun 2017
Sara Monteiro Pires (Speaker)

Consumers as risk managers: The benefit of quantification of food related health effects.
Period: 31 May 2017
Maarten Nauta (Speaker)
Tidlig kolonisering af mikrobiota og betydningen af overgangskost hos småbørn
Period: 24 May 2017
Martin Iain Bahl (Speaker)
National Food Institute
Research Group for Gut Microbiology and Immunology

Related event
Det årlige videnskabelige temamøde i Selskab for Ernæringsforskning
24/05/2017 → 24/05/2017
Valby, Denmark
Activity: Talks and presentations › Conference presentations

TEACH FOOD - Developing a teacher's community of practice
Period: 23 May 2017 → 24 May 2017
Lene Duedahl-Olesen (Speaker)
Håkan Vigre (Other)
Lars Bogø Jensen (Other)
Pernille Hammar Andersson (Other)
National Food Institute
Research Group for Analytical Food Chemistry
Research Group for Genomic Epidemiology
Research Group for Microbial Food Safety
Office for Study Programmes and Student Affairs

Description
Oral Presentation and paper
Degree of recognition: International
Documents:
TEACH FOOD abstract

Related event
ETALEE 2017: Exploring Teaching for Active Learning in Engineering Education 2017
23/05/2017 → 24/05/2017
Odense, Denmark
Activity: Talks and presentations › Conference presentations

Silent vanA in Enterococcus faecium from Danish pigs
Period: 22 May 2017 → 2 Jun 2017
Valeria Bortolaia (Main supervisor)
National Food Institute
Research Group for Genomic Epidemiology

Description
Internship of Hans Murillo in relation to the One Health course held at University of Copenhagen, Denmark
Degree of recognition: National
Activity: Examinations and supervision › Supervisor activities

HEADS & HANDS TO FOOD 4.0
Period: 18 May 2017
Dorte Lau Baggesen (Speaker)
National Food Institute

Description

Hvordan kan virksomhederne rekruttere ingeniører og kandidater fra de videregående uddannelser og samarbejde om praktik og projekter?

Related event

HEADS & HANDS TO FOOD 4.0: Kloe hænder og hoveder til
18/05/2017 → 18/05/2017
Fredericia, Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Applied BioInformatics & Public Health Microbiology
Period: 17 May 2017 → 19 May 2017
Valeria Bortolaia (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Related event

Applied BioInformatics & Public Health Microbiology
17/05/2017 → 19/05/2017
Cambridge, United Kingdom
Activity: Attending an event › Participating in or organising a conference

Principal for studying the potency of the different vitamin D active compounds -usable for the vitamin B community?
Period: 17 May 2017
Jette Jakobsen (Invited speaker)
National Food Institute
Research Group for Bioactives – Analysis and Application

Description

Invited speaker
Degree of recognition: International

Related event

International Conference on Homocysteine and One-Carbon Metabolism 2017: “Taking science to the next level – challenging paradigms and conventions”
14/05/2017 → 18/05/2017
Århus, Denmark
Activity: Talks and presentations › Conference presentations

Det Robuste Projekt Team
Period: 16 May 2017
Julia Christensen (Participant)
National Food Institute
Division of Risk Assessment and Nutrition

Related event

Det Robuste Projekt Team
16/05/2017 → 16/05/2017
København
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.
Tar-Eating Bacterial Duo may Transform Toxic Compounds into New Usable Materials
Period: 16 May 2017
Sünje Johanna Pamp (Participant)
Department of Biotechnology and Biomedicine
Department of Bio and Health Informatics
National Food Institute
Research Group for Genomic Epidemiology

Description
Danish researchers have sequenced and analyzed the genome of a bacterium that can feed off coal tar. It lives in
symbiosis with another bacterium that can recycle its partner’s waste. Researchers hope that this sustainable bacterial
duo can transform toxic substances into useful materials. Nevertheless, mapping the genome also led to an unpleasant
surprise.

Interview person.
Degree of recognition: International
Documents:
Tar-eating bacterial duo may transform toxic compounds into new usable materials | Sciencenews.dk

Links:

Activity: Other

Sikker fremstilling af fermenterede fødevarer - pølser og kål som cases
Period: 15 May 2017
Tina Beck Hansen (Invited speaker)
National Food Institute
Research Group for Microbial Food Safety
Documents:
fermentering_food_160517

Related event
Fødevare Sjælland Fyn Temadag
16/05/2017 → …
Korsør, Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Applying LCA in decision making- the need and the future perspective
Period: 10 May 2017
Yan Dong (Speaker)
Simona Miraglia (Other)
Stefano Manzo (Other)
Stylianos Georgiadis (Other)
Hjalte Jomo Danielsen Sørup (Other)
Elena Boriani (Other)
Tine Hald (Other)
Sebastian Thöns (Other)
Michael Zwicky Hauschild (Other)
Department of Management Engineering
Quantitative Sustainability Assessment
Centre for oil and gas – DTU
Transport DTU
Related event

SETAC Europe: 27th Annual Meeting – Environmental Quality Through Transdisciplinary Collaboration
07/05/2017 → 13/07/2017
Brussels, Belgium
Activity: Talks and presentations › Conference presentations

BTSF course in Microbiological Risk Assessment
Period: 8 May 2017 → 12 May 2017
Maarten Nauta (Lecturer)
National Food Institute
Research Group for Risk-Benefit

Description
One week training course in the EU program better training for safer food

Training coordinator
Degree of recognition: International

Related event

Better Training for Safer Food (BTSF): Microbiological Risk Assessment
08/05/2017 → 12/05/2017
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Mikrobiologisk kvalitet af fisk og fiskeprodukter. Forelæsning ved KU-SUND
Period: 8 May 2017
Paw Dalgaard (Lecturer)
National Food Institute
Research Group for Analytical and Predictive Microbiology

Description
Mikrobiologisk kvalitet af fisk og fiskeprodukter (2 x 35 min.). Fødevaremicrobiologi (270009), KU-SUND, maj 2017, 150 studerende.

Related event

Kursus i Fødevaremicrobiologi
08/05/2017 → 08/05/2017
Frederiksberg, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities
One Health International Summer Course 2017
Period: 8 May 2017 → 18 Aug 2017
Tine Hald (Organizer)
Maria Vang Johansen (Organizer)
Liza Rosenbaum Nielsen (Panel member)
Lars Erik Larsen (Organizer)
Anders Dalsgaard (Organizer)
National Food Institute
Research Group for Genomic Epidemiology
National Veterinary Institute
Virology

Description
One Health International Summer Course 2017
5-week elearning part + 1-week on campus part, a total of 5 ECTS
Degree of recognition: International

Related event
One Health International Summer Course 2017
08/05/2017 → 18/08/2017
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Teaching Quantitative Microbial Risk Assessment - Better Training for Safer Food (BTSF)
Period: 8 May 2017 → 12 May 2017
Ana Sofia Ribeiro Duarte (Guest lecturer)
National Food Institute
Research Group for Genomic Epidemiology

Related event
Teaching Quantitative Microbial Risk Assessment - Better Training for Safer Food (BTSF)
08/05/2017 → 12/05/2017
Czech Republic
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Applying LCA in decision making- the need and the future perspective
Period: 7 May 2017 → 11 May 2017
Yan Dong (Guest lecturer)
Simona Miraglia (Guest lecturer)
Stefano Manzo (Guest lecturer)
Stylianos Georgiadis (Guest lecturer)
Hjalte Jomo Danielsen Sarup (Guest lecturer)
Elena Boriani (Guest lecturer)
Tine Hald (Guest lecturer)
Sebastian Thøns (Guest lecturer)
Michael Zwicky Hauschild (Guest lecturer)
Department of Management Engineering
Quantitative Sustainability Assessment
Department of Civil Engineering
There is nowadays a need of including sustainable considerations in the policy and decision making. Sound decision making requires evidence-based support, i.e. decision analysis to help decision makers in identifying the best alternative based on the associated impacts. Decision analysis includes four steps: 1) structure decision problem; 2) assess possible impacts associated with alternatives; 3) determine stakeholder preferences and 4) evaluate alternatives. Decision analysis can be performed applying different tools, such as cost-benefit analysis (CBA), risk assessment, and life cycle assessment (LCA).

LCA is a decision analysis tool that focuses on environmental impacts. One limit is that LCA is based on defined impact categories and therefore does not provide information for those impacts and consequences out of the LCA scope. However, the LCA framework closely follows the decision analysis scheme and has the potential to be integrated with other decision analysis tools to enhance their assessment of environmental impacts.

To understand why LCA is needed in the policy decision context, we looked into the decision support for policy in several disciplines. Taking sustainable transport policy as an example, the traditional decision analysis tool for choosing the best alternative is CBA. CBA mainly analyses socio-economic impacts, such as travel time savings and costs, while only some environmental impacts are considered; i.e. the damage costs of greenhouse gas emissions, particulate matters, SOx, NOx and noise. Therefore, current transport policy making rarely reflect a full environmental profile of the suggested alternatives. Making decisions based on incomplete information may lead to sub-optimal solutions, especially where the environment is a major concern. There is a growing attention of conducting LCA in transport. Some identified environmental hotspots, such as consumer and household behavior, which may be the focus for future policies. Others assess the environmental impacts associated with building infrastructures and vehicle use. These studies verify that LCA can successfully quantify the environmental profile of alternatives in transport policy, if the relevant physical changes, e.g. vehicle travel distance and new infrastructures, are well-defined. However, before integrating LCA with other decision analysis methods for decision support, the study system, objectives, scopes, evaluation metrics and uncertainty handling need to be aligned.

Degree of recognition: International

Links:
https://brussels.setac.org/

Related event

SETAC Europe: 27th Annual Meeting – Environmental Quality Through Transdisciplinary Collaboration
07/05/2017 → 13/07/2017
Brussels, Belgium
Activity: Talks and presentations › Conference presentations

International Congress of Andrology
Period: 6 May 2017
Marta Axelstad Petersen (Organizer)
National Food Institute
Research Group for Molecular and Reproductive Toxicology

Description
Pre-congress course: Endocrine disrupters and male reproductive Health. I gave a talk called "Disruption of reproduction in animal models"

Related event

International Congress of Andrology
06/05/2017 → 09/05/2017
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Practical experiences with validation of analytical methods for NM at the National Food Institute in Denmark**
Period: 4 May 2017
Katrin Löschner (Speaker)
National Food Institute
Research Group for Nano-Bio Science
Degree of recognition: International

**Related event**
Joint JRC-SANTE Symposium "Nanomaterials in Food: reliability of measurement results"
03/05/2017 → 04/05/2017
Ispra, Italy
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

**Reflections on a case study, an RBA on nuts**
Period: 4 May 2017
Maarten Nauta (Speaker)
National Food Institute
Research Group for Risk-Benefit
Degree of recognition: International

**Related event**
**expert workshop on risk benefit assessment**
03/05/2017 → 05/05/2017
Copenhagen, Denmark
Activity: Talks and presentations › Conference presentations

**Copenhagen Workshop on Endocrine Disrupters**
Period: 2 May 2017 → 5 May 2017
Silvia Bonomo (Speaker)
National Food Institute
Research Group for Molecular and Reproductive Toxicology
Links:

**Related event**
**Copenhagen Workshop on Endocrine Disrupters**
01/01/2008 → …
Copenhagen University Hospital
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

**Mixture effects of anti-androgens and oestrogens on reproductive development of male rats**
Period: 2 May 2017 → 5 May 2017
Sofie Christiansen (Speaker)
National Food Institute
Research Group for Molecular and Reproductive Toxicology

**Description**
Invited speaker abstract
Degree of recognition: International

**Related event**
9th Copenhagen Workshop on Endocrine Disrupters - COW2017
02/05/2017 → 05/05/2017
Copenhagen, Denmark
Activity: Talks and presentations › Conference presentations

Natural antioxidants derived from seaweed material
Period: 30 Apr 2017 → 3 May 2017
Ditte Baun Hermund (Other)
National Food Institute
Research Group for Bioactives – Analysis and Application
Degree of recognition: International

Related event
American oil chemist society Annual meeting and Expo 2017
30/04/2017 → 03/05/2017
Orlando, United States
Activity: Other

EU workshop with EMA
Period: 26 Apr 2017
Lina Cavaco (Participant)
National Food Institute

Related event
EU workshop with EMA: EC workshop in Brussels with EMA
26/04/2017 → 26/04/2017
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Undersøgelse af tarmmikrobiota hos "nyremink"
Period: 20 Apr 2017
Martin Iain Bahl (Invited speaker)
National Food Institute
Research Group for Gut Microbiology and Immunology
Degree of recognition: National

Related event
CPH Mink seminar
20/04/2017 → 20/04/2017
Frederiksberg C, Denmark
Activity: Talks and presentations › Conference presentations

EURL -AR workshop
Period: 6 Apr 2017 → 7 Apr 2017
Helle Bisgaard Korsgaard (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: International

Related event
EURL -AR workshop
06/04/2017 → 07/04/2017
København, Denmark
Activity: Talks and presentations › Conference presentations
**EURL Workshop 2017**  
*Period: 6 Apr 2017 → 7 Apr 2017*  
Lina Cavaco (Organizer)  
National Food Institute  

**Description**  
participate as speaker and part of organization  

**Related event**

**EURL Workshop 2017**  
*Period: 6 Apr 2017 → 7 Apr 2017*  
Lina Cavaco (Speaker)  
National Food Institute  

**Description**  
participate as speaker and part of organization  

**Related event**

**Hybrid hydrogels by the co-assembly of chitosan with phospholipids**  
*Period: 3 Apr 2017 → 6 Apr 2017*  
Elhamalsadat Shekarforoush (Guest lecturer)  
Ana Carina Loureiro Mendes (Guest lecturer)  
Christoph Engwer (Other)  
Francisco Goycoolea (Other)  
Ioannis S. Chronakis (Guest lecturer)  
National Food Institute  
Research Group for Nano-Bio Science  
Degree of recognition: International  
Documents:  
Elham Abstract-  

**Related event**

**The Annual European Rheology Conference (AERC2017)**  
*Period: 3 Apr 2017 → 6 Apr 2017*  
Copenhagen, Denmark  
Activity: Talks and presentations › Conference presentations  

**Hybrid hydrogels by the co-assembly of chitosan with phospholipids**  
*Period: 3 Apr 2017 → 6 Apr 2017*  
Elhamalsadat Shekarforoush (Other)  
Ana Carina Loureiro Mendes (Other)  
Christoph Engwer (Other)  
Ioannis S. Chronakis (Other)  
National Food Institute
Research Group for Nano-Bio Science
Degree of recognition: International
Documents:
Elham Abstract-

Related event

The Annual European Rheology Conference (AERC2017)
03/04/2017 → 06/04/2017
Copenhagen, Denmark
Activity: Talks and presentations › Conference presentations

Sikre Fødevarekontaktmaterialer - en kemisk udfordring
Period: Mar 2017
Gitte Alsing Pedersen (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Møde i IDA Levnedsmiddelselskabet

Related event

IDA møde om fødevarekontaktmaterialer
21/03/2017 → 21/03/2017
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Burden of disease of barbecued meat - who's at risk?
Period: 31 Mar 2017
Lea Sletting Jakobsen (Guest lecturer)
Stylianos Georgiadis (Guest lecturer)
Bo Friis Nielsen (Guest lecturer)
Anders Stockmarr (Guest lecturer)
Elena Boriani (Guest lecturer)
Lene Duedahl-Olesen (Guest lecturer)
Tine Hald (Guest lecturer)
Sara Monteiro Pires (Guest lecturer)
National Food Institute
Research Group for Risk-Benefit
Department of Applied Mathematics and Computer Science
Statistics and Data Analysis
Research Group for Genomic Epidemiology
Research Group for Analytical Food Chemistry
Degree of recognition: International

Related external organisation

International Association for Food Protection
6200 Aurora Avenue, IA 50322-2864, Des Moines, United States
Activity: Talks and presentations › Conference presentations

Temaaften om tang for Tokai University Alumneforening
Period: 31 Mar 2017
Ditte Baun Hermund (Guest lecturer)
National Food Institute
Mechanisms of action involved in chemically induced effects on male reproductive health
Period: 30 Mar 2017 → 31 Mar 2017
Camilla Victoria Lindgren Schwartz (Speaker)
Sofie Christiansen (Other)
Anne Marie Vinggaard (Other)
Terje Svingen (Other)
National Food Institute
Research Group for Molecular and Reproductive Toxicology
Copenhagen Center for Health Technology
Degree of recognition: Regional

Related event
3rd ReproYoung Conference
30/03/2017 → 31/03/2017
Båstad, Sweden
Activity: Talks and presentations › Conference presentations

Source attribution: Translating science into public health action
Period: 29 Mar 2017 → 31 Mar 2017
Tine Hald (Keynote speaker)
National Food Institute
Research Group for Genomic Epidemiology
Degree of recognition: International

Related event
2017 Annual Meeting of SVEPM 2017, 29-31 March, Inverness, Scotland
29/03/2017 → 31/03/2017
Scotland, United Kingdom
Activity: Talks and presentations › Conference presentations

Safe production of mealworms
Period: 22 Mar 2017
Annette Nygaard Jensen (Invited speaker)
National Food Institute
Research Group for Microbial Food Safety

**Description**
Food and feed safety in relation to farmed insects

**Related event**
**Food Talk - Insects**
22/03/2017 → 22/03/2017
Lyngby, Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Detection and characterization of nanoparticles in food and biological materials by single particle ICP-MS
Period: 21 Mar 2017
Katrin Löschner (Speaker)
National Food Institute
Research Group for Nano-Bio Science
Degree of recognition: Regional

**Related event**
**1st Joint Nordic Trace Elemental Analysis & Ion Chromatography User Meeting**
21/03/2017 → 22/03/2017
Copenhagen, Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

**Kick off workshop om dansk insektindustri**
Period: 21 Mar 2017
Dorte Lau Baggesen (Organizer)
National Food Institute

**Description**
Joined workshop arranged by the National Food Institute DTU, University of Copenhagen, Danish Technological Institute together with the Ministry of Environment and Food of Denmark
Degree of recognition: National
Documents:
Kick_off_workshop_program_mm_21_03_2017

**Related event**
**Kick off workshop om dansk insektindustri**
21/03/2017 → 21/03/2017
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Kick off workshop om dansk insektindustri**
Period: 21 Mar 2017
Annette Nygaard Jensen (Chairman)
National Food Institute
Research Group for Microbial Food Safety

**Description**
Forarbejdning af insekter

Joined workshop arranged by the National Food Institute DTU, University of Copenhagen, Danish Technological Institute together with the Ministry of Environment and Food of Denmark
Related event
Kick off workshop om dansk insektindustri
21/03/2017 → 21/03/2017
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Burden of disease and source attribution
Period: 16 Mar 2017
Tine Hald (Lecturer)
National Food Institute
Research Group for Genomic Epidemiology
Description
Teaching vet students at the One Health differentiation
Degree of recognition: Local

Related external organisation
University of Copenhagen
Thorvaldsensvej 40, DK-1871 Frederiksberg C, Copenhagen, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Detection and characterization of nanoparticles in food
Period: 7 Mar 2017
Katrin Löschner (Speaker)
National Food Institute
Research Group for Nano-Bio Science
Description
Seminar
Degree of recognition: National

Related external organisation
Sveriges Livsmedelsverk
Sweden
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations
Zoonosestormøde
Period: 7 Mar 2017
Julia Christensen (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition
Division of Food Microbiology
Division of Food Production Engineering
Section for Diagnostics and Scientific Advice
Degree of recognition: National

Related event
Zoonosestormøde
07/03/2017 → 07/03/2017
København
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Waldemir Santiago Neto
Start date: 3 Mar 2017 → 15 Sep 2017
Tine Hald (Host)
National Food Institute
Research Group for Genomic Epidemiology
Description
External research stay for PhD study
Degree of recognition: International
Activity: Hosting a guest lecturer

ESVAC annual network meeting
Period: 2 Mar 2017 → 3 Mar 2017
Valeria Bortolaia (Participant)
National Food Institute
Research Group for Genomic Epidemiology
Degree of recognition: International

Related event
ESVAC annual network meeting
01/03/2016 → 02/03/2016
London, United Kingdom
Activity: Attending an event › Participating in or organising a conference

Pathogenic organisms - no thanks: Use of next generation sequencing techniques in risk assessment and HACCP
Period: 2 Mar 2017
Lisbeth Truelstrup Hansen (Speaker)
National Food Institute
Research Group for Analytical and Predictive Microbiology
Degree of recognition: National

Related event
Mejeriforskningens Dag 2017: Mælk Ny viden og muligheder
02/03/2017 → 02/03/2017
Billund, Denmark
Activity: Talks and presentations › Conference presentations
Quality Risk Management, food safety & HACCP
Period: 2 Mar 2017
Tina Beck Hansen (Lecturer)
National Food Institute
Research Group for Microbial Food Safety

Description
gæsteundervisning

Related event
Course 28855 GMP and quality in pharmaceutical, biotech and food industry F17
02/02/2017 → 04/05/2017
Kgs. Lyngby, Denmark
Activity: Other

ANSES - French Agency for Food, Environmental and Occupational Health & Safety (External organisation)
Period: 1 Mar 2017 → 1 Mar 2018
Maarten Nauta (Participant)
National Food Institute
Research Group for Risk-Benefit

Description
Memeber ANSES working group On Campylobacter Risk Assessment
Degree of recognition: National

Related external organisation
ANSES - French Agency for Food, Environmental and Occupational Health & Safety
France
Activity: Membership › Membership of research networks or expert groups

Better Training for Safer Food - Risk Assessment in Nutrition (Rome, Italy)
Period: Feb 2017
Gitte Ravn-Haren (Lecturer)
National Food Institute
Research Group for Risk-Benefit

Related event
Better Training for Safer Foods
06/02/2017 → 10/02/2017
Rome, Italy
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Risikovurdering af fluorerede stoffer i fødevarekontaktmaterialer
Period: Feb 2017
Gitte Alsing Pedersen (Consultant)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Notat til Fødevarestyrelsen

Related external organisation
**INSEKTKBH - Community møde**  
*Period*: 28 Feb 2017  
*Annette Nygaard Jensen (Participant)*  
*National Food Institute*  
*Research Group for Microbial Food Safety*  
**Description**  
Future food - edible insects  
**Related event**  
*INSEKTKBH - Community møde*  
*28/02/2017 → …*  
*Copenhagen, Denmark*  
*Activity*: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Prediction of antibiotic resistance phenotypes from whole genome sequence data of clinically relevant bacteria**  
*Period*: 27 Feb 2017 → 10 Jul 2017  
*Valeria Bortolaia (Main supervisor)*  
*National Food Institute*  
*Research Group for Genomic Epidemiology*  
**Description**  
Bachelor project by Mohammed Nateqi  
Degree of recognition: International  
*Activity*: Examinations and supervision › Supervisor activities

**Epidemiology and control of Taenia solium in Africa**  
*Period*: 24 Feb 2017  
*Tine Hald (External examiner)*  
*National Food Institute*  
*Research Group for Genomic Epidemiology*  
**Description**  
PhD thesis  
Degree of recognition: International  
*Activity*: Examinations and supervision › Internal examination

**First meeting of the One Health Network on Antimicrobial Resistance**  
*Period*: 23 Feb 2017  
*Valeria Bortolaia (Participant)*  
*National Food Institute*  
*Research Group for Genomic Epidemiology*  
**Related event**  
*First meeting of the One Health Network on Antimicrobial Resistance*  
*23/02/2017 → 23/02/2017*  
*Activity*: Attending an event › Participating in or organising a conference

**Single particle ICP-MS for the detection of inorganic nanoparticles in food and biological samples**  
*Period*: 23 Feb 2017
Inductively coupled plasma-mass spectrometry in single particle mode (single particle ICP-MS) has become a frequently used method for the detection and characterization of inorganic nanoparticles. The technique has been applied in our laboratory for studying inorganic nanoparticles in a variety of biological samples, including rat lung and liver tissue (gold and cerium oxide NPs), whale brain and liver tissue (mercury selenide NPs), human synovial fluid (cobalt and chromium-containing NPs) and human placenta tissue (silver NPs). Furthermore, food-related samples were investigated including lean chicken meat (silver NPs), game meet (lead NPs), food simulants (silver NPs), and noodles (aluminum-containing NPs).

We identified sample preparation as the most crucial step, especially in the case of solid / semi-solid matrices where simple dilution is not sufficient. As single particle ICP-MS analysis is not as sensitive as other analytical techniques, like field flow fractionation, to eventually remaining matrix residues, complete digestion of the matrix is usually not required. The main challenge is to minimize changes of the NPs during sample preparation mainly due to dissolution. For the majority of examples, we identified enzymatic digestion as the most suitable sample preparation method.

Our experiences show that single particle ICP-MS is a powerful screen method for the presence of NPs, but that care has to be taken with regards to false-positive-results and the obtained quantitative information in terms of particle size distribution and number / mass concentration. False positive results were obtained for two reasons: 1) Induced particle formation during sample preparation, e.g. from ionic species and 2) carry-over. For the latter case, we observed that analysis of ultrapure water between samples was not sufficient for evaluating carry-over, but that a realistic reagent or blank sample needs to be analyzed. Matrix-matching of calibration solutions was not possible in every case due to instability of the ionic species. In these cases, ionic standards had to be analyzed in ultrapure water or diluted acidic acid. Based on our experiences, the talk will highlight the challenges and the “lessons learned” in relation to sample preparation for single particle ICP-MS, determination of transport efficiency, calibration, and data interpretation, and the next steps in the current and future work described.

Degree of recognition: International

Related event

European Winter Conference on Plasma Spectrochemistry
19/02/2017 → 24/02/2017
Sankt Anton am Arlberg, Austria
Activity: Talks and presentations › Conference presentations

Minikursus: Brug af ComBase i brødindustrien
Period: 22 Feb 2017
Tina Beck Hansen (Lecturer)
National Food Institute
Research Group for Microbial Food Safety

Related external organisation

Lantmännen Unibake Denmark A/S
Oensvej 28, Hatting, 8700, Horsens, Denmark
Activity: Talks and presentations › Conference presentations

Descriptive study of antibiotic resistance and resistance determinants in indicator E. coli from Danish and Imported meat and Danish animals using whole genome sequencing (WGS) and phenotypic resistance determination
Period: 21 Feb 2017
Tine Hald (Supervisor)
National Food Institute
Research Group for Genomic Epidemiology

Degree of recognition: National
Er der en sammenhæng mellem opfyldelse af Måltidsmærkets krav og kundernes indtag? Fremlæggelse ved Fødevarestyrelsens samarbejdsgruppe
Period: 21 Feb 2017
Anne Dahl Lassen (Consultant)
National Food Institute
Division of Risk Assessment and Nutrition
Related external organisation
Fødevarestyrelsen
Glostrup, Denmark
Activity: Public and private sector consultancy › Consultancy

R for begyndere
Period: 14 Feb 2017
Julia Christensen (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Related event
R for begyndere
14/02/2017 → 14/02/2017
København
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Vurdering af den evidens Graudal fremlægger i Ugeskrift for læger i januar 2017, fremlæggelse ved Saltpartnerskabsmøde
Period: 9 Feb 2017
Anne Dahl Lassen (Consultant)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: National
Related external organisation
Fødevarestyrelsen
Glostrup, Denmark
Activity: Public and private sector consultancy › Consultancy

Solutions to Practical Challenges in Developing Procedures for Nanoparticle Characterization and Toxicological Testing
Period: 8 Feb 2017
Katrin Löschner (Speaker)
National Food Institute
Research Group for Nano-Bio Science
Description
In large-scale scientific projects where nanomaterials need to be investigated by a number of research groups with different scientific background it is necessary to assure that all preparation and subsequent characterization procedures are as harmonized and inter-calibrated as possible. One major challenge is the preparation of stock dispersions from nanomaterials provided as powders as distinct dispersion procedures may introduce variability in the toxicity or characteristics that are measured. Stock dispersions are used in a variety of toxicological tests where aliquots of the stock suspension are typically added to the relevant test medium, e.g. cell culture medium. Furthermore, stock dispersions are required for particle characterization, as many techniques, like dynamic light scattering, laser diffraction, analytical ultracentrifugation, nanoparticle tracking analysis, are only able to measure aqueous samples. In order to obtain meaningful results and to allow cross-comparison of different toxicity and characterization tests and assays, it is therefore crucial to develop efficient and reproducible dispersion procedures. These harmonized and standardized protocols have
not only to be efficient, but also be feasible in the majority of test laboratories. Common limitations include the availability of dispersion equipment in the involved laboratories and the access to analytical equipment for characterizing and checking the quality of the dispersions. Further a compromise has to be found regarding, the (maximum) concentration of the stock dispersion, the resulting stock dispersion volume, and the composition of the dispersion medium, because of the variety of (eco)toxicology tests with each having specific requirements. The presentation will summarize the major challenges and the corresponding solutions of the NANOSOLUTIONS project with regards to stock dispersion preparation. As a specific example the development of a common dispersion procedure for copper oxide nanoparticles with different surface functionalization (ammonium, carboxylate, or polyethylene glycol) will be presented. For this nanomaterial, a dispersion SOP was developed which included a calorimetric method for calibration of the delivered acoustic energy by adjustment of the probe-sonicator amplitude. Additionally, an SOP was established that described the conduction of dynamic light scattering (DLS) measurements for determination of hydrodynamic size and size-distribution of the nanoparticles in the final stock dispersion. The SOPs were tested by ten laboratories. In most cases deviations of the determined sizes could be explained with deviations from the procedure described in the SOP. The performed work showed that it is possible to obtain comparable stock dispersions in different laboratories if carefully prepared SOPs are provided which consider the most important parameters that influence the dispersion process and the following characterization step. Acknowledgements: The research leading to these results has received funding from the European Union's Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 309329.

**Related event**

**New tools and approaches for nanomaterial safety assessment 2017**
*07/02/2017 → 09/02/2017*
Málaga, Spain
Activity: Talks and presentations › Conference presentations

**Better Training for Safer Foods**
*Period: 6 Feb 2017 → 10 Feb 2017*
Heddie Mejborn (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

**Description**
Training coordinator and tutor
Degree of recognition: International

**Related event**

**Better Training for Safer Foods**
*06/02/2017 → 10/02/2017*
Rome, Italy
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Eksponering af Bisphenol A fra konserves fødevarer**
*Period: Jan 2017*
Gitte Alsing Pedersen (Consultant)
National Food Institute
Division of Risk Assessment and Nutrition

**Description**
Notat til fødevarestyrelsen

**Related external organisation**

**Fødevarestyrelsen**
Glostrup, Denmark
Activity: Public and private sector consultancy › Consultancy

**Evaluering af ernæringsanbefalinger til kantiner på arbejdspladser og ungdomsskoler 2016-2017 – Kvantitative data: Udbud, portions-størrelser, tailerken og tilfredshed**
*Period: Jan 2017*
Anne Dahl Lassen (Participant)
Global pesticide application scenarios for use in life cycle assessment and in chemical substitution
Period: Jan 2017 → Jul 2017
Annette Petersen (Participant)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Interview person

Related external organisation
PhD Cup 2017
Period: 31 Jan 2017
Henrik Munch Roager (Participant)
National Food Institute
Research Group for Gut Microbiology and Immunology

Description
PhD Cup er en formidlingskonkurrence
Documents:
Formidlingstekst
Links:
http://www.phdcup.dk/ph-d-cup-2017/deltagere/
Activity: Other

Bacterial factors determining changes in epidemiology of cephalosporin-resistant Escherichia coli in Danish poultry
Period: 30 Jan 2017 → 14 Jun 2017
Valeria Bortolaia (Main supervisor)
National Food Institute
Research Group for Genomic Epidemiology

Description
Bachelor project by Anna Mortensen
Degree of recognition: International
Activity: Examinations and supervision › Supervisor activities

Effects of industrial processing on regulated and emerging contaminant levels in seafood
Period: 26 Jan 2017
Rie Romme Rasmussen (Speaker)
National Food Institute
Research Group for Nano-Bio Science

Description
Abstract:
Contamination of food generally has a negative impact on the quality and may imply a risk to human health. Mercury (Hg) is one of the most hazardous compounds in our environment and is released from the earth’s crust by both natural and anthropogenic processes. The mercury species ‘methylmercury’ is highly toxic, because affects the function of enzymes, easily crosses the blood-brain and the placenta barriers and is toxic to the nervous system (especially the developing brain). It bioaccumulates and biomagnifies through the aquatic food chain. Methylmercury is the most common mercury species in fish and humans are also mainly exposed to methylmercury from consumption of fish and other seafood.

The aims of the present controlled fish feeding trials were to study the carryover from feed to fish fillets (at low spike levels (1x background level of methylmercury) and to determine toxicokinetic parameters.

The study included Atlantic salmon (Salmo salar), which is one of the main farmed seafood product consumed in Europe and with production in Northern Europe as well as European seabass (Dicentrarchus labrax) produced in Southern Europe, where it is a highly consumed seafood product.

The weight gain of the fish, their feed intake, feed and fish fillet contaminant level were determined to model the uptake and elimination of methylmercury. The toxicokinetics for feed with low levels of methylmercury (41-75 ng/g) showed high assimilation and low elimination.

Acknowledgments: The research leading to these results has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under the ECsafeSEAFOOD project (grant agreement n° 311820).

Keywords: Season, Toxic elements, Halogenated organic contaminants, Cold smoking, Cooking, Peeling
Related event

Seafood Safety: New Findings & Innovation Challenges
25/01/2017 → 26/01/2017
Brussels, Belgium
Activity: Talks and presentations › Conference presentations

inVALUABLE kick-off meeting
Period: 25 Jan 2017 → 26 Jan 2017
Annette Nygaard Jensen (Participant)
National Food Institute
Research Group for Microbial Food Safety
Description
INsect VALUe Chain in CircuLAr BioEconomy

Related event

inVALUABLE kick-off meeting
25/01/2017 → 26/01/2017
Aarhus, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Nordic zoonoses meeting Helsinki 2017
Period: 25 Jan 2017 → 26 Jan 2017
Birgitte Helwigh (Speaker)
Johanne Ellis-Iversen (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: International

Related event

Nordic zoonoses meeting Helsinki 2017
25/01/2017 → 26/01/2017
Helsinki, Iceland
Activity: Talks and presentations › Conference presentations

Seafood Safety
Period: 25 Jan 2017 → 26 Jan 2017
Rie Romme Rasmussen (Participant)
National Food Institute
Research Group for Nano-Bio Science
Description
Final conference of the ECSafeSeaFood EU funded project.
Documents:
Seafood safety conference_Abstract book
Links:
http://www.ecsafeseafoodconference.com/
Related event

Seafood Safety: New Findings & Innovation Challenges
25/01/2017 → 26/01/2017
Brussels, Belgium
Activity: Attending an event › Participating in or organising a conference

ENGAGE Interim meeting 2017
Period: 23 Jan 2017
Rene S. Hendriksen (Organizer)
National Food Institute
Research Group for Genomic Epidemiology

Description
ENGAGE Interim meeting 2017

Related event

ENGAGE Interim meeting 2017
23/01/2017 → 23/01/2017
Parma, Italy
Activity: Attending an event › Participating in or organising a conference

Predictive Food Microbiology
Period: 20 Jan 2017
Tina Beck Hansen (Internal examiner)
National Food Institute
Division of Food Microbiology

Description
Intern bedømmelse af 2 rapporter samt bedømmelse af projektpræsentation og 2 eksamensspørgsmål for 6 studerende.
Activity: Examinations and supervision › Internal examination

Kompetence projekt for rådgivere ved fødevareinstituttet
Period: 19 Jan 2017 → 20 Jan 2017
Birgitte Helwigh (Participant)
Birgitte Borck Høg (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: International

Related event

Kompetence projekt for rådgivere ved fødevareinstituttet
01/11/2016 → 27/03/2017
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Kompetence projekt for rådgivere ved fødevareinstituttet
Period: 19 Jan 2017 → 27 Mar 2017
Annette Nygaard Jensen (Participant)
National Food Institute
Research Group for Microbial Food Safety

Related event

Kompetence projekt for rådgivere ved fødevareinstituttet
WHO/PAHO Meeting on the Application of WHO Whole Genome Sequencing as a Tool to Strengthen FBD Surveillance and Response in Developing Countries
Period: 10 Jan 2017 → 13 Jan 2017
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
WHO/PAHO Meeting on the Application of WHO Whole Genome Sequencing as a Tool to Strengthen FBD Surveillance and Response in Developing Countries
Washington DC, USA, 10-13 January 2017

Related event
WHO/PAHO Meeting on the Application of WHO Whole Genome Sequencing as a Tool to Strengthen FBD Surveillance and Response in Developing Countries
10/01/2017 → 13/01/2017
Washington DC, United States
Activity: Attending an event › Participating in or organising a conference

Molecular epidemiological studies of Campylobacter isolated from different sources in New Zealand between 2005 and 2015.
Period: 1 Jan 2017 → 4 Mar 2017
Tine Hald (External examiner)
National Food Institute
Research Group for Genomic Epidemiology

Description
PhD thesis
Degree of recognition: International
Activity: Examinations and supervision › Internal examination

Videreudvikling af Campylobacter smittskilderegnskabet
Period: 1 Jan 2017 → …
Julia Christensen (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: National
Activity: Other

27th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID) (Event)
Period: 2016 → …
Valeria Bortolaia (Member)
National Food Institute
Research Group for Genomic Epidemiology

Related event
27th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID)
22/04/2017 → 25/04/2017
Vienna, Austria
Activity: Membership › Membership in review committee
Antibiotic induced transmission of antibiotic resistance in Escherichia coli
Period: 2016 → …
Valeria Bortolaia (Supervisor)
National Food Institute
Research Group for Genomic Epidemiology

Description
Co-supervision of PhD student Gang Liu, University of Copenhagen, Denmark
Degree of recognition: International
Activity: Examinations and supervision › Supervisor activities

Biochemistry and Biophysics Reports (Journal)
Period: 2016 → …
Silvia Bonomo (Reviewer)
National Food Institute

Related journal
Biochemistry and Biophysics Reports

Local database
Activity: Research › Peer review of manuscripts

DanThyr steering group (External organisation)
Period: 2016 → …
Gitte Ravn-Haren (Member)
National Food Institute
Research Group for Risk-Benefit
Degree of recognition: National

Related external organisation
DanThyr steering group
Activity: Membership › Membership of research networks or expert groups

Dietary habits in Denmark now and in the future (In Danish)
Period: 2016
Jeppe Matthiessen (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Nutrition focus meeting. Danish Agriculture & Food Council, Copenhagen, Denmark
Degree of recognition: National

Related external organisation
Danish Agriculture and Food Council
Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Editorial Advisory Board - Preventive Veterinary Medicine, Elsevier (External organisation)
Period: 2016 → …
Johanne Ellis-Iversen (Participant)
National Food Institute
Effect of Meat and Potatoes on Short-Term Appetite Feeling and Ad Libitum Energy Intake
Period: 2016
Gitte Ravn-Haren (External examiner)
National Food Institute
Research Group for Risk-Benefit

Description
Master's Thesis
Degree of recognition: Local
Activity: Examinations and supervision › Supervisor activities

EFSA Nanotechnology Network (External organisation)
Period: 2016 → 2018
Katrin Löschner (Participant)
National Food Institute
Research Group for Nano-Bio Science
Degree of recognition: International

Related external organisation
EFSA Nanotechnology Network
Activity: Membership › Membership of research networks or expert groups

EU COST Association (External organisation)
Period: 2016 → …
Susan Løvstad Holdt (Chairman)
National Food Institute
Research Group for Bioactives – Analysis and Application

Description
External Expert in the remote evaluation, EU COST Association
Degree of recognition: International

Related external organisation
EU COST Association
Activity: Membership › Membership of research networks or expert groups

European Committee on Antimicrobial Susceptibility Testing (External organisation)
Period: 2016 → …
Valeria Bortolaia (Member)
National Food Institute
Research Group for Genomic Epidemiology

Description
EUCAST Subcommittee on MIC distributions and ECOFFs. European Committee on Antimicrobial Susceptibility Testing (EU)

Related external organisation
European Committee on Antimicrobial Susceptibility Testing
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

Investigation of the consume of dietary supplements among male fitness athletes and the dietary supplements possible harmful effects
Period: 2016
Gitte Ravn-Haren (Main supervisor)
Kirsten Pilegaard (Supervisor)
National Food Institute
Research Group for Risk-Benefit

Description
Bachelor project
Degree of recognition: Local
Activity: Examinations and supervision › Supervisor activities

kompetenceprojekt for rådgivere ved fødevareinstituttet
Period: 2016 → 2017
Karin Kristiane Nørby (Lecturer)
National Food Institute
Division of Risk Assessment and Nutrition

Related event
Kompetence projekt for rådgivere ved fødevareinstituttet
01/11/2016 → 27/03/2017
Denmark
Activity: Other

Kompetence projekt for rådgivere ved fødevareinstituttet
Period: 2016 → 2017
Gitte Alsing Pedersen (Organizer)
Vibe Meister Beltoft (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Projektets formål er at arbejde med strategisk kompetenceudvikling af DTU Fødevareinstituttets forskere, rådgivere og laboranter ved at kortlægge de fremtidige kerneopgaver og de kompetencekrav, der stilles til løsning af fremtidens kerneopgaver.

Related event
Kompetence projekt for rådgivere ved fødevareinstituttet
01/11/2016 → 27/03/2017
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Kompetenceudvikling i forskningsbaseret myndighedsbetjening
Period: 2016 → 2017
Annette Petersen (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

Related event
Kompetenceudvikling i forskningsbaseret myndighedsbetjening
06/04/2016 → 08/04/2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Microbial Risk Analysis 2-3 2016 (Journal)**
Period: 2016
Maarten Nauta (Editor)
National Food Institute
Research Group for Risk-Benefit

**Description**
Special issue Campylobacter

**Links:**

**Related journal**
**Microbial Risk Analysis 2-3 2016**

**Local database**
Activity: Research › Journal editor

**Nordic monitoring of diet, physical activity and overweight (and smoking and alcohol). Status and development 2011-2014. (in Danish)**
Period: 2016
Jeppe Matthiessen ( Participant)
National Food Institute
Division of Risk Assessment and Nutrition

**Description**
Meeting, Danish Veterinary and Food Administration, Copenhagen, Denmark.

Degree of recognition: Local

**Related external organisation**
**Danish Veterinary and Food Administration**
Mørkhøj Bygade 19, 2860, Søborg, Denmark
Activity: Other

**Norwegian project MACROSEA (External organisation)**
Period: 2016 → …
Susan Løvstad Holdt (Chairman)
National Food Institute
Research Group for Bioactives – Analysis and Application

**Description**
External scientific board member of the national Norwegian project MACROSEA

Degree of recognition: International

**Related external organisation**
**Norwegian project MACROSEA**
Activity: Membership › Membership of research networks or expert groups

**Public health risks linked to antimicrobial-resistant enterococci in meat**
Period: 2016 → …
Valeria Bortolaia (Supervisor)
National Food Institute
Research Group for Genomic Epidemiology

**Description**
Co-supervisor of PhD student Sulaiman Mohammed I Aloitabi, University of Copenhagen, Denmark
Degree of recognition: International
Activity: Examinations and supervision › Supervisor activities

**RDTU – kompetenceudvikling i forskningsbaseret rådgivning**
Period: 2016 → …
Gitte Alsing Pedersen (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: Local

**Related event**

**RDTU – kompetenceudvikling i forskningsbaseret rådgivning**
26/09/2016 → 07/11/2016
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**RDTU – kompetenceudvikling i forskningsbaseret rådgivning**
Period: 2016 → 2017
Pernille Bjørn Petersen (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

**Related event**

**RDTU – kompetenceudvikling i forskningsbaseret rådgivning**
26/09/2016 → 07/11/2016
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**RDTU - Kompetenceudvikling i forskningsbaseret rådgivning**
Period: 2016 → 2017
Johanne Ellis-Iversen (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: Local

**Related event**

**RDTU - Kompetenceudvikling i forskningsbaseret rådgivning**
02/10/2017 → 30/10/2017
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Scientific Committee of ICAHS 3 (External organisation)**
Period: 2016 → …
Johanne Ellis-Iversen (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: International

**Related external organisation**
Scientific Committee of ICAHS 3
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

Technical Working Group for National Salmonella Actionplan in Pigs (External organisation)
Period: 2016 → …
Johanne Ellis-Iversen (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: National

Related external organisation

Technical Working Group for National Salmonella Actionplan in Pigs
Denmark
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

Technical Working Group for National Salmonella Dublin Action plan (External organisation)
Period: 2016 → …
Johanne Ellis-Iversen (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: National

Related external organisation

Technical Working Group for National Salmonella Dublin Action plan
Denmark
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

Technical Working Group for the National Campylobacter Action plan (External organisation)
Period: 2016 → …
Johanne Ellis-Iversen (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: National

Related external organisation

Technical Working Group for the National Campylobacter Action plan
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

The effect of folate intake on risk of cardiovascular diseases
Period: 2016
Gitte Ravn-Haren (Main supervisor)
National Food Institute
Research Group for Risk-Benefit

Description
Bachelorprojekt
Degree of recognition: Local
Activity: Examinations and supervision › Supervisor activities

The United States - Israel Binational Agricultural Research and Development Fund (External organisation)
Period: 2016
Susan Løvstad Holdt (Chairman)
National Food Institute
Research Group for Bioactives – Analysis and Application

**Description**
External reviewer of The United States - Israel Binational Agricultural Research and Development Fund
Degree of recognition: International

**Related external organisation**
The United States - Israel Binational Agricultural Research and Development Fund
Activity: Membership › Membership in review committee

**Udvidet Excel**
Period: 2016 → …
Julia Christensen (Participant)

National Food Institute
Division of Risk Assessment and Nutrition

**Related event**

**Udvidet Excel**
26/01/2016 → …
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**CEHOS infodag 2016**
Period: Dec 2016
Marta Axelstad Petersen (Guest lecturer)

National Food Institute
Research Group for Molecular and Reproductive Toxicology

**Description**
Invited speaker, giving the talk "Er butylparaben hormonforstyrrende?"

**Related event**

Ceter for Hormonforstyrrende Stoffers Informationsdag: CeHoS information day
07/12/2016 → …
Activity: Talks and presentations › Conference presentations

**Evaluering af ernæringsanbefalinger til kantiner på arbejdspadser og erhvervsskoler 2016-2017 – kvalitative interviews, 2016**
Period: Dec 2016
Anne Dahl Lassen (Participant)
Anne Vibeke Thorsen (Participant)

National Food Institute
Division of Risk Assessment and Nutrition

**Description**
Head: Anne Dahl Lassen
Degree of recognition: National
Activity: Other

**Zoonosestor møde**
Period: 16 Dec 2016
Julia Christensen (Organizer)

Division of Food Microbiology
Division of Food Production Engineering
Section for Diagnostics and Scientific Advice
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: National

Related event

**Zoonosestor møde**
16/12/2016 → 16/12/2016
København
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

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2nd Meeting of the Global AMR Surveillance System (GLASS) Collaborating Platform,
Period: 15 Dec 2016 → 16 Dec 2016
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
2nd Meeting of the Global AMR Surveillance System (GLASS) Collaborating Platform,

Related event

2nd Meeting of the Global AMR Surveillance System (GLASS) Collaborating Platform,
15/12/2016 → 16/12/2016
Geneva, Switzerland
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

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**Mikrobiologisk kvalitet af fisk og fiskeprodukter. Forelæsning ved KU-SUND**
Period: 15 Dec 2016
Paw Dalgaard (Lecturer)
National Food Institute
Research Group for Analytical and Predictive Microbiology

Description
Mikrobiologisk kvalitet af fisk og fiskeprodukter (2 x 35 min.). Mikrobiel fødevaresikkerhed, course 300007 (KU-SUND), 15 december 2016, 40 studerende
Degree of recognition: Regional

Related event

**Kursus i Mikrobiel Fødevaresikkerhed**
15/12/2016 → 15/12/2016
Frederiksberg, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

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**Zoonoseinteresengruppemøde**
Period: 15 Dec 2016
Julia Christensen (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: National

Related event

**Zoonoseinteresengruppemøde**
Meeting of the WHO Collaborating Centres to support AMR activities globally
Period: 13 Dec 2016 → 14 Dec 2016
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
Meeting of the WHO Collaborating Centres to support AMR activities globally

Related event
Meeting of the WHO Collaborating Centres to support AMR activities globally
13/12/2016 → 14/12/2016
Geneva, Switzerland
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Predictive food microbiology
Period: 9 Dec 2016
Tina Beck Hansen (Guest lecturer)
National Food Institute
Research Group for Microbial Food Safety

Description
Forelæsning og øvelser om prædiktiv mikrobiologi for KU-studerende (3 timer)

Gæsteforelæser
Documents:
predictive_micro_091216_Tina Beck

University of Copenhagen
Thorvaldsensvej 40, DK-1871 Frederiksberg C, Copenhagen, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

EURL-AR Training Course: Methods required by The EU Legislation (2013/652/Eu)
Period: 7 Dec 2016 → 9 Dec 2016
Rene S. Hendriksen (Lecturer)
National Food Institute
Research Group for Genomic Epidemiology

Description
Selective isolation, quantification, identification and susceptibility testing of ESBL-, Ampc- and carbapenemase-producing E. coli 7 - 9 December 2016

7 - 9 December 2016

Related event
EURL-AR Training Course: Methods required by The EU Legislation (2013/652/Eu)
07/12/2016 → 09/12/2016
Kgs. Lyngby, Denmark
Activity: Talks and presentations › Conference presentations
Global surveillance of antimicrobial resistance in sewage
Period: 7 Dec 2016
Rene S. Hendriksen (Invited speaker)
National Food Institute
Research Group for Genomic Epidemiology

Description
Symposium: "AMR IN Pakistan: Current Situation and Future Approaches", scheduled for the 7-8th December, 2016. Karachi, Pakistan
by videolink

Related event
Symposium: "AMR IN Pakistan: Current Situation and Future Approaches"
07/12/2016 → 08/12/2016
Karachi, Pakistan
Activity: Talks and presentations › Conference presentations

The EURLs directors meeting
Period: 2 Dec 2016
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
The EURLs directors meeting

Related event
The EURLs directors meeting
02/12/2016 → 02/12/2016
Brussels, Belgium
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Antimicrobial resistance as a global threat
Period: 1 Dec 2016
Valeria Bortolaia (Guest lecturer)
National Food Institute
Research Group for Genomic Epidemiology

Description
The Annual Finnish Veterinary Congress 2017

Related external organisation
Unknown external organisation
Activity: Talks and presentations › Conference presentations

Annual Report on Zoonoses in Denmark (Journal)
Period: 30 Nov 2016
Julia Christensen (Editor)
National Food Institute
Division of Risk Assessment and Nutrition

Related journal
Annual Report on Zoonoses in Denmark
Local database

Activity: Communication › Journal editor

**DTU Sustain 2016**
Period: 30 Nov 2016
Annette Nygaard Jensen (Participant)
National Food Institute
Research Group for Microbial Food Safety

Related event

**DTU Sustain 2016**
30/11/2016 → …
Activity: Attending an event › Participating in or organising a conference

Evaluering af ernæringsanbefalinger til kantiner på arbejdspladser og erhvervsskoler 2016-17.
Period: 30 Nov 2016
Anne Dahl Lassen (Consultant)
National Food Institute
Division of Risk Assessment and Nutrition

Related external organisation

Fødevarestyrelsen
Glostrup, Denmark
Activity: Public and private sector consultancy › Consultancy

**Seminar om Stressforebyggelse og -håndtering**
Period: 30 Nov 2016
Gitte Ravn-Haren (Participant)
National Food Institute
Research Group for Risk-Benefit
Degree of recognition: Local

Related event

**Seminar om Stressforebyggelse og -håndtering**
30/11/2016 → …
Kgs. Lyngby, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Stressforebyggelse og -håndtering**
Period: 30 Nov 2016
Julia Christensen (Participant)
Research Group for Diagnostic Engineering
Division of Food Microbiology
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: Local

Related event

**Stressforebyggelse og -håndtering**
30/11/2016 → 30/11/2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.
Symposium on Gut Microbiota and Metabolic Health
Period: 24 Nov 2016
Henrik Munch Roager (Invited speaker)
National Food Institute
Research Group for Gut Microbiology and Immunology

Description
Colonic transit time - an important factor to consider
Links:
http://novonordiskfonden.dk/da/content/symposium-gut-microbiota-and-metabolic-health

Related external organisation
Unknown external organisation
Activity: Talks and presentations › Conference presentations

Sundhedsmæssig helhedsvurdering af nødder
Period: 22 Nov 2016
Heddie Mejborn (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition

Related external organisation
IDA Levnedsmiddelselskabet
Denmark
Activity: Talks and presentations › Conference presentations

Improving conceptual understanding by inductive teaching: An example of its success
Period: 17 Nov 2016
Maarten Nauta (Speaker)
National Food Institute
Research Group for Risk-Benefit
Documents:
abstract Maarten Nauta 2.0

Related event
5th DTU Biennial for Teaching and Learning: Good Teaching Practice in Engineering Education
17/11/2016 → 17/11/2016
Lyngby, Denmark
Activity: Talks and presentations › Conference presentations

COMPARE WP2 meeting
Period: 16 Nov 2016
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
COMPARE WP2 meeting, November 16 2016, RKI, Berlin, Germany.

Related event
COMPARE WP2 meeting
16/11/2016 → 16/11/2016
Berlin, Germany
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**DANmap seminar**  
Period: 15 Nov 2016  
Julia Christensen (Organizer)  
National Food Institute  
Division of Risk Assessment and Nutrition  

**Related event**  
**DANmap seminar: I anledning af Europæisk Antibiotikage 2016**  
15/11/2016 → 15/11/2016  
Frederiksberg C, Denmark  
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**DANmap seminar**  
Period: 15 Nov 2016  
Helle Bisgaard Korsgaard (Participant)  
National Food Institute  
Division of Risk Assessment and Nutrition  

**Description**  
Annual DANMAP seminar - presenting results of the national monitoring of AMR and use of antimicrobial agents to animals  

**Related event**  
**DANmap seminar: I anledning af Europæisk Antibiotikage 2016**  
15/11/2016 → 15/11/2016  
Frederiksberg C, Denmark  
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**DANMAP-seminar i anledning af Europæisk Antibiotikage 2016**  
Period: 15 Nov 2016  
Annette Nygaard Jensen (Participant)  
National Food Institute  
Research Group for Microbial Food Safety  

**Related event**  
**DANMAP-seminar i anledning af Europæisk Antibiotikage 2016**  
15/11/2016 → …  
Copenhagen, Denmark  
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Insekter og Fødevaresikkerhed**  
Period: 15 Nov 2016  
Annette Nygaard Jensen (Invited speaker)  
National Food Institute  
Research Group for Microbial Food Safety  

**Related event**  
**Kontordag i Fødevarestyrelsen**  
15/11/2016 → …  
Copenhagen, Denmark  
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.
Workshop: "Bridging the gap between academic research and chemicals regulation - the SciRAP tool for evaluating toxicity and ecotoxicity data for risk assessment of chemicals"
Period: 15 Nov 2016 → 16 Nov 2016
Sofie Christiansen (Participant)
National Food Institute
Research Group for Molecular and Reproductive Toxicology
Degree of recognition: International

Related event

Workshop: "Bridging the gap between academic research and chemicals regulation - the SciRAP tool for evaluating toxicity and ecotoxicity data for risk assessment of chemicals"
15/11/2016 → 16/11/2016
Stockholm, Sweden
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Danish Microbiological Society Annual Congress 2016
Period: 14 Nov 2016
Tina Beck Hansen (Speaker)
National Food Institute
Division of Food Microbiology

Description
5-min-poster flash
Documents:
P55_poster_flash_DMS2016

Related event

Danish Microbiological Society Annual Congress 2016
14/11/2016 → 14/11/2016
Copenhagen, Denmark
Activity: Talks and presentations › Conference presentations

DMS Congress 2016
Period: 14 Nov 2016
Annette Nygaard Jensen (Participant)
National Food Institute
Research Group for Microbial Food Safety

Related event

DMS Congress 2016
14/11/2016 → 14/11/2016
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

6th AMR Network meeting
Period: 10 Nov 2016 → 11 Nov 2016
Rene S. Hendriksen (Lecturer)
National Food Institute
Research Group for Genomic Epidemiology

Description
10-11 November 2016, EFSA, Parma, Italy.
The 6th AMR EFSA Network meeting
Period: 10 Nov 2016 → 11 Nov 2016
Rene S. Hendriksen (Speaker)
National Food Institute
Research Group for Genomic Epidemiology

Description
The 6th AMR EFSA Network meeting on 10-11 November 2016, EFSA, Parma, Italy

The use of risk assessment to support control of Salmonella in pork
Period: 10 Nov 2016
Maarten Nauta (Invited speaker)
National Food Institute
Research Group for Risk-Benefit
Documents:
The use of risk assessment to support control of Salmonella in pork

BfR Symposium Zoonosen und Lebensmittelsicherhely
Berlin, Germany
Activity: Talks and presentations › Conference presentations

Food Safety – New Challenges
Period: 9 Nov 2016
Dorte Lau Baggesen (Speaker)
National Food Institute
Documents:
Food Safety - New Challenges_20161109_Nordic Poultry Conference_Dorte Lau Baggesen_PP

Nordic Poultry Conference 2016
Billund, Denmark
Activity: Talks and presentations › Conference presentations

Kostvaners sammenhæng med helbred, leveår og livsstil
Period: 8 Nov 2016
Sisse Fagt (Lecturer)
National Food Institute
Division of Risk Assessment and Nutrition
Related external organisation

University of Copenhagen
Thorvaldsensvej 40, DK-1871 Frederiksberg C, Copenhagen, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Atributing the disease burden to different food groups - will it be easier in the future
Period: 7 Nov 2016
Tine Hald (Speaker)
National Food Institute
Research Group for Genomic Epidemiology

Related event

New Science for Food Safety: supporting food chain transparency for improved health
07/11/2016 → 10/11/2016
Singapore, Singapore
Activity: Talks and presentations › Conference presentations

Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Period: 7 Nov 2016 → 11 Nov 2016
Birgitte Helwigh (Organizer)
Birgitte Borck Heg (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Course in Berlin, Germany
Degree of recognition: International

Related event

Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

To serve and detect* EURL-AR and WHO CC activities: EURL-AR and WHO CC activities
Period: 7 Nov 2016
Rene S. Hendriksen (Lecturer)
National Food Institute
Research Group for Genomic Epidemiology

Description
DTU Kompetenceudvikling i forskningsbaseret rådgivning (FBR) - RDTU

Related external organisation

Unknown external organisation
Activity: Talks and presentations › Conference presentations

Food at work around the clock
Period: 4 Nov 2016
Sisse Fagt (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

**Description**
Organised the workshop together with Anne Dahl Lassen and Anne Vibeke Thorsen. Presented results

Workshop on Food at work around the clock

**Related event**

**Food at work around the clock**
04/11/2016 → 04/11/2016
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising a conference

**Food at work around the clock- The Nordic Model Workshop**
Period: 4 Nov 2016
Anne Dahl Lassen (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: International

**Related event**

**Food at work around the clock- The Nordic Model Workshop**
04/11/2016 → 04/11/2016
Denmark
Activity: Talks and presentations › Conference presentations

**Presentation of a systematic review article and meta-analysis: The impact of worksite interventions promoting healthy food and physical activity on well-being and risk markers of chronic disease among employees working irregular hours around the clock.**
Food at work around the clock - The Nordic Model Workshop
Period: 4 Nov 2016
Anne Dahl Lassen (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: International

**Related organisation**

**Presentation of a systematic review article and meta-analysis: The impact of worksite interventions promoting healthy food and physical activity on well-being and risk markers of chronic disease among employees working irregular hours around the clock.**
Food at work around the clock - The Nordic Model Workshop
4 Nov 2016
Activity: Talks and presentations › Conference presentations

**The role of partnerships with trade unions in workplace health promotion**
Period: 4 Nov 2016
Sisse Fagt (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition

**Related event**

**Food at work around the clock**
04/11/2016 → 04/11/2016
Copenhagen, Denmark
Activity: Talks and presentations › Conference presentations
Welcome speech. Food at work around the clock- The Nordic Model Workshop
Period: 4 Nov 2016
Anne Dahl Lassen (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: International

Related organisation

Welcome speech. Food at work around the clock- The Nordic Model Workshop
Lassen, A. D. (Speaker)
4 Nov 2016
Activity: Talks and presentations › Conference presentations

European workshop 'One Health risk analysis structures for emerging zoonoses
Period: 2 Nov 2016 → 3 Nov 2016
Birgitte Helwigh (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: International

Related event

European workshop 'One Health risk analysis structures for emerging zoonoses
02/11/2016 → 03/11/2016
Amsterdam, Netherlands
Activity: Talks and presentations › Conference presentations

European workshop "One Health risk analysis structures for emerging zoonoses
Period: 1 Nov 2016 → 3 Nov 2016
Birgitte Helwigh (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: International

Related event

European workshop "One Health risk analysis structures for emerging zoonoses
01/11/2016 → 03/11/2016
Amsterdam, Netherlands
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Kompetence projekt for rådgivere ved fødevareinstituttet
Period: 1 Nov 2016 → 27 Mar 2017
Heddie Mejborn (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

Related event

Kompetence projekt for rådgivere ved fødevareinstituttet
01/11/2016 → 27/03/2017
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.
Kompetence projekt for rådgivere ved fødevareinstituttet

Period: 1 Nov 2016 → 27 Mar 2017

Helle Bisgaard Korsgaard (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Project aimed at developing the advisory services at DTU -Food

Related event
Kompetence projekt for rådgivere ved fødevareinstituttet
01/11/2016 → 27/03/2017
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Kompetence projekt for rådgivere ved fødevareinstituttet
Period: 1 Nov 2016 → 27 Mar 2017
Susan Strange Herrmann (Guest lecturer)
National Food Institute
Research Group for Analytical Food Chemistry

Related event
Kompetence projekt for rådgivere ved fødevareinstituttet
01/11/2016 → 27/03/2017
Denmark
Activity: Talks and presentations › Conference presentations

Kompetence projekt for rådgivere ved fødevareinstituttet
Period: 1 Nov 2016 → 27 Mar 2017
Charlotte Bernhard Madsen (Organizer)
National Food Institute
Research Group for Gut Microbiology and Immunology

Related event
Kompetence projekt for rådgivere ved fødevareinstituttet
01/11/2016 → 27/03/2017
Denmark
Activity: Attending an event › Participating in or organising a conference

Kompetence projekt for rådgivere ved fødevareinstituttet
Period: 1 Nov 2016 → 27 Mar 2017
Lene Møller Christensen (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: National

Related event
Kompetence projekt for rådgivere ved fødevareinstituttet
01/11/2016 → 27/03/2017
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.
Kompetence projekt for rådgivere ved fødevareinstituttet
Period: 1 Nov 2016 → 27 Mar 2017
Anette Bysted (Organizer)
National Food Institute
Research Group for Bioactives – Analysis and Application

Related event

Kompetence projekt for rådgivere ved fødevareinstituttet
01/11/2016 → 27/03/2017
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Biofilm i fødevareproduktionen – med fokus på overlevelse af Listeria monocytogenes: Fødevarestyrelsens Listeria Specialiseringskursus
Period: 31 Oct 2016
Lisbeth Truelstrup Hansen (Invited speaker)
National Food Institute
Research Group for Analytical and Predictive Microbiology

Related external organisation

Unknown external organisation
Activity: Talks and presentations › Conference presentations

Listeria monocytogenes – rundt om patogenet: Fødevarestyrelsens Listeria Specialiseringskursus
Period: 31 Oct 2016
Lisbeth Truelstrup Hansen (Invited speaker)
National Food Institute
Research Group for Analytical and Predictive Microbiology

Related external organisation

Unknown external organisation
Activity: Talks and presentations › Conference presentations

The 1st food chemistry conference
Period: 30 Oct 2016 → 1 Nov 2016
Lene Duedahl-Olesen (Participant)
National Food Institute
Research Group for Analytical Food Chemistry

Description
Is barley malt safe as a food ingredient?

Poster presentation
Documents:
Poster malt 2016

Related event

The 1st food chemistry conference: shaping the future of food quality, health and safety
30/10/2016 → 01/12/2016
Amsterdam
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.
Protein Interactions Workshop
Period: 26 Oct 2016
Hilal Yilmaz Celebioglu (Participant)
National Food Institute
Research Group for Nano-Bio Science

Description
workshop

Related event

Protein Interactions Workshop
26/10/2016 → …
Kgs. Lyngby, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Helhedssyn på fisk: Er der mikrobiologiske risici eller problemer med parasitter.
Paw Dalgaard (Invited speaker)
National Food Institute
Research Group for Analytical and Predictive Microbiology

Description

Related external organisation
IDA Levnedsmiddelselskabet
Denmark
Activity: Talks and presentations › Conference presentations

Arsenic compounds in foodstuffs – the importance of speciation analysis for food safety assessment
Period: 24 Oct 2016
Jens Jørgen Sloth (Speaker)
National Food Institute
Research Group for Nano-Bio Science

Related event

Temadag: Miljøets betydning for sundheden
24/10/2016 → 24/10/2016
Copenhagen, Denmark
Activity: Talks and presentations › Conference presentations

Specialiseringskursus i fermentering: Sikker fremstilling af fermenterede pølser
Period: 24 Oct 2016
Tina Beck Hansen (Lecturer)
National Food Institute
Research Group for Microbial Food Safety
Documents:
sikker fermentering af pølser

Related external organisation
Fødevarestyrelsen
Glostrup, Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations
OBTENTION OF FUNCTIONAL COMPOUNDS FROM FISH OIL AND PROTEIN (External organisation)
Ann-Dorit Moltke Sørensen (External examiner)
National Food Institute
Research Group for Bioactives – Analysis and Application

Description
Written evaluation of the PhD thesis before defence
Degree of recognition: International
Activity: Examinations and supervision › External examination

Determination of iodine and inorganic arsenic in feed: analytical methods and risk assessment
Period: 19 Oct 2016
Jens Jørgen Sloth (Speaker)
National Food Institute
Research Group for Nano-Bio Science

Related event
International Feed Conference: Present and future challenges
19/10/2016 → 20/10/2016
Geel, Belgium
Activity: Talks and presentations › Conference presentations

International Feed Conference
Jens Jørgen Sloth (Organizer)
National Food Institute
Research Group for Nano-Bio Science

Description
Member of scientific committee and poster award committee

Related event
International Feed Conference: Present and future challenges
19/10/2016 → 20/10/2016
Geel, Belgium
Activity: Attending an event › Participating in or organising a conference

Expert Commission on Addressing the Contribution of Livestock to the Antibiotic Resistance Crisis (External organisation)
Period: 15 Oct 2016 → …
Valeria Bortolaia (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
This Expert Commission is charged with reviewing federal efforts to date on addressing antibiotic use, including unnecessary use, in animal agriculture, and developing a roadmap for progress for the coming months and years. To that end, the Expert Commission’s primary goal is to develop a short report for release in early 2017 that includes key recommendations for U.S. policymakers, their staff and other key stakeholders in the U.S. government. The report will primarily focus on recommendations on improving and strengthening existing public policy and regulations, as well as new policy ideas and possibly, recommendations for research priorities. Secondary audiences of the report will include journalists who cover antibiotic resistance and the general public.
Degree of recognition: International
Related external organisation

**Expert Commission on Addressing the Contribution of Livestock to the Antibiotic Resistance Crisis**
*Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar*

**Beregning af D- og z-værdier**
*Period: 12 Oct 2016*
*Tina Beck Hansen (Guest lecturer)*

National Food Institute

Research Group for Microbial Food Safety

**Description**
Gæsteforelæsning i varmeanaktiveringsskinetik

**Related event**

**Kursus 23923 Fødevaremikrobiologi E16**
*31/08/2016 → …*
*Mørkhøj, Denmark*
*Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities*

**Insekter – fremtidens proteinkilde i Danmark?**
*Period: 12 Oct 2016*
*Annette Nygaard Jensen (Participant)*

National Food Institute

Research Group for Microbial Food Safety

**Related event**

**Insekter – fremtidens proteinkilde i Danmark?**
*12/10/2016 → 12/10/2016*
*Århus, Denmark*
*Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.*

**Insekter til foder og fødevarer set i et fødevaresikkerhedsmæssigt perspektiv**
*Period: 12 Oct 2016*
*Dorte Lau Baggesen (Speaker)*

National Food Institute

Documents:
20161012_TI_Insekter til foder og fødevarer set i et fødevaresikkerhedsmæssigt perspektiv

**Related event**

**Insekter – fremtidens proteinkilde i Danmark?**
*12/10/2016 → 12/10/2016*
*Århus, Denmark*
*Activity: Talks and presentations › Conference presentations*

**Better Training for Safer Food (BTSF): Foodborne outbreak investigations**
*Period: 10 Oct 2016 → 14 Oct 2016*
*Birgitte Helwigh (Organizer)*

National Food Institute

Division of Risk Assessment and Nutrition

**Description**
Rome, Italy
*Degree of recognition: International*
Related event

Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

EFSA ENGAGE Workshop
Rene S. Hendriksen (Organizer)
National Food Institute
Research Group for Genomic Epidemiology

Description
Speaker
EFSA ENGAGE Workshop 10-11 October 2016 in Warsaw, Poland.

Related event

EFSA ENGAGE Workshop
10/10/2016 → 11/10/2016
Warsaw, Poland
Activity: Attending an event › Participating in or organising a conference

The Fiber Society 2016
Ana Carina Loureiro Mendes (Speaker)
National Food Institute
Research Group for Nano-Bio Science

Related event

The Fiber Society 2016 : Fall Meeting and Technical Conference
10/10/2016 → 12/11/2016
Ithaca, United States
Activity: Talks and presentations › Conference presentations

Inorganic arsenic in food and feed – the journey from research to legislation and standardization of methods
Period: 6 Oct 2016
Jens Jørgen Sloth (Invited speaker)
National Food Institute
Research Group for Nano-Bio Science

Related event

Science day of the Contaminants EURLs
06/10/2016 → 07/10/2016
Geel, Belgium
Activity: Talks and presentations › Conference presentations

Integreeret produktudvikling i fødevarerandustrien
Period: 5 Oct 2016
Heddie Mejborn (Participant)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Food Labelling and claims
Degree of recognition: International

Related event

Integreter produktudvikling i fødevareindustrien
01/09/2014 → …
Kgs. Lyngby, Denmark
Activity: Other

Aarhus University (External organisation)
Period: 4 Oct 2016
Paw Dalgaard (Participant)
National Food Institute
Research Group for Analytical and Predictive Microbiology

Description
Ph.D. Christina Krogsgård Nielsen. Application of isoeugenol to combat food-related bacteria. 4 October 2016, Aarhus University, Denmark.

Related external organisation

Aarhus University
Inge Lehmanns Gade 10, 8000, Aarhus C, Denmark
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

EURL Campylobacter 11th Workshop
Annette Nygaard Jensen (Participant)
National Food Institute
Research Group for Microbial Food Safety

Description
EURL Campylobacter 11th workshop

Related event

EURL Campylobacter 11th Workshop
04/10/2016 → 05/10/2016
Uppsala, Sweden
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

ANALYTICAL PLATFORM FOR ESTABLISHMENT OF FOOD COMPOSITION DATA FOR VITAMINS – EXEMPLIFIED BY VITAMIN D
Period: 3 Oct 2016
Jette Jakobsen (Invited speaker)
National Food Institute
Research Group for Bioactives – Analysis and Application
Documents:
Jette Jakobsen_2ndIMEKOFOODS

Related event

2nd IMEKOFOODS: Promoting Objective and Measurable Food Quality & Safety
02/10/2016 → 05/10/2016
Benevento, Italy
Activity: Talks and presentations › Conference presentations
Kursus i avanceret excel
Birgitte Helwigh (Participant)
Jytte Butters (Participant)
Jens-Ole Marinus Frimann (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: International

Related event
Kursus i avanceret excel: Special kursus for afdeling for risikovurdering og ernæring
03/10/2016 → 04/10/2016
Mørkhøj, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Training Course 12 on microbiological criteria (Event 2470): Presentation and workshop: Using microbiological criteria in HACCP
Tina Beck Hansen (Lecturer)
National Food Institute
Division of Food Microbiology

Description
Brush-up in HACCP, incl. one case problem of identifying oPRPs/CCPs and ideas for using microbiological criteria in monitoring, validation and verification in HACCP

Tutor

Documents:
HACCP_in_EU_legislation

Related external organisation
BTSF Initiative
Barcelona, Spain
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

EFSA Focal Point WG on registration of institutions under Art. 36 (Event)
Period: 1 Oct 2016
Birgitte Helwigh (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: International

Related event
EFSA Focal Point WG on registration of institutions under Art. 36 : Working group
01/10/2016 → …
Activity: Membership › Membership of research networks or expert groups

Differential fitness of avian CTX-M-1- and CMY-2-encoding plasmids in Escherichia coli
Period: Sep 2016 → Dec 2016
Valeria Bortolaia (Supervisor)
National Food Institute
Research Group for Genomic Epidemiology

Description
Special course by Anna Kathrine Bach Mortensen
Degree of recognition: National
Activity: Examinations and supervision › Supervisor activities

RDTU – kompetenceudvikling i forskningsbaseret rådgivning
Period: Sep 2016 → Nov 2016
Johanne Ellis-Iversen (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: Local

Related event

RDTU – kompetenceudvikling i forskningsbaseret rådgivning
26/09/2016 → 07/11/2016
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Zoonoser og fødevaresikkerhed
Period: Sep 2016 → …
Johanne Ellis-Iversen (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: National

Related external organisation

University of Copenhagen
Thorvaldsensvej 40, DK-1871 Frederiksberg C, Copenhagen, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Global Surveillance
Period: 29 Sep 2016
Tine Hald (Speaker)
National Food Institute
Research Group for Genomic Epidemiology

Description
Taking advantage of developments in genomics and data-sharing
Degree of recognition: National

Related event

XVII SIDILV Congress
28/09/2016 → 29/09/2016
Pacengo di Lazise (VR), Italy
Activity: Talks and presentations › Conference presentations

The Global Burden of Foodborne Disease
Period: 28 Sep 2016
Tine Hald (Keynote speaker)
National Food Institute
Research Group for Genomic Epidemiology
Degree of recognition: National

Related event
XVII SIDILV Congress
28/09/2016 → 29/09/2016
Pacengo di Lazise (VR), Italy
Activity: Talks and presentations › Conference presentations

Veterinær etik og Videnskabsteori - Zoonoser og fødevaresikkerhed
Period: 27 Sep 2016
Johanne Ellis-Iversen (Guest lecturer)
National Food Institute
Division of Risk Assessment and Nutrition
Related external organisation
University of Copenhagen
Thorvaldsensvej 40, DK-1871 Frederiksberg C, Copenhagen, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Nanotec2016
Period: 26 Sep 2016 → 27 Sep 2016
Ana Carina Loureiro Mendes (Speaker)
National Food Institute
Research Group for Nano-Bio Science
Related event
Nanotec2016: International Conference on Nanotechnology Applications
26/09/2016 → 27/10/2016
Valencia, Spain
Activity: Talks and presentations › Conference presentations

RDTU – kompetenceudvikling i forskningsbaseret rådgivning
Period: 26 Sep 2016 → 7 Nov 2016
Julia Christensen (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Related event
RDTU – kompetenceudvikling i forskningsbaseret rådgivning
26/09/2016 → 07/11/2016
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

RDTU – kompetenceudvikling i forskningsbaseret rådgivning
Period: 26 Sep 2016 → 7 Nov 2016
Heddie Mejborn (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition
Description
RDTU
Related event
RDTU – kompetenceudvikling i forskningsbaseret rådgivning
26/09/2016 → 07/11/2016
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

RDTU – kompetenceudvikling i forskningsbaseret rådgivning
Period: 26 Sep 2016
Karin Kristiane Nørby (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

Related event

RDTU – kompetenceudvikling i forskningsbaseret rådgivning
26/09/2016 → 07/11/2016
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

RDTU – kompetenceudvikling i forskningsbaseret rådgivning
Period: 26 Sep 2016 → 7 Nov 2016
Vibe Meister Beltoft (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

Related event

RDTU – kompetenceudvikling i forskningsbaseret rådgivning
26/09/2016 → 07/11/2016
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Fødevaresikkerhed - PRP og HACCP
Period: 22 Sep 2016
Tina Beck Hansen (Lecturer)
National Food Institute
Research Group for Microbial Food Safety

Description
Gæsteforelæsning i HACCP

Related event

Kursus 23962 Fødevareproduktion, råvarer og hygiejne
01/09/2016 → ...
Mørkhøj/Lyngby, Denmark
Activity: Other

Madpræferencer og livsstil
Period: 22 Sep 2016
Anja Pia Bilttoft-Jensen (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Præsentation ved Landbrug & Fødevares konference "Ernæringsfokus" 22. september 2016

Related external organisation

Landbrug og Fødevarer
Axelborg, Axeltorv 3, 1609, København V, Denmark
Nordic Risk Benefit Assessment Workshop
Helle Bisgaard Korsgaard (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition

Related event
Nordic Risk Benefit Assessment Workshop
Uppsala, Sweden
Activity: Talks and presentations › Conference presentations

The consumer as risk and benefit manager: the need for quantification
Period: 22 Sep 2016
Maarten Nauta (Speaker)
National Food Institute
Research Group for Risk-Benefit

Related event
Nordic Risk Benefit Assessment Workshop
Uppsala, Sweden
Activity: Talks and presentations › Conference presentations

“Tord” om prædiktiv mikrobiologi
Period: 21 Sep 2016
Tina Beck Hansen (Lecturer)
National Food Institute
Research Group for Microbial Food Safety

Description
Gæsteforelæsning i prædiktiv mikrobiologi

Related event
Kursus 23923 Fødevaremikrobiologi E16
31/08/2016 – …
Mørkhøj, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Workshop and training 2016 for Pesticide Residues in Cereals and Feedingstuff
Susan Strange Herrmann (Organizer)
Mette Erecius Poulsen (Organizer)
National Food Institute
Research Group for Analytical Food Chemistry
Degree of recognition: International

Related event
Workshop and training 2016 for Pesticide Residues in Cereals and Feedingstuff
Holte, Denmark
**Evaluation of Methods for the Concentration and Extraction of Viruses from Sewage in the Context of Metagenomic Sequencing**

*Period: 16 Sep 2016*

Maria Hellmér (Speaker)

National Food Institute

Research Group for Microbial Food Safety

**Related event**

**ISFEV 2016: 5th International Society for Food and Environmental Virology Conference Proceedings**

*13/09/2016 → 16/09/2016*

Kusatsu Onsen, Japan

Activity: Talks and presentations › Conference presentations

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**Drikkevand i Nunavut, Canada: Karakterisering og håndtering**

*Period: 14 Sep 2016*

Lisbeth Truelstrup Hansen (Invited speaker)

National Food Institute

Research Group for Analytical and Predictive Microbiology

**Related event**

**Medlemsmøde: Selskabet for Arktisk Forskning og Teknologi**

*14/09/2016 → 14/09/2016*

København, Denmark

Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

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**Strategidag mellem FVST og DTU**

*Period: 14 Sep 2016*

Tina Beck Hansen (Invited speaker)

National Food Institute

Division of Microbiology and Risk Assessment

**Description**

præsentation af FF3 initiativer omkring beslutningværktøjer

**Related event**

**Strategidag mellem FVST og DTU Fødevareinstituttet**

*14/09/2016 → 14/09/2016*

Glostrup, Denmark

Activity: Talks and presentations › Conference presentations

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**Strategidag mellem FVST og DTU Fødevareinstituttet**

*Period: 14 Sep 2016*

Helle Bisgaard Korsgaard (Participant)

National Food Institute

Division of Risk Assessment and Nutrition

**Description**

Strategy day for DVFA and FVST og DTU. Presentations and discussions related to food safety - surveillance, risk and control.

**Related event**
Strategidag mellem FVST og DTU Fødevareinstituttet
14/09/2016 → 14/09/2016
Glostrup, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

NANOSOLUTIONS - NanoMILE Workshop
Period: 13 Sep 2016 → 14 Sep 2016
Katrin Löschner (Participant)
National Food Institute
Research Group for Nano-Bio Science

Related event
13/09/2016 → 14/09/2016
Stockholm, Sweden
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Period: 12 Sep 2016 → 16 Sep 2016
Birgitte Helwig (Organizer)
Birgitte Borck Høg (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Tallinn, Estonia
Degree of recognition: International

Related event
Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

3rd International conference on BioTribology
Period: 11 Sep 2016 → 14 Sep 2016
Hilal Yilmaz Celebioglu (Speaker)
National Food Institute
Research Group for Nano-Bio Science
Documents:
FINAL DELEGATE LIST

Related event
3rd International conference on BioTribology
London, United Kingdom
Activity: Talks and presentations › Conference presentations

13th NuGOweek 2016: Phenotypes and prevention – the interplay of genes, life-style factors and gut environment
Period: 7 Sep 2016
Henrik Munch Roager (Speaker)
National Food Institute
Research Group for Gut Microbiology and Immunology
Colonic transit time is related to bacterial metabolism and mucosal turnover in the human gut.

**Biofilms in Food Processing**
- **Period:** 6 Sep 2016
- **Lisbeth Truelstrup Hansen (Invited speaker)**
- **National Food Institute**
- **Research Group for Analytical and Predictive Microbiology**

**Description**
Fordrag om biofilm i fødevareproduktionen: Problemer og løsninger

**Related event**
**R3 Nordic Symposium and Exhibition Programme: Nordic Society of Cleanroom Technology**
- **05/09/2016 → 06/09/2016**
- **København, Denmark**
- **Activity:** Talks and presentations › Conference presentations

**Zoonosestormøde**
- **Period:** 6 Sep 2016
- **Julia Christensen (Organizer)**
- **Division of Food Microbiology**
- **Division of Food Production Engineering**
- **Section for Diagnostics and Scientific Advice**
- **National Food Institute**
- **Division of Risk Assessment and Nutrition**
- **Degree of recognition:** National

**Related event**
**Zoonosestormøde**
- **06/09/2016 → 06/09/2016**
- **København**
- **Activity:** Attending an event › Participating in or organising workshops, courses, seminars etc.

**Forudsigelse af fødevaresikkerhed**
- **Period:** 5 Sep 2016
- **Paw Dalgaard (Invited speaker)**
- **National Food Institute**
- **Research Group for Analytical and Predictive Microbiology**

**Description**

**Related external organisation**
**Unknown external organisation**
- **Activity:** Talks and presentations › Conference presentations
**Kostvaner i Danmark - hvor langt er vi fra anbefalingerne?**

**Period:** 5 Sep 2016

Sisse Fagt (Lecturer)

National Food Institute

Division of Risk Assessment and Nutrition

**Related external organisation**

**University of Copenhagen**

Thorvaldsensvej 40, DK-1871 Frederiksberg C, Copenhagen, Denmark

Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

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**Training Course 11 on microbiological criteria (Event 2469): Presentation and workshop: Using microbiological criteria in HACCP**

**Period:** 5 Sep 2016 → 6 Sep 2016

Tina Beck Hansen (Lecturer)

National Food Institute

Division of Food Microbiology

**Description**

Brush-up in HACCP, incl. one case problem of identifying CCPs and ideas for using microbiological criteria in monitoring, validation and verification in HACCP

**Tutor**

Documents:

HACCP_in_EU_legislation

**Related external organisation**

**BTSF Initiative**

Riga, Latvia

Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

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**WHO informal WGS training course meeting,**

**Period:** 5 Sep 2016 → 6 Sep 2016

Rene S. Hendriksen (Participant)

National Food Institute

Research Group for Genomic Epidemiology

**Description**

WHO informal WGS training course meeting, Milan, Italy, Sep 5-6 2016.

**Related event**

**WHO informal WGS training course meeting,**

05/09/2016 → 06/09/2016

Milan, Italy

Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

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**The ESBL/AmpC resistome in Escherichia coli from pigs and pig farmers, Vietnam**

**Period:** 1 Sep 2016 → 15 May 2017

Valeria Bortolaia (Supervisor)

National Food Institute

Research Group for Genomic Epidemiology

**Description**
Danish Food Research Partnership – experiences from two Private-Public Platforms

Period: 21 Aug 2016

Henning Høgh Jensen (Lecturer)

National Food Institute

Description

The Danish Food sector is in several international evaluations found to be among the most innovative in Europe. At the same time, the sector is characterized by a few large multinationals and a large number of SMEs in an open trade-oriented economy. So it may be argued that the sector MUST be innovative to continue to be competitive. However in this talk the focus will be on the experiences gained from several R&D partnerships and on the learnings that can be deduced from them. The historical development of such partnerships will be outlined and related to their particular policy context. Two selected cases will be described and experiences highlighted, i.e. inSPIRe and CPH-FOOD, as they covers the variety of challenges. To close off, a new initiative for a establishing a new industrial-driven public-private platform will be described as this initiative illustrates the general trend. In conclusion, the various modus operandi for the platforms will be highlighted, including what has worked and what has not.

Related event

World Congress of Food Science and Technology
21/08/2016 → 24/08/2016
Dublin, Ireland

Activity: Talks and presentations › Conference presentations

From Scientific risk assessment to political risk management

Period: 10 Aug 2016

Johanne Ellis-Iversen (Speaker)

National Food Institute

Division of Risk Assessment and Nutrition

Degree of recognition: International

Related organisation

From Scientific risk assessment to political risk management

Ellis-Iversen, J. (Speaker)
10 Aug 2016

Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Campylobacter: Can we solve the problem?

Period: 3 Aug 2016

Maarten Nauta (Panel member)

National Food Institute

Research Group for Risk-Benefit
Food Safety and Nutrition: Consumers as Risk and Benefit Managers: The need for quantification
Period: 2 Aug 2016
Maarten Nauta (Speaker)
National Food Institute
Research Group for Risk-Benefit
Description
30 min presentation in Risk Benefit Symposium
Also co-organizer and convenor of the symposium

A Generic Model for Cross-contamination during Meat Processing and Its Application in Risk Assessments
Period: 1 Aug 2016
Maarten Nauta (Speaker)
National Food Institute
Research Group for Risk-Benefit
Description
30 min presentation in symposium on cross contamination and transfer
Also co-organizer of the symposium

Burden of Disease of Dietary Exposure to Acrylamide in Denmark
Period: 1 Aug 2016
Maarten Nauta (Speaker)
National Food Institute
Research Group for Risk-Benefit
Description
presentation given on behalf of Lea Jakobsen
FoodMicro 2016 – 25th International ICFMH Symposium
Paw Dalgaard (Participant)
National Food Institute
Research Group for Analytical and Predictive Microbiology

Description

Development and validation of extensive growth and growth boundary models for psychrotolerant pseudomonads in seafood, meat and vegetable products. Abstract and poster presentation at FoodMicro 2016

Related event
FoodMicro 2016 – 25th International ICFMH Symposium: One health meets food microbiology
19/07/2016 → 22/07/2016
Dublin, Ireland
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

The Global Burden of Foodborne diseases
Period: 6 Jul 2016
Tine Hald (Speaker)
National Food Institute
Research Group for Genomic Epidemiology
Degree of recognition: Local

Related event
Internal seminar for EFSA staff
06/07/2016 → 06/07/2017
Parma, Italy
Activity: Talks and presentations › Conference presentations

4th International conference on food oral processing
Period: 3 Jul 2016 → 6 Jul 2016
Hilal Yilmaz Celebioglu (Speaker)
National Food Institute
Research Group for Nano-Bio Science
Documents:
abstract book FOP 2016 for participants

Related event
4th International conference on food oral processing
03/07/2016 → 06/07/2016
Lausanne, Switzerland
Activity: Talks and presentations › Conference presentations

Antimicrobial resistance-theory and methods
Period: 1 Jul 2016
Julia Christensen (Participant)
National Food Institute
Division of Risk Assessment and Nutrition  
Degree of recognition: Local

**Related event**

**Antimicrobial resistance-theory and methods**  
01/07/2016 → …  
København  
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Ernæringsdata**  
Period: 1 Jul 2016  
Sisse Fagt (Speaker)  
National Food Institute  
Division of Risk Assessment and Nutrition  

**Description**  
Interessenmøde

**Related organisation**

**Ernæringsdata**  
Fagt, S. (Speaker)  
1 Jul 2016  
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

**Madspild på festivaler og mega-events - konference**  
Period: 1 Jul 2016  
Tina Beck Hansen (Participant)  
National Food Institute  
Research Group for Microbial Food Safety  

**Description**  
Madspild på festivaler og mega-events

**Related event**

**Madspild på festivaler og mega-events - konference**  
01/07/2016 → …  
Roskilde, Denmark  
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Repportering af nationale overvågningsdata til den Europæiske Fødevaresikkerhedsautoritet, EFSA**  
Period: 1 Jul 2016  
Julia Christensen (Other)  
National Food Institute  
Division of Risk Assessment and Nutrition  

**Description**  
Editor  
Degree of recognition: International  
Activity: Other

**Internation Seaweed Symposium (External organisation)**  
Period: Jun 2016  
Charlotte Jacobsen (Participant)  
National Food Institute
Research Group for Bioactives – Analysis and Application

**Description**
Member of National Organising Committee of the Internation Seaweed Symposium, Copenhagen, Denmark

**Related external organisation**

**Internation Seaweed Symposium**
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

**Workshop on Thyroid Disruption**
Period: Jun 2016 → Sep 2017
Marta Axelstad Petersen (Organizer)
Ulla Hass (Organizer)
National Food Institute
Research Group for Molecular and Reproductive Toxicology

**Description**
Organization of Workshop on Thyroid Disruption for the EU Commission, DG Environment, including preparation of workshop documents and workshop report

**Related event**

**Workshop on Thyroid Disruption**
28/03/2017 → 31/03/2017
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Kødindtag hos danskere, der opfylder NNR og lever efter kostråd.
Period: 29 Jun 2016
Anja Pia Biltoft-Jensen (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition

**Description**
Præsentation af projektresultater Landbrug & Fødevarer 29/6 2016.

**Related organisation**

Kødindtag hos danskere, der opfylder NNR og lever efter kostråd.
Biltoft-Jensen, A. P. (Speaker)
29 Jun 2016
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

2 x 24 timers interview. Kostundersøgelsesmetode i Europa anbefalet af EFSA.
Period: 28 Jun 2016
Anja Pia Biltoft-Jensen (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition

**Description**
2 x 24 timers interview. Kostundersøgelsesmetode i Europa anbefalet af EFSA. Orienteringsmøde med Industrien. DTU Fødevareinstituttet Juni 2016.

**Related organisation**

2 x 24 timers interview. Kostundersøgelsesmetode i Europa anbefalet af EFSA.
Biltoft-Jensen, A. P. (Speaker)
28 Jun 2016
Activity: Talks and presentations › Conference presentations
Predictive modelling: Food Spoilage and Safety Predictor (FSSP) software.
Period: 28 Jun 2016
Paw Dalgaard (Lecturer)
National Food Institute
Research Group for Analytical and Predictive Microbiology

Description

Related event
Visit to DTU Food by Korean Ministry of Food and Drug Safety
28/06/2016 → 28/06/2016
Mørkhøj, Denmark
Activity: Talks and presentations › Conference presentations

Molekylære- og sekventeringsmetoder i fødevaresikkerhed. Master afhandling.
Period: 27 Jun 2016
Julia Christensen (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Division of Food Production Engineering

Description
Efteruddannelse
Degree of recognition: Local
Activity: Other

Påvisning af lave antal Campylobacter jejuni i fæsesprøver ved hjælp af molekylære og sekventering teknologier.
Period: 27 Jun 2016
Julia Christensen (Speaker)
Research Group for Diagnostic Engineering
National Food Institute
Division of Risk Assessment and Nutrition
Activity: Other

Metabolic Engineering 11
Jianming Liu (Participant)
National Food Institute
Research Group for Microbial Biotechnology and Biorefining

Description
Metabolic Engineering 11 will be held from June 26-30, 2016 at the Awaji Yumebutai International Conference Center and The Westin Awaji Island in Kobe, Japan. The conference is chaired by Akihiko Kondo, Kobe University and Hiroshi Shimizu, Osaka University. Sessions integrate the recent achievements made in the fields of systems biology, synthetic biology, biochemical engineering, synthetic enzyme, evolutionary engineering, integrated omics, tools and methods, and emerging techniques, healthcare, biofuels, chemicals and materials, biologics, microbial and mammalian systems, and other disciplines and applications.

Related event
Metabolic Engineering 11
25/06/2016 → 30/06/2016
Infant Gut Microbiota Development Is Driven by Transition to Family Foods Independent of Maternal Obesity: Complementary feeding and infant gut microbiota development
Period: 23 Jun 2016
Martin Frederik Laursen (Speaker)
National Food Institute
Research Group for Gut Microbiology and Immunology

Description
The first years of life are paramount in establishing our endogenous gut microbiota, which is strongly affected by diet and has repeatedly been linked with obesity. However, very few studies have addressed the influence of maternal obesity on infant gut microbiota, which may occur either through vertically transmitted microbes or through the dietary habits of the family. Additionally, very little is known about the effect of diet during the complementary feeding period, which is potentially important for gut microbiota development. Here, the gut microorganisms of two different cohorts of infants, born either of a random sample of healthy mothers (n = 114), or of obese mothers (n = 113), were profiled by 16S rRNA amplicon sequencing. Gut microbiota data were compared to breastfeeding patterns and detailed individual dietary recordings to assess effects of the complementary diet. We found that maternal obesity did not influence microbial diversity or specific taxon abundances during the complementary feeding period. Across cohorts, breastfeeding duration and composition of the complementary diet were found to be the major determinants of gut microbiota development. In both cohorts, gut microbial composition and alpha diversity were thus strongly affected by introduction of family foods with high protein and fiber contents. Specifically, intake of meats, cheeses and Danish rye bread, rich in protein and fiber, were associated with increased alpha diversity. Our results reveal that the transition from early infant feeding to family foods is a major determinant for gut microbiota development.

Related event
10th Joint Symposium INRA-Rowett 2016: Gut Microbiology
20/06/2016 → 23/06/2016
Clermont-Ferrand, France
Activity: Talks and presentations › Conference presentations

INRA-Rowett 2016: 10th Joint Symposium
Period: 22 Jun 2016
Henrik Munch Roager (Speaker)
National Food Institute
Research Group for Gut Microbiology and Immunology

Description
Colonic transit time relates to bacterial metabolism and mucosal turnover in the human gut

Related external organisation
Unknown external organisation
Activity: Talks and presentations › Conference presentations

Seaweed Matchmaking
Period: 21 Jun 2016
Susan Løvstad Holdt (Speaker)
National Food Institute
Research Group for Bioactives – Analysis and Application
Degree of recognition: International

Related event
Seaweed Matchmaking: Danish SME’s pitches their company and B2B meeting
21/06/2016 → 21/06/2016
Copenhagen, Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations
Seaweed Matchmaking
Period: 21 Jun 2016
Susan Løvstad Holdt (Organizer)
National Food Institute
Research Group for Bioactives – Analysis and Application

Description
Preparing and having the Danish SME's to pitch at the International Seaweed Symposium, Copenhagen, June 2016
Degree of recognition: International

Related event
Seaweed Matchmaking: Danish SME's pitches their company and B2B meeting
21/06/2016 → 21/06/2016
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Toxic trace elements in seaweed – occurrence, analysis and food safety assessment
Period: 21 Jun 2016
Jens Jørgen Sloth (Speaker)
National Food Institute
Research Group for Nano-Bio Science

Related event
22nd International Seaweed Symposium
19/06/2016 → 24/06/2016
Copenhagen, Denmark
Activity: Talks and presentations › Conference presentations

Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Birgitte Helwigh (Organizer)
Birgitte Borck Høg (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Lisbon, Portugal
Degree of recognition: International

Related event
Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

11th Nordic Nutrition Conference 2016
Period: 19 Jun 2016 → 22 Jun 2016
Sisse Fagt (Participant)
National Food Institute
Division of Risk Assessment and Nutrition

Description
poster presentation
Documents:
More Nordic adults with an unhealthy diet: 2011 to 2014 Monitoring of diet, physical activity and overweight in the Nordic countries

Related event
11th Nordic Nutrition Conference 2016
19/06/2016 → 22/06/2016
Gothenburg, Sweden
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

22nd International Seaweed Symposium
Ali Reza Nasrei (Participant)
National Food Institute
Research Group for Bioactives – Analysis and Application
Description
Oral presentation (Bioactive compounds in industrial red seaweed used in carrageenan production)

Related event
22nd International Seaweed Symposium
19/06/2016 → 24/06/2016
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising a conference

22nd International Seaweed Symposium
Susan Løvstad Holdt (Organizer)
National Food Institute
Research Group for Bioactives – Analysis and Application
Description
Chair of the local organising committee
Degree of recognition: International

Related event
22nd International Seaweed Symposium
19/06/2016 → 24/06/2016
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising a conference

International Seaweed Association Council (ISAC) (External organisation)
Period: 19 Jun 2016 → …
Susan Løvstad Holdt (Chairman)
National Food Institute
Research Group for Bioactives – Analysis and Application
Description
Elected as Secretary General of the International Seaweed Association Council (ISAC)
Degree of recognition: International

Related external organisation
International Seaweed Association Council (ISAC)
Polyphenolic compounds from Fucus vesiculosus and their antioxidant activity
Ditte Baun Hermund (Speaker)
National Food Institute
Research Group for Bioactives – Analysis and Application
Degree of recognition: International

Related event
22nd International Seaweed Symposium
19/06/2016 → 24/06/2016
Copenhagen, Denmark
Activity: Talks and presentations › Conference presentations

Joint DG JRC and DG SANTÉ workshop on the harmonisation of approaches for informing EU allergen labelling legislation
Charlotte Bernhard Madsen (Participant)
National Food Institute
Research Group for Gut Microbiology and Immunology
Degree of recognition: International

Related event
Joint DG JRC and DG SANTÉ workshop on the harmonisation of approaches for informing EU allergen labelling legislation
16/06/2016 → 17/06/2016
Geel, Belgium
Activity: Attending an event › Participating in or organising a conference

QSAR 2016 conference
Eva Bay Wedebye (Organizer)
National Food Institute
Research Group for Molecular and Reproductive Toxicology

Description
Member of program committee for the QSAR 2016 conference June 13-17, 2016 in Miami Beach, Florida.
https://www.qsar2016.com/committees
Degree of recognition: International

Related event
QSAR 2016 conference
13/06/2016 → 17/06/2016
Miami Beach, United States
Activity: Attending an event › Participating in or organising a conference

Training Course 10 on microbiological criteria (Event 2468): Presentation and workshop: Using microbiological criteria in HACCP
Tina Beck Hansen (Lecturer)
National Food Institute
Division of Food Microbiology
Description
Brush-up in HACCP, incl. one case problem of identifying CCPs and ideas for using microbiological criteria in monitoring, validation and verification in HACCP

Tutor
Documents:
HACCP_in_EU_legislation

Related external organisation

BTSF Initiative
Riga, Latvia
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Zoonoseinteressengruppermøde
Period: 13 Jun 2016
Julia Christensen (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

Related event

Zoonoseinteressengruppermøde
13/06/2016 → 13/06/2016
København
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Late-life effects on testosterone production following in utero exposure to the pesticide fludioxonil
Terje Svingen (Speaker)
Camilla Taxvig (Other)
Julie Boberg (Other)
Jorma Toppari (Other)
Ulla Hass (Other)
Anne Marie Vinggaard (Other)
National Food Institute
Research Group for Molecular and Reproductive Toxicology
Copenhagen Center for Health Technology
Degree of recognition: International

Related event

19th European Testis Workshop : Molecular and Cellular Endocrinology
11/06/2016 → 15/06/2016
Saint Malo, France
Activity: Talks and presentations › Conference presentations

The complex natural chemistry of arsenic – analytical challenges and implications on food safety
Period: 9 Jun 2016
Jens Jørgen Sloth (Invited speaker)
National Food Institute
Research Group for Nano-Bio Science

Related event

The Danish Chemical Society Annual Meeting 2016
09/06/2016 → 09/06/2016
Online Course "Antimicrobial resistance- theory and methods"
Period: 7 Jun 2016 → …
Lina Cavaco (Lecturer)
National Food Institute
Research Group for Genomic Epidemiology

Description
Lina Cavaco acted as coordinator and instructor
Links:
https://www.coursera.org/learn/antimicrobial-resistance

Related external organisation

Unknown external organisation
Activity: Talks and presentations › Conference presentations

Zoonosestormøde
Period: 7 Jun 2016
Julia Christensen (Organizer)
Division of Food Microbiology
Division of Food Production Engineering
Section for Diagnostics and Scientific Advice
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: National

Related event

Zoonosestormøde
06/09/2016 → 06/09/2016
København
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Ernæringsdata
Period: 6 Jun 2016
Sisse Fagt (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition

Related external organisation

Fødevarestyrelsen
Glostrup, Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Plantebaserede kosttilskud
Period: 6 Jun 2016
Sisse Fagt (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Related external organisation

Fødevarestyrelsen
Glostrup, Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Use of seaweed in food and feed – implications for food/feed safety
Period: 6 Jun 2016
Jens Jørgen Sloth (Speaker)
National Food Institute
Research Group for Nano-Bio Science

Related event

8th Nordic Conference on Plasma Spectrochemistry
05/06/2016 → 08/06/2016
Loen, Norway
Activity: Talks and presentations › Conference presentations

EuroFedLipid seminar on lipid oxidation and antioxidant
Period: 5 Jun 2016 → 7 Jun 2016
Charlotte Jacobsen (Organizer)
National Food Institute
Research Group for Bioactives – Analysis and Application

Description
Co-organiser

Related event

EuroFedLipid seminar on lipid oxidation and antioxidant
05/06/2016 → 07/06/2016
Porto, Portugal
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Nordic conference on plasmaspectrochemistry
Period: 5 Jun 2016 → 8 Jun 2016
Jens Jørgen Sloth (Organizer)
National Food Institute
Research Group for Nano-Bio Science

Description
Member of organizing committee

Related event

8th Nordic Conference on Plasma Spectrochemistry
05/06/2016 → 08/06/2016
Loen, Norway
Activity: Attending an event › Participating in or organising a conference

Nanotech & Single-Particle-ICP-MS Seminar
Period: 2 Jun 2016
Katrin Löschner (Participant)
National Food Institute
Research Group for Nano-Bio Science
Related event

Nanotech & Single-Particle-ICP-MS Seminar
02/06/2016 → ...
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Risk assessment of Salmonella in broiler farms with slaughter and sale at the farm
Period: 1 Jun 2016 → 2 Sep 2016
Tine Hald (Consultant)
National Food Institute
Research Group for Genomic Epidemiology
Degree of recognition: National

Related external organisation

Fødevarestyrelsen
Glostrup, Denmark
Activity: Public and private sector consultancy › Consultancy

From feed to fish: Effects of contaminant transfer from feed to fish and influence of microplastics
Period: 30 May 2016 → 31 May 2016
Kit Granby (Lecturer)
National Food Institute
Research Group for Analytical Food Chemistry

Description
lecture at ECsafeSEAFOOD Seminar: Environmental Contaminants of Emerging Concern in Seafood: are Producers, Processors, and Consumers on the Safe Side?
30-31 May 2016,Frøya, Sør-Trøndelag, Norway
Documents:
ECSafeSeaFood_Seminar_Flyer_v11_web

Related external organisation

Unknown external organisation
Activity: Talks and presentations › Conference presentations

Måltidsvaner og kostkvalitet
Period: 30 May 2016
Sisse Fagt (Invited speaker)
National Food Institute
Division of Risk Assessment and Nutrition

Related external organisation

Coop Danmark A/S
Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Risk assessment of contaminants from seafood consumption
Period: 30 May 2016 → 31 May 2016
Kit Granby (Lecturer)
National Food Institute
Research Group for Analytical Food Chemistry

**Description**

lecture at ECsafeSEAFOOD Seminar: Environmental Contaminants of Emerging Concern in Seafood: are Producers, Processors, and Consumers on the Safe Side?
30-31 May 2016, Frøya, Sør-Trøndelag, Norway

**Related external organisation**

Unknown external organisation
Activity: Talks and presentations › Conference presentations

**A snapshot into ATP-binding cassette transporter mediated glycan uptake in probiotic bifidobacteria**

Period: 27 May 2016
Maher Abou Hachem (Invited speaker)
Department of Systems Biology
Enzyme and Protein Chemistry
Research Group for Gut Microbiology and Immunology

Documents:
DBS_2016_Abstract
Links:
http://www.biokemi.org/meetings/109

**Related event**

The 11th Danish Conference on Biotechnology and Molecular Biology: Glycobiology and Carbohydrate Biotechnology.
26/05/2016 → 27/05/2016
Vejle, Denmark
Activity: Talks and presentations › Conference presentations

**Vitamin D in salmonids - wild and farmed**

Period: 26 May 2016
Jette Jakobsen (Speaker)
National Food Institute
Research Group for Bioactives – Analysis and Application

**Description**

Documents:
IVC2016 - Salmon and vitamin D

**Related event**

International Vitamin Conference 2016
25/05/2016 → 27/05/2016
Copenhagen, Denmark
Activity: Talks and presentations › Conference presentations

**4th International Vitamin Conference**

Period: 25 May 2016 → 27 May 2016
Anette Bysted (Participant)
National Food Institute
Research Group for Bioactives – Analysis and Application
Degree of recognition: International

**Related event**

4th International Vitamin Conference
25/05/2016 → 27/05/2016
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising a conference

**International Vitamin Conference**
Period: 25 May 2016 → 27 May 2016
Jette Jakobsen (Organizer)
National Food Institute
Research Group for Bioactives – Analysis and Application

**Description**
Chair for scientific committee and local organizing committee

**Related event**
**International Vitamin Conference: IVC**
25/05/2016 → 27/05/2016
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising a conference

11th European Pesticide Residue Workshop
Period: 24 May 2016 → 27 May 2016
Susan Strange Herrmann (Participant)
National Food Institute
Research Group for Analytical Food Chemistry

**Related event**
**11th European Pesticide Residue Workshop: EPRW16**
24/05/2016 → 27/05/2016
Limassol, Cyprus
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Better Training for Safer Food (BTSF): Foodborne outbreak investigations**
Period: 23 May 2016 → 26 May 2016
Birgitte Helwigh (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

**Description**
Rome, Italy
Degree of recognition: International

**Related event**
**Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days**
15/12/2012 → 15/12/2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**IUHPE World Conference On Health Promotion**
Period: 22 May 2016 → 26 May 2016
Nanna Wurr Stjernqvist (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition

**Description**
"Making school health promotion a participatory learning process." Oral presentation as part of the symposium; "Making school health promotion an integrated part of school practice – introducing new tools for sustainable change".
Healthy kids: Making school health policy a participatory learning process

Related event

IUHPE World Conference On Health Promotion: Health Promotion and Equity
22/05/2015 → 26/11/2016
Curitiba, Brazil
Activity: Talks and presentations › Conference presentations

Cephalosporin resistance in the Danish chicken meat production chain
Period: 20 May 2016
Valeria Bortolaia (Speaker)
National Food Institute
Research Group for Genomic Epidemiology
Degree of recognition: National

Related event

Third annual meeting of the University of Copenhagen Research Centre for control of antibiotic resistance (UC-CARE)
20/05/2016 → 20/05/2016
Activity: Talks and presentations › Conference presentations

Omlægning til økologi i offentlige køkkener.
Period: 17 May 2016
Anne Dahl Lassen (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: National

Related external organisation

IDA Levnedsmiddelselskabet
Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

GLOBAL MEETING OF WHO COLLABORATING CENTRES ON FOOD SAFETY AND OTHER STAKEHOLDERS
Period: 16 May 2016 → 17 May 2016
Valeria Bortolaia (Participant)
National Food Institute
Research Group for Genomic Epidemiology
Degree of recognition: International

Related event

GLOBAL MEETING OF WHO COLLABORATING CENTRES ON FOOD SAFETY AND OTHER STAKEHOLDERS
16/05/2016 → 17/05/2016
Geneva, Switzerland
Activity: Attending an event › Participating in or organising a conference

Optimering af prøveforberedelse til metagenom analyse
Period: 16 May 2016
Julia Christensen (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: Regional
Activity: Other
The New version of Danish food composition database FRIDA including a case study on recipe calculation compared to a chemical analysis.

Period: 16 May 2016 → 18 May 2016
Anja Pia Biltoft-Jensen (Other)
Tue Christensen (Other)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Abstract. 39th National Nutrient Databank Conference. 16-18 May, Washington

Related external organisation

NATIONAL NUTRIENT DATABANK CONFERENCE COMMITTEES
Activity: Talks and presentations › Conference presentations

Training Course 9 on microbiological criteria (Event 2467): Presentation and workshop: Using microbiological criteria in HACCP
Period: 16 May 2016 → 17 May 2016
Tina Beck Hansen (Lecturer)
National Food Institute
Division of Food Microbiology

Description
Brush-up in HACCP, incl. one case problem of identifying CCPs and ideas for using microbiological criteria in monitoring, validation and verification in HACCP

Tutor
Documents:
HACCP_in_EU_legislation

Related external organisation

BTSF Initiative
Barcelona, Spain
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

University of Edinburgh
Period: 12 May 2016 → 27 May 2016
Tine Hald (Visiting researcher)
National Food Institute

Research Group for Genomic Epidemiology
Activity: Visiting an external institution › Visiting another research institution

One Health International Summer Course 2016
Period: 9 May 2016 → 23 Aug 2016
Tine Hald (Organizer)
Maria Vang Johansen (Organizer)
Liza Rosenbaum Nielsen (Organizer)
Lars Erik Larsen (Organizer)
Anders Dalsgaard (Organizer)
National Food Institute
Research Group for Genomic Epidemiology
Description
One Health International Summer Course 2016
5-week elearning part + 1-week on campus part, a total of 5 ECTS
Degree of recognition: International

Related event
One Health International Summer Course 2016
09/05/2016 → 23/08/2016
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Hypersensitivity to gluten - facts or fiction?
Period: 2 May 2016
Charlotte Bernhard Madsen (Speaker)
National Food Institute
Research Group for Gut Microbiology and Immunology

Related external organisation
IDA Levnedsmiddeelskabet
Denmark
Activity: Talks and presentations › Conference presentations

Impact of Antimicrobial Usage in Food Production
Period: 27 Apr 2016
Tine Hald (Speaker)
National Food Institute
Research Group for Genomic Epidemiology

Description
Presentation given for the Food Forum
Degree of recognition: International

Related external organisation
The National Academies of Science, Engineering and Medicine
500 fifth street, Washington DC, United States
Activity: Talks and presentations › Conference presentations

Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Period: 25 Apr 2016 → 29 Apr 2016
Birgitte Helwigh (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Tallinn, Estonia
Degree of recognition: International

Related event
Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
**Challenges in developing dispersion procedures for nanoparticles in large scale scientific projects**

**Period:** 21 Apr 2016  
**Katrin Löschner (Speaker)**  
National Food Institute  
Research Group for Nano-Bio Science

**Description**

Abstract The aim of work package 2 “Sample preparation, dispersion & sampling methods” of the European project NanoDefine “Development of an integrated approach based on validated and standardized methods to support the implementation of the EC recommendation for a definition of nanomaterial” is to disperse nanoparticles in such a way that the resulting dispersions of nanoparticles from substances and products are stable and contain only or mainly primary constituent particles. The issue of dispersion is particularly important in the evaluation of nanoparticle size as many potential nanomaterials are found in the form of dried powders. In order to analyze these materials with the most commonly used particle sizing instruments, it is required to convert these powders into stable liquid dispersions. The dispersion procedure is a pivotal step in the process of making measurements of the particle size distribution, so it is necessary that such procedures are effective, efficient, reproducible, and with the final product having a particle size distribution which is as close as possible to the true distribution of primary particles. An overview on the developed dispersion protocols within the NanoDefine project will be given. In large-scale scientific projects where nanomaterials need to be investigated by a number of research groups with different scientific background it is necessary to assure that all preparation and subsequent characterization procedures are as harmonized and inter-calibrated as possible. A major challenge is the dispersion of nanomaterials from powders. For this purpose standard operation procedures (SOPs) have to be developed that are feasible in most laboratories. The most common equipment present in research laboratories for efficient dispersion of nanoparticles are probe sonicators. Typical characterization techniques are dynamic light scattering and centrifugal liquid sedimentation. It has been recognized that the acoustic energies and effective de-agglomeration effects delivered by different brands of probe sonicators, and even the same brands and models, are rarely fully comparable. Moreover, small differences in the procedures such as different operators, water qualities; operation temperatures etc. may also play a role on the results. Further, the characterization methods themselves can limit the comparability of the obtained size information. An SOP will be presented which includes a calorimetric method for initial calibration of the delivered acoustic energy by adjustment of the probe-sonicator amplitude and a subsequent procedure for calibrating the effective level and quality of the dispersions. This SOP was developed in collaboration between the EU projects NanoDefine and NANoREG and based on previous work in the EU project NanoSolutions.

**Related event**

**PARTEC 2016 : International Congress on Particle Technology**  
19/04/2016 → 21/04/2016  
Nuremberg, Germany  
Activity: Talks and presentations › Conference presentations

**10th EURL-AR Workshop 2016**  
**Period:** 14 Apr 2016 → 15 Apr 2016  
**Lina Cavaco (Organizer)**  
National Food Institute  
Research Group for Genomic Epidemiology

**Description**  
10th EURL-AMR workshop

**Related event**

**10th EURL-AR Workshop 2016**  
14/04/2016 → 15/04/2016  
Kgs Lyngby, Denmark  
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**10th EURL-AR Workshop 2016**  
**Period:** 14 Apr 2016 → 15 Apr 2016  
**Annette Nygaard Jensen (Participant)**
National Food Institute
Research Group for Microbial Food Safety

Related event

10th EU RL-AR Workshop 2016
14/04/2016 → 15/04/2016
Kgs Lyngby, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

European Union Reference Laboratory, Antimicrobial Resistance – Annual Workshop
Period: 14 Apr 2016 → 15 Apr 2016
Rene S. Hendriksen (Organizer)

National Food Institute
Research Group for Genomic Epidemiology

Description
European Union Reference Laboratory, Antimicrobial Resistance – Annual Workshop April 14-15, 2016, Kgs. Lyngby, Denmark

Related event

European Union Reference Laboratory, Antimicrobial Resistance – Annual Workshop
14/04/2016 → 15/04/2016
Kgs. Lyngby, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Predictive food microbiology
Period: 14 Apr 2016
Tina Beck Hansen (Guest lecturer)

National Food Institute
Research Group for Microbial Food Safety

Description
gæsteundervisning

Related organisation

Predictive food microbiology
Hansen, T. B. (Guest lecturer)
14 Apr 2016
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Strengths of the Nordic monitoring system
Period: 14 Apr 2016
Sisse Fagt (Invited speaker)

National Food Institute
Division of Risk Assessment and Nutrition

Related event

DEDIPAC Workshop Surveillance 14th/15th Apr 2016
14/04/2016 → 15/04/2016
Bremen, Germany
Activity: Talks and presentations › Conference presentations
Burden of foodborne diseases: an integrated food safety approach  
Period: 13 Apr 2016  
Sara Monteiro Pires (Speaker)  
National Food Institute  
Research Group for Risk-Benefit  

Description  
Overview of the Danish integrated food safety approach and of how it can be adapted to other countries  
Degree of recognition: National  

Related event  
3rd Annual Meeting Coimbra Health School  
07/04/2016 → 17/04/2016  
Coimbra, Portugal  
Activity: Talks and presentations › Conference presentations  

Predictive food microbiology – examples of how simple mathematical models can be used in assessment and management of food safety.  
Period: 13 Apr 2016  
Paw Dalgaard (Invited speaker)  
National Food Institute  

Description  
Paw Dalgaard (2016). Predictive food microbiology – examples of how simple mathematical models can be used in assessment and management of food safety. Invited presentation at 'Matematiske modeller og fødevarer', 13 April 2016, Roskilde University (30 participants).  

Related event  
Matematiske modeller og fødevarer: 28. RUC-modeldag  
13/04/2016 → 13/04/2016  
Roskilde, Denmark  
Activity: Talks and presentations › Conference presentations  

Microbial aspects of food preservation  
Period: 11 Apr 2016  
Tina Beck Hansen (Lecturer)  
National Food Institute  
Research Group for Microbial Food Safety  

Description  
gæsteundervisning  

Related organisation  
Microbial aspects of food preservation  
Hansen, T. B. (Lecturer)  
11 Apr 2016  
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities  

World Health Organization's estimates of the relative contributions of food to the burden of disease due to selected foodborne hazards: a structured expert elicitation  
Period: 11 Apr 2016  
Tine Hald (Speaker)  
National Food Institute  
Research Group for Genomic Epidemiology
Related event

Food Safety and Food Security Workshop: COST meeting, IS1304, Network on Structured Expert Elicitation
11/04/2016 → 13/04/2016
Dubrovnik, Croatia
Activity: Talks and presentations › Conference presentations

26th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID 2016)
Period: 9 Apr 2016 → 12 Apr 2016
Lina Cavaco (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
Poster presenter
ECCMID 2016

Related event

26th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID 2016)
09/04/2016 → 12/04/2016
Amsterdam, Netherlands
Activity: Attending an event › Participating in or organising a conference

Plasmids without frontiers: animal contribution to plasmid-mediated antimicrobial resistance problems in human medicine
Period: 9 Apr 2016
Valeria Bortolaia (Guest lecturer)
National Food Institute
Research Group for Genomic Epidemiology

Description
26th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Amsterdam, NL. 9-12 April 2016.
Plasmids without frontiers: animal contribution to plasmid-mediated antimicrobial resistance problems in human medicine

Related external organisation

Unknown external organisation
Activity: Talks and presentations › Conference presentations

Listeria er overalt men kan styres med en indsats
Period: 6 Apr 2016
Lisbeth Truelstrup Hansen (Invited speaker)
National Food Institute
Research Group for Analytical and Predictive Microbiology

Description
Inviteret indlæg på Workshoppen: Hygiejnisk design - Minimer udfordringerne
Biologi, forekomst af listeria, biofilmdannelse og udfordringer for hygiejnisk design

Related event

Hygiejnisk Design - Minimer udfordringerne: Teknisk seminar Center for Hygiejnisk Design
06/04/2016 → 06/04/2016
Lyngby, Denmark
Activity: Talks and presentations › Conference presentations
AMEG group for the update of the opinion in colistin (External organisation)
Period: 5 Apr 2016
Lina Cavaco (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
Body type: EMA

Related external organisation
AMEG group for the update of the opinion in colistin
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

Best practice on how to deal with non-response.
Period: 4 Apr 2016 → 5 Apr 2016
Anja Pia Biltoft-Jensen (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Workshop arranged by the NKMT-funded Nordic network for national dietary surveys.

Related event
Best practice on how to deal with non-response.: Challenges in national dietary surveys – recruitment and non-response.
04/04/2016 → 05/04/2016
Uppsala, Sweden
Activity: Talks and presentations › Conference presentations

Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Period: 4 Apr 2016 → 8 Apr 2016
Birgitte Helwigh (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Berlin, Germany
Degree of recognition: International

Related event
Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

WHO AGISAR Thematic Working Groups (TGW) Meetings
Period: 4 Apr 2016 → 6 Apr 2016
Rene S. Hendriksen (Organizer)
National Food Institute
Research Group for Genomic Epidemiology

Description
WHO AGISAR Thematic Working Groups (TGW) Meetings; Laboratory Methods and Antimicrobial Susceptibility Testing and Data Integration, Bangkok, Thailand 4-6 April 2016

Related event
WHO AGISAR Thematic Working Groups (TGW) Meetings: Laboratory Methods and Antimicrobial Susceptibility Testing and Data Integration
04/04/2016 → 06/04/2016
Bangkok, Thailand
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

WHO Global Workshop on Strengthening Integrated Surveillance of Foodborne Diseases and Antimicrobial Resistance through the Whole Genome Sequencing
Period: 4 Apr 2016 → 8 Apr 2016
Rene S. Hendriksen (Organizer)
National Food Institute
Research Group for Genomic Epidemiology
Description
Facilitator / speaker

Related event
WHO Global Workshop on Strengthening Integrated Surveillance of Foodborne Diseases and Antimicrobial Resistance through the Whole Genome Sequencing
04/04/2016 → 08/04/2016
Bangkok, Thailand
Activity: Attending an event › Participating in or organising a conference

Cost Action CA15118 - Mathematical and Computer Science Methods for Food Science and Industry (FoodMC) (External organisation)
Period: 1 Apr 2016 → 31 Mar 2020
Aberham Hailu Feyissa (Participant)
National Food Institute
Research Group for Food Production Engineering
Description
Management Committee Member
The agriculture and food processing sector (agri-food) is facing sustainability challenges of growing complexity, from consumer expectations to concerns over food security, right through to environmental regulations. In such a context, innovation is becoming a decisive factor of competitiveness for companies in this field. Methodologies and tools from Maths and Computer Science (MCS) are emerging as key contributors to modernization and optimization of processes in various disciplines: the agri-food sector, however, is not a traditional domain of application for MCS, and at the moment there is no community organized around solving the issues of this field.

This COST Action brings together scientists and practitioners from MCS and agri-food domains, stimulating the emergence of new research, and structuring a new community to coordinate further investigation efforts. Exploiting approaches originating at different sub-fields of MCS, from applied mathematical models to knowledge engineering, this COST Action will cover two main topics: understanding and controlling agri-food processes; and eco-design of agri-food products.

Management Committee
Degree of recognition: International
Links:
https://www6.inra.fr/foodmc/About-FoodMC/FoodMC-who-s-who
http://www.cost.eu/COST_Actions/ca/CA15118

Related external organisation
Cost Action CA15118 - Mathematical and Computer Science Methods for Food Science and Industry (FoodMC)
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

Owusu Amponsah
Start date: 1 Apr 2016 → 21 Jun 2016
Håkan Vigre (Host)
National Food Institute
Research Group for Genomic Epidemiology
Degree of recognition: International
Activity: Hosting a guest lecturer

Dansk kemi (Journal)
Period: Mar 2016
Peter Have Rasmussen (Reviewer)
National Food Institute
Research Group for Analytical Food Chemistry

Description
Leder i Dansk Kemi: Danmark som foregangsland. Nr. 3, 97 årgang, 2016 (marts)
Degree of recognition: National

Related journal

Dansk kemi
0011-6335
Central database
Activity: Communication › Journal editor

Fødevarekontaktmateriale og fødevaresikkerhed
Period: Mar 2016
Gitte Alsing Pedersen (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Foredrag ved Dansk Flexo Forums årsmøde i Kolding

Related event

Dansk Flexo Forum : Årsmøde
10/03/2016 → 10/03/2016
Kolding, Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Risk Communication in Policy on Emerging Risks- the English Experience
Period: Mar 2016
Johanne Ellis-Iversen (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: National

Related external organisation

University of Copenhagen
Thorvaldseensvej 40, DK-1871 Frederiksberg C, Copenhagen, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Society of Toxicology (SOT), Annual meeting, New Orleans 2016
Period: Mar 2016 → …
Marta Axelstad Petersen (Organizer)
National Food Institute
Research Group for Molecular and Reproductive Toxicology

Description
1st author of one poster and 2nd author on another poster

Related event

Society of Toxicology (SOT), Annual meeting, New Orleans 2016
13/03/2016 → 17/03/2016
Activity: Attending an event › Participating in or organising a conference

TEACH FOOD seminars
Period: Mar 2016 → …
Lene Duedahl-Olesen (Organizer)
Lars Bøge Jensen (Organizer)
Håkan Vigre (Organizer)
National Food Institute
Research Group for Analytical Food Chemistry
Research Group for Microbial Food Safety
Research Group for Genomic Epidemiology

Description
Workshops on Teaching and Learning for teachers every March and September at DTU FOOD
Degree of recognition: Local

Related event

TEACH FOOD seminars: biannual workshops on Teaching and Learning
18/03/2016 → …
Lyngby, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Annual Meeting of the Dutch Society for Microbiology
Period: 22 Mar 2016
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
Annual Meeting of the Dutch Society for Microbiology,

Related event

Annual Meeting of the Dutch Society for Microbiology
22/03/2016 → 22/03/2016
Arnhem, Netherlands
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Molecular tools for surveillance of antimicrobial resistance
Period: 22 Mar 2016
Rene S. Hendriksen (Invited speaker)
National Food Institute
Research Group for Genomic Epidemiology

Description
Related event

Annual Meeting of the Dutch Society for Microbiology
22/03/2016 → 22/03/2016
Arnhem, Netherlands
Activity: Talks and presentations › Conference presentations

On the pathogenesis of infections associated with percutaneous orthopaedic implants (External organisation)
Period: 22 Mar 2016
Lina Cavaco (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
Half-time PhD seminar Magdalena Zaborowska. Biomatcell Center for Biomaterials Department of Biomaterials, Institute of Clinical Sciences, Sahlgrenska Academy at University of Gothenburg

Comitee for evaluation of Half time seminar, review of report and publications and participation in public defense. the half-time seminar does not just fill the function of control station for the project's advancement, but is also a PhD course that gives 5 HECs. This somewhat influences the task of the evaluation committee.
Degree of recognition: International

Related external organisation

On the pathogenesis of infections associated with percutaneous orthopaedic implants
Activity: Membership › Membership in review committee

Kostvænder i Danmark
Period: 16 Mar 2016
Sisse Fagt (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition

Related external organisation

Professionshøjskolen Metropol
Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Food allergy focussing on plants
Period: 15 Mar 2016
Charlotte Bernhard Madsen (Speaker)
National Food Institute
Research Group for Gut Microbiology and Immunology

Related external organisation

Teknologisk Institut
Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Thresholds for allergens in food
Period: 15 Mar 2016
Charlotte Bernhard Madsen (Speaker)
National Food Institute
Research Group for Gut Microbiology and Immunology

**Related external organisation**

Teknologisk Institut
Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

**Trace back and trace forward in foodborne outbreak investigations**

**Period:** 15 Mar 2016
Tine Hald (Lecturer)
National Food Institute
Research Group for Genomic Epidemiology
Degree of recognition: International

**Related event**

SVEPM: Annual meeting 2016: Held a workshop on outbreak investigation
15/03/2016 → 18/03/2016
Elsinore, Denmark
Activity: Talks and presentations › Conference presentations

**Training Course 8 on microbiological criteria (Event 2466): Presentation and workshop: Using microbiological criteria in HACCP**

**Period:** 13 Mar 2016 → 15 Mar 2016
Tina Beck Hansen (Lecturer)
National Food Institute
Division of Food Microbiology

**Description**
Brush-up in HACCP, incl. one case problem of identifying CCPs and ideas for using microbiological criteria in monitoring, validation and verification in HACCP

Tutor

**Related external organisation**

BTSF Initiative
Riga, Latvia
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

**Examples of use of Agilent 8800 ICP-QQQ in food research - speciation analysis and nanoparticle characterisation**

**Period:** 11 Mar 2016
Jens Jørgen Sloth (Invited speaker)
National Food Institute
Research Group for Nano-Bio Science

**Related event**

Agilent Nordic Scientific Forum
10/03/2016 → 11/03/2016
Gothenburg, Sweden
Activity: Talks and presentations › Conference presentations

**NANODEFINE Exploitation Strategy Seminar**

Period: 9 Mar 2016
Katrin Löschner (Participant)
National Food Institute
Research Group for Nano-Bio Science

**Related event**

**NANODEFINE Exploitation Strategy Seminar**
09/03/2016 → …
Ispra, Italy
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**H2020 COMPARE General Meeting,**
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

**Description**
H2020 COMPARE General Meeting,

**Related event**

**H2020 COMPARE General Meeting,**
08/03/2016 → 10/03/2016
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**UDTU Teaching and Learning, Module 1**
Gitte Ravn-Haren (Participant)
National Food Institute
Research Group for Risk-Benefit
Degree of recognition: National

**Related event**

**UDTU Teaching and Learning, Module 1**
08/03/2016 → 11/03/2016
Kgs. Lyngby, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Gram negatives; Enterobacteriaceae and other -Proteobacteriaceae**
Period: 4 Mar 2016
Rene S. Hendriksen (Lecturer)
National Food Institute
Research Group for Genomic Epidemiology

**Description**
DTU course 23258; General Medical Microbiology.

**Related external organisation**

**Unknown external organisation**
Activity: Talks and presentations › Conference presentations

**Quality Risk Management, food safety & HACCP**
Period: 3 Mar 2016
Tina Beck Hansen (Lecturer)
National Food Institute
Research Group for Microbial Food Safety

Description
gæsteundervisning

Related event

Course 28855 GMP and quality in pharmaceutical, biotech and food industry F16
04/02/2016 → 12/05/2016
Kgs. Lyngby, Denmark
Activity: Other

ESVAC annual stakeholders meeting
Period: 2 Mar 2016
Lina Cavaco (Participant)

National Food Institute
Research Group for Genomic Epidemiology

Description
ESVAC annual stakeholders meeting

Related event

ESVAC annual stakeholders meeting
02/03/2016 → 02/03/2016
London, United Kingdom
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

ESVAC annual network meeting
Period: 1 Mar 2016 → 2 Mar 2016
Lina Cavaco (Participant)

National Food Institute
Research Group for Genomic Epidemiology

Description
ESVAC annual network meeting, European Medicines Agency, Lina Cavaco participated as EURL-AR representative

Related event

ESVAC annual network meeting
01/03/2016 → 02/03/2016
London, United Kingdom
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Birgitte Helwigh (Organizer)

National Food Institute
Division of Risk Assessment and Nutrition

Description
Lisbon, Portugal
Degree of recognition: International

Related event

Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
**Dietary studies - methods and design**
Period: 29 Feb 2016  
Sisse Fagt (Speaker)  
National Food Institute  
Division of Risk Assessment and Nutrition

**Related organisation**

**Dietary studies - methods and design**  
Fagt, S. (Speaker)  
29 Feb 2016

Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

**Køds rolle i kosten**
Period: 29 Feb 2016  
Anja Pia Biltoft-Jensen (Speaker)  
National Food Institute  
Division of Risk Assessment and Nutrition

**Description**
Præsentation af projektresultater i Landbrug & Fødevare 29. Februar 2016

**Related external organisation**

**Landbrug og Fødevarer**  
Axelborg, Axeltorv 3, 1609, København V, Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

**Antimicrobials advice ad-hoc Group (AMEG), European Medicines Agency (External organisation)**
Period: 26 Feb 2016 →  Jun 2016  
Lina Cavaco (Participant)  
National Food Institute  
Research Group for Genomic Epidemiology

**Description**
The AMEG is composed of representatives and experts from the EMA’s Committee for Medicinal Products for Veterinary Use (CVMP) and Committee for Medicinal Products for Human Use (CHMP) as well as the CVMP Antimicrobials Working Party and the CHMP Infectious Diseases Working Party, from the European Food Safety AuthorityExternal link icon (EFSA), the European Centre for Disease Prevention and ControlExternal link icon (ECDC) and the Joint Interagency Antimicrobial Consumption and Resistance Analysis Report (JIACRA). Lina Cavaco is participating as EURL-AR representative

work group reconvened based on follow up on the finding of plasmid mediated colistin resistance

**Related external organisation**

**Antimicrobials advice ad-hoc Group (AMEG), European Medicines Agency**
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

**Indtag af vitaminer og mineraler: Kost og kosttilskud.**
Period: 25 Feb 2016  
Anja Pia Biltoft-Jensen (Speaker)  
National Food Institute  
Division of Risk Assessment and Nutrition
**Description**
Præsentation af projektresultater for kosttilskudsproducenter den 25/2 2016.

**Related organisation**

**Indtag af vitaminer og mineraler: Kost og kosttilskud.**
Biltoft-Jensen, A. P. (Speaker)
25 Feb 2016
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

**Risikovurdering af ferske animalske råvarer ved hjælp af PCR**
Period: 24 Feb 2016
Martin Iain Bahl (Invited speaker)
National Food Institute
Research Group for Gut Microbiology and Immunology
Degree of recognition: National

**Related event**

**Fodcentralkursus**
24/02/2016 → 25/02/2016
Grenå, Denmark
Activity: Talks and presentations › Conference presentations

Period: 17 Feb 2016
Paw Dalgaard (Invited speaker)
National Food Institute
Research Group for Microbial Food Safety and Quality

**Description**

**Related event**

**Onsdagsklubbens møde nr. 373. 17. februar 2016, Det Natur- og Biovidenskabelige Fakultet på Københavns Universitet, Frederiksberg**
17/02/2016 → 17/02/2016
Frederiksberg, Denmark
Activity: Talks and presentations › Conference presentations

**Training Course 7 on microbiological criteria (Event 2465): Presentation and workshop: Using microbiological criteria in HACCP**
Period: 15 Feb 2016 → 17 Feb 2016
Tina Beck Hansen (Lecturer)
National Food Institute
Division of Food Microbiology

**Description**
Brush-up in HACCP, incl. one case problem of identifying CCPs and ideas for using microbiological criteria in monitoring, validation and verification in HACCP

**Tutor**

**Related external organisation**

**BTSF Initiative**
Barcelona, Spain
Food Spoilage and Safety Predictor (FSSP) software – background and applications. Invited presentation at BfR in Germany
Period: 9 Feb 2016
Paw Dalgaard (Invited speaker)
National Food Institute
Research Group for Microbial Food Safety and Quality

Description

Related event
HoA workshop: Tools supporting food chain safety assessment
08/02/2016 → 09/02/2016
Berlin, Germany
Activity: Talks and presentations › Conference presentations

HACCP – Hazard Analysis & Critical Control Points
Period: 4 Feb 2016
Tina Beck Hansen (Guest lecturer)
National Food Institute
Research Group for Microbial Food Safety

Description
gæsteundervisning

Related organisation
HACCP – Hazard Analysis & Critical Control Points
Hansen, T. B. (Guest lecturer)
4 Feb 2016
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Estimating the burden of foodborne diseases
Period: 3 Feb 2016
Sara Monteiro Pires (Speaker)
National Food Institute
Research Group for Risk-Benefit

Description
Overview of the National Food Institute's integrated approach to estimate the burden of foodborne diseases caused by microbiological and chemical hazards.
Degree of recognition: International

Related organisation
Estimating the burden of foodborne diseases
Pires, S. M. (Speaker)
3 Feb 2016
Activity: Talks and presentations › Conference presentations

2nd NanoDefine "NSC Synergy Workshop"
Period: 2 Feb 2016
Katrin Löschner (Participant)
Related event

2nd NanoDefine "NSC Synergy Workshop": Exchange of experience, expertise, materials and protocols, alignment of tasks to avoid overlaps and use synergies
02/02/2016 → …
Brussels, Belgium
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Period: 1 Feb 2016 → 5 Feb 2016
Birgitte Helwigh (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Berlin, Germany
Degree of recognition: International

Related event

Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Molekylære- og sekventeringsmetoder i fødevaresikkerhed.
Period: 1 Feb 2016 → 27 Jun 2016
Julia Christensen (Participant)
Research Group for Diagnostic Engineering
Division of Food Microbiology
National Food Institute
Division of Risk Assessment and Nutrition

Related event

Molekylære- og sekventeringsmetoder i fødevaresikkerhed.
01/02/2016 → 27/06/2016
København
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

8th Annual Meeting of Danish Society of Pharmacology
Period: Jan 2016
Marta Axelstad Petersen (Guest lecturer)
National Food Institute
Research Group for Molecular and Reproductive Toxicology

Description
Invited speaker at the symposium "Challenges in modern toxicology". The meeting was an honorary symposium for Philippe Grandjean (at SDU, Odense) and I gave the talk: "Dealing with mixed exposures"
Antimicrobial Resistance in Bacteria from Livestock and Companion Animals (Journal)
Period: Jan 2016 → Mar 2017
Lina Cavaco (Editor)
National Food Institute
Research Group for Genomic Epidemiology

Description
Book to be published by ASM press and to be edited by Frank Aarestrup, Stefan Schwarz, Jianzhong Shen and Lina Cavaco

Related journal
Antimicrobial Resistance in Bacteria from Livestock and Companion Animals
Local database
Activity: Research › Editor of unfinished research anthology/collection

EFSA ENGAGE
Period: 29 Jan 2016
Rene S. Hendriksen (Organizer)
National Food Institute
Research Group for Genomic Epidemiology

Description
Speaker
EFSA ENGAGE kick off meeting

Related event
EFSA ENGAGE
29/01/2016 → 29/01/2016
Parma, Italy
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Helgenom analyser i mikrobiologisk diagnostik
Period: 27 Jan 2016 → 1 Jun 2016
Julia Christensen (Participant)
Research Group for Diagnostic Engineering
Division of Food Microbiology
National Food Institute
Division of Risk Assessment and Nutrition

Related event
Helgenom analyser i mikrobiologisk diagnostik
27/01/2016 → 01/06/2016
København
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Specialiseringskursus Listeria: Vækst- og overlevelsesbetingelser - varmetolerance
Period: 27 Jan 2016
Tina Beck Hansen (Lecturer)
Research Group for Microbial Food Safety and Quality
National Food Institute

Documents:
Varmetolerance_250116

Related external organisation

Fødevarestyrelsen
Glostrup, Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Vækstbetingelser og prædiktive modeller – anvendelse til vurdering og dokumentation af fødevaresikkerhed
Period: 27 Jan 2016
Paw Dalgaard (Invited speaker)

National Food Institute
Research Group for Microbial Food Safety and Quality

Description

Related event

Specialiseringskursus Listeria - Specialiserings-og aktualitetskursus for erfarne tilsynsførende i Fødevarestyrelsen
25/01/2016 → 27/02/2016
Glostrup, Denmark
Activity: Talks and presentations › Conference presentations

Colloquium "Statistical Methods in Empiric Research"
Period: 26 Jan 2016
Ana Sofia Ribeiro Duarte (Invited speaker)

National Food Institute
Research Group for Genomic Epidemiology

Description
A new method to fit a distribution to microbial counts: making sense of zeroes
Degree of recognition: International

Related external organisation

Bundesinstitut für Risikobewertung
Berlin, Germany
Activity: Talks and presentations › Conference presentations

Biofilm i fødevareproduktionen – med fokus på overlevelse af Listeria monocytogenes
Period: 25 Jan 2016
Lisbeth Truelstrup Hansen (Invited speaker)

National Food Institute
Research Group for Analytical and Predictive Microbiology

Description

Biofilm i fødevarevirksomheder, listeria biofilm, effekt på rengøring og strategier til at modvirke biofilmudannelse

Related external organisation

Unknown external organisation
**Listeria monocytogenes – rundt om patogenet**

Period: 25 Jan 2016

Lisbeth Truelstrup Hansen (Invited speaker)

National Food Institute

Research Group for Analytical and Predictive Microbiology

**Description**

Invited Presentation at 'Specialiseringskursus Listeria - Specialiserings-og aktualitetskursus for erfarne tilsynsførende i Fødevarestyrelsen', 25-27 January 2016, Glostrup, Denmark (35 participants).

Bakteriens biologi, virulens, forekomst og vækstgrænser.

**Related external organisation**

Unknown external organisation

**Project management for researchers at DTU**

Period: 25 Jan 2016 → 18 May 2016

Lina Cavaco (Participant)

National Food Institute

Research Group for Genomic Epidemiology

**Description**

Project management course for researchers at DTU

**Related event**

**Project management for researchers at DTU**

25/01/2016 → 18/05/2016

Lyngby, Denmark

Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Predictive Food Microbiology**

Period: 22 Jan 2016

Tina Beck Hansen (Internal examiner)
National Food Institute
Division of Food Microbiology

**Description**
Intern bedømmelse af 4 rapporter samt bedømmelse af projektpresentation og 2 eksamensspørgsmål for 20 studerende.

Activity: Examinations and supervision › Internal examination

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**The Global Burden of Foodborne Disease**

Period: 20 Jan 2016
Tine Hald (Speaker)

National Food Institute
Research Group for Genomic Epidemiology

Degree of recognition: Local

**Related event**

**Internal meeting for FVST staff**
20/01/2016 → 20/01/2016
Glostrup, Denmark

Activity: Talks and presentations › Conference presentations

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**Kompetence projekt for rådgivere ved fødevareinstituttet**

Period: 19 Jan 2016 → 20 Jan 2017
Anne Dahl Lassen (Participant)

National Food Institute
Division of Risk Assessment and Nutrition

Degree of recognition: National

**Related event**

**Kompetence projekt for rådgivere ved fødevareinstituttet**
01/11/2016 → 27/03/2017
Denmark

Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

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**Training Course 6 on microbiological criteria (Event 2464): Presentation and workshop: Using microbiological criteria in HACCP**

Period: 18 Jan 2016 → 19 Jan 2016
Tina Beck Hansen (Lecturer)

National Food Institute
Division of Food Microbiology

**Description**
Brush-up in HACCP, incl. one case problem of identifying CCPs and ideas for using microbiological criteria in monitoring, validation and verification in HACCP

Tutor

**Related external organisation**

**BTSF Initiative**
Rome, Italy

Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

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**Rådet for Bedre HygiejneTemadag - Hygiejne & Innovation: Introduction to the Seminar on Design & Architecture**

Period: 12 Jan 2016
Gun Linnea Wirtanen (Lecturer)
National Food Institute
Research Group for Microbial Food Safety and Quality

Description
Presentation "Introduction to the Seminar on Design & Architecture" with discussion (led by the presenter)

Documents:
Programme
Rådet for Bedre Hygiejne - Seminar Presentation-160112

Related external organisation
Unknown external organisation
Activity: Talks and presentations › Conference presentations

DEVELOPMENT OF MEAT PRODUCTS FORTIFIED WITH OMEGA-3 RICH OIL OBTAINED FROM FISH BYPRODUCTS BY SUPERCRITICAL CARBON DIOXIDE EXTRACTION (External organisation)
Period: 2 Jan 2016 → 11 Jan 2016
Ann-Dorit Moltke Sørensen (External examiner)

National Food Institute
Research Group for Bioactives – Analysis and Application

Description
DEVELOPMENT OF MEAT PRODUCTS FORTIFIED WITH OMEGA-3 RICH OIL OBTAINED FROM FISH BYPRODUCTS BY SUPERCRITICAL CARBON DIOXIDE EXTRACTION (External organisation)

Written evaluation of the PhD thesis before PhD defence

Written evaluation of the PhD thesis before PhD defence
Degree of recognition: International
Activity: Examinations and supervision › External examination

Case by case - salmonella og campylobacter i DK og importeret kød
Period: 1 Jan 2016 → …
Julia Christensen (Advisor)

National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: National

Related organisation
Case by case - salmonella og campylobacter i DK og importeret kød
Christensen, J. (Advisor)
1 Jan 2016 → …
Activity: Public and private sector consultancy › Consultancy

26th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID) (Event)
Period: 2015 → …
Valeria Bortolaia (Member)

National Food Institute
Research Group for Genomic Epidemiology

Description
Reviewer of conference abstracts

Related event
26th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID)
09/04/2016 → 12/04/2016
Acute postprandial effect of Nordic and Asian seaweed on subjective appetite sensation, appetite regulating hormone GLP-1, gastric emptying and ad libitum energy intake
Period: 2015
Gitte Ravn-Haren (External examiner)
National Food Institute
Description
Master's Thesis
Degree of recognition: Local
Activity: Examinations and supervision » Supervisor activities

Antimicrobial resistance and susceptibility testing, definitions and methods
Period: 2015 → 2017
Lina Cavaco (Lecturer)
National Food Institute
Division of Epidemiology and Microbial Genomics
Research Group for Genomic Epidemiology
Description
Coursera e-learning platform "Antimicrobial resistance and susceptibility testing, definitions and methods"
Related event
Antimicrobial resistance and susceptibility testing, definitions and methods
23/04/2015 → …
Denmark
Activity: Talks and presentations » Guest lectures, external teaching and course activities at other universities

"Common genetic variation in CYP2R1 and GC predicts vitamin D status in late summer, after food-fortification and after UVB irradiation in the Danish population".
Period: 2015
Ioanna Nissen (Lecturer)
National Food Institute
Research Group for Risk-Benefit
Description
Yearly meeting at the Danish Nutrition Society, Copenhagen, Denmark
Related external organisation
Unknown external organisation
Activity: Talks and presentations » Conference presentations

Compound evaluations
Period: 2015 → 2017
Camilla Taxvig (Consultant)
National Food Institute
Research Group for Molecular and Reproductive Toxicology
Description
Assists the regulatory authorities in compound-evaluations used in communication with industry regarding the regulatory approval of different chemicals.
Degree of recognition: International

Related external organisation
The Danish Environmental Agency
Denmark
Activity: Public and private sector consultancy › Consultancy

COST ACTION FA1406 within Food and Agriculture (External organisation)
Period: 2015 → …
Susan Løvstad Holdt (Chairman)
National Food Institute
Research Group for Bioactives – Analysis and Application
Description
Management Committee member assigned by the COST /the COST National Coordinators (usually Ministry). More specifically for the COST ACTION FA1406 within Food and Agriculture COST Action: Advancing knowledge on seaweed growth and development
Degree of recognition: International

Related external organisation
COST ACTION FA1406 within Food and Agriculture
Activity: Membership › Membership in review committee

Danish complaints board of Nature and Environment (External organisation)
Period: 2015 → …
Susan Løvstad Holdt (Chairman)
National Food Institute
Research Group for Bioactives – Analysis and Application
Description
Appointed member of the Danish complaints board of Nature and Environment
Degree of recognition: National

Related external organisation
Danish complaints board of Nature and Environment
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

EFSA Advisory Forum (Event)
Period: 2015 → …
Flemming Bager (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: International

Related event
EFSA Advisory Forum
01/03/2015 → …
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

European Commission- European Research Area (External organisation)
Period: 2015 → 2016
Johanne Ellis-Iversen (Member)
Division of Risk Assessment and Nutrition
Description
ERA-net Expert
Degree of recognition: International

Related external organisation

European Commission- European Research Area
Activity: Membership › Membership of research networks or expert groups

European Society for Clinical Microbiology and Infectious Diseases (ECCMID) (Event)
Period: 2015 → …
Valeria Bortolaia (Member)
National Food Institute
Research Group for Genomic Epidemiology
Description
Reviewer of grant proposals

Related event

European Society for Clinical Microbiology and Infectious Diseases (ECCMID)
31/10/2015 → 30/11/2015
Activity: Membership › Membership in review committee

Farmers' decision making process in disease control
Period: 2015 → …
Johanne Ellis-Iversen (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Description
International Summer school
Degree of recognition: International

Related external organisation

University of Copenhagen
Thorvaldsensvej 40, DK-1871 Frederiksberg C, Copenhagen, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Journal of Food Engineering (Journal)
Period: 2015 → …
Aberham Hailu Feyissa (Reviewer)
National Food Institute
Research Group for Food Production Engineering
Related journal

Journal of Food Engineering
0260-8774
Central database
Activity: Research › Peer review of manuscripts

Lipid malabsorption among gastric bypass patients – focusing on vitamin A and carotenoids
Period: 2015
Gitte Ravn-Haren (External examiner)
National Food Institute
Research Group for Risk-Benefit

**Description**
Bachelor project
Degree of recognition: Local
Activity: Examinations and supervision › Supervisor activities

**Lipid Oxidation and Antioxidant Division under EuroFedLipid (External organisation)**
Period: 2015 → …
Charlotte Jacobsen (Chairman)

National Food Institute
Research Group for Bioactives – Analysis and Application

**Description**
Co-chairman

**Related external organisation**

**Lipid Oxidation and Antioxidant Division under EuroFedLipid**
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

**Microbial Risk Analysis (Journal)**
Period: 2015 → 2019
Maarten Nauta (Editor)

National Food Institute
Research Group for Risk-Benefit

**Description**
Associate Editor since 2015
Links:
http://www.journals.elsevier.com/microbial-risk-analysis/

**Related journal**

**Microbial Risk Analysis**
2352-3522
Local database
Activity: Research › Journal editor

**Modelling of horizontal transfer of extended-spectrum beta-lactamases (ESBLs) in the gut microbiota**
Period: 2015 → …
Valeria Bortolaia (Supervisor)

National Food Institute
Research Group for Genomic Epidemiology

**Description**
Co-supervisor of PhD student Mehreen Anjum, University of Copenhagen, Denmark
Degree of recognition: International
Activity: Examinations and supervision › Supervisor activities

**National Food Institute (Organisational unit)**
Period: 2015 → …
Susan Løvstad Holdt (Chairman)
National Food Institute
Research Group for Bioactives – Analysis and Application

**Description**
WiES: Committee member of the network at DTU: Women in Engineering Science
Degree of recognition: Local

**Related organisation**
National Food Institute (Organisational unit)
Holdt, S. L. (Chairman)
2015 → …
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

Scandinavian Culture Collection of Algae and Protozoa (SCCAP) (External organisation)
Period: 2015 → 2016
Susan Løvstad Holdt (Chairman)

National Food Institute
Research Group for Bioactives – Analysis and Application

**Description**
Member of the board of directors for the Scandinavian Culture Collection of Algae and Protozoa (SCCAP). Now closed-moved to Norway
Degree of recognition: National

**Related external organisation**
Scandinavian Culture Collection of Algae and Protozoa (SCCAP)
Activity: Membership › Board duties in companies, associations, or public organisations

Scientific committee for 9th International Conference on Predictive Modelling in Food (External organisation)
Period: 2015 → …
Paw Dalgaard (Participant)

National Food Institute
Research Group for Microbial Food Safety and Quality

**Description**
8-12 September 2015, Rio de Janeiro, Brazil
Degree of recognition: International

**Related external organisation**
Scientific committee for 9th International Conference on Predictive Modelling in Food
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

The effect of advanced glycation end products on type 2 diabetes mellitus etiology and diabetic nephropathy
Period: 2015
Gitte Ravn-Haren (External examiner)

National Food Institute
Research Group for Risk-Benefit

**Description**
Bachelor project
Degree of recognition: Local
Activity: Examinations and supervision › Supervisor activities

Source Attribution Estimates of the Relative Contributions to the Burden of Disease due to selected Foodborne Hazards: a WHO Expert Elicitation
Period: 15 Dec 2015 → 16 Dec 2015
Tine Hald (Speaker)
National Food Institute
Research Group for Genomic Epidemiology

Description
FERG symposium, held in Amsterdam
Degree of recognition: International
Documents:
FERGsymposiumabstractbook

Related external organisation
World Health organization and RIVM (National Institute for Public Health)
Royal Netherlands Academy of Arts and Sciences, Amsterdam, Netherlands
Activity: Talks and presentations › Conference presentations

Bageriteknologikursus - Specialisering 2015: Bakteriologisk fødevaresikkerhed i bagerier
Period: 10 Dec 2015
Tina Beck Hansen (Lecturer)
Division of Food Microbiology
National Food Institute

Description
Undervisning af tilsynsførende i bakteriologisk fødevaresikkerhed i bagerier.
Documents:
Glostrup_slides_101215

Related external organisation
Fødevarestyrelsen
Glostrup, Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Risk Benefit: What's Next?
Period: 9 Dec 2015
Maarten Nauta (Speaker)
National Food Institute
Research Group for Risk-Benefit

Description
Lecture in Risk Benefit symposium
Links:

Related event
Society for Risk Analysis Annual meeting
06/12/2015 → 09/12/2015
Arlington, United States
Activity: Talks and presentations › Conference presentations

Zoonosesstormøde
Period: 9 Dec 2015
Julia Christensen (Participant)
Division of Food Microbiology
Division of Food Production Engineering
Factors affecting survival of Listeria monocytogenes in food processing environments
Period: 8 Dec 2015
Lisbeth Truelstrup Hansen (Invited speaker)
National Food Institute
Research Group for Diagnostic Engineering

Food Safety and Hygiene, VetSuisse, Uni. Zurich: Departmental Seminar
08/12/2015 → 08/12/2015
Zurich, Switzerland
Activity: Talks and presentations › Conference presentations

Dietary studies - methods and design
Period: 7 Dec 2015
Sisse Fagt (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Description
Internal presentation for the exposure group

Eläinlääkäripäivät 2015: Elintarvike- ja ympäristöhygienia
Period: 4 Dec 2015
Gun Linnea Wirtanen (Lecturer)
National Food Institute
Research Group for Microbial Food Safety and Quality
Description
2 Presentations - Surface microbiology and Hygienic equipment design
Documents:
CV-GunWirtanen-Eläinlääkäripäivät2015

Related external organisation
Unknown external organisation
Activity: Talks and presentations › Conference presentations
Predictive food microbiology
Period: 4 Dec 2015
Tina Beck Hansen (Guest lecturer)
National Food Institute
Research Group for Microbial Food Safety

Description
Forelæsning og øvelser om prædiktiv mikrobiologi for veterinærstuderende (2 timer)

Gæsteforelæs
Documents:
predictive_micro_041215_Tina Beck

Related external organisation

University of Copenhagen
Thorvaldsensvej 40, DK-1871 Frederiksberg C, Copenhagen, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Head of assessment committee
Period: 3 Dec 2015
Håkan Vigre (Internal examiner)
National Food Institute
Research Group for Genomic Epidemiology
Degree of recognition: International
Activity: Examinations and supervision › Internal examination

Predictive microbiology applicable to fishery products Invited presentation at Better Training for Safer Food (BTSF) workshop on fishery products. 1-3 December 2015, FVO, Grange, Ireland.
Period: 1 Dec 2015
Paw Dalgaard (Invited speaker)
National Food Institute
Research Group for Microbial Food Safety and Quality

Description
Paw Dalgaard (2015). Predictive microbiology applicable to fishery products
Invited presentation at Better Training for Safer Food (BTSF) workshop on fishery products. 1-3 December 2015, FVO, Grange, Ireland (XX participants).

Related event

Better Training for Safer Food (BTSF) workshop on fishery products. 1-3 December 2015, FVO, Grange, Ireland
01/12/2015 → 03/12/2015
Grange, Ireland, Ireland
Activity: Talks and presentations › Conference presentations

Twinning project with FVST concerning surveillance in Serbia
Period: 1 Dec 2015
Birgitte Helwigh (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Presentation of the Danish/Dutch project
Degree of recognition: International

Related event
Twinning project with FVST concerning surveillance in Serbia
03/11/2015 → 02/12/2015
Beograd, Serbia
Activity: Talks and presentations › Conference presentations

Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Period: 30 Nov 2015 → 4 Dec 2015
Birgitte Helwigh (Organizer)
Birgitte Borck Høg (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Rome, Italy
Degree of recognition: International

Related event
Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Markedsudvikling af velsmagende, sunde og bæredygtige måltider på spisesteder (SpisVel) – De vigtigste læringer. Når vækst og bæredygtighed går hånd i hånd. Fejring af afsluttede projekter og læring heraf.
Period: 25 Nov 2015
Anne Dahl Lassen (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: National

Related external organisation
Danish Agricultural Council
Denmark
Activity: Talks and presentations › Conference presentations

Nordic Zoonsis Centre Meeting
Lone Jannok Porsbo (Organizer)
National Food Institute
Division of Epidemiology and Microbial Genomics
Degree of recognition: International

Related event
Nordic Zoonsis Centre Meeting
24/11/2015 → 25/11/2015
Lyngby, Denmark
Activity: Attending an event › Participating in or organising a conference

Nordic Zoonsis Centre Meeting
Helle Bisgaard Korsgaard (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Related event

Nordic Zoonsis Centre Meeting
Lyngby, Denmark
Activity: Talks and presentations › Conference presentations

Birgitte Helwigh (Speaker)
Birgitte Borck Heg (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: International

Related event

Nordic Zoonsis Centre Meeting
Lyngby, Denmark
Activity: Talks and presentations › Conference presentations

-Steering committee of PhD student Clémentine Henri
Period: 24 Nov 2015
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology
Description
Steering committee of PhD student Clémentine Henri

Related event

-Steering committee of PhD student Clémentine Henri
Period: 24/11/2015 → 24/11/2015
Paris, France
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Training Course 5 on microbiological criteria (Event 2463): Presentation and workshop: Using microbiological criteria in HACCP
Period: 22 Nov 2015 → 24 Nov 2015
Tina Beck Hansen (Lecturer)
National Food Institute
Division of Food Microbiology
Description
Brush-up in HACCP, incl. one case problem of identifying CCPs and ideas for using microbiological criteria in monitoring, validation and verification in HACCP
Tutor

Related external organisation

BTSF Initiative
Rome, Italy
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities
Acid hydrolysed gluten induces high avidity antibodies to gluten: A study in gluten tolerant Brown Norway rats
Period: 19 Nov 2015
Charlotte Bernhard Madsen (Speaker)
National Food Institute
Research Group for Gut Microbiology and Immunology

Related external organisation

IMPARAS Cost action project
Activity: Talks and presentations › Conference presentations

Acrylamid i fødevarer- og hvordan det kan reduceres?
Period: 18 Nov 2015
Kit Granby (Lecturer)
National Food Institute
Research Group for Analytical Food Chemistry

Description
Kit Granby indlæg ved Levnedsmiddelselskabets møde om Akrylamid i maden – hvordan kan indholdet reduceres
Onsdag 18. november 2015, kl. 13 - 16 i Ingeniørhuset, Kalvebod Brygge 31 - 33, København

Related external organisation

Unknown external organisation
Activity: Talks and presentations › Conference presentations

DANMAP-seminar i anledning af Europæisk Antibiotikadag 2015
Period: 18 Nov 2015
Annette Nygaard Jensen (Participant)
National Food Institute
Research Group for Microbial Food Safety and Quality

Description
Presentation of DANMAP 2014

DANMAP-seminar

Related event

DANMAP-seminar i anledning af Europæisk Antibiotikadag 2015
18/11/2015 → 18/11/2015
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

DANMAP-seminar i anledning af Europæisk Antibiotikadag 2015
Period: 18 Nov 2015
Helle Bisgaard Korsgaard (Participant)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Annual DANMAP seminar - presenting results of the national monitoring of AMR and use of antimicrobial agents to animals

Related event
DANMAP-seminar i anledning af Europæisk Antibiotikadag 2015
18/11/2015 → 18/11/2015
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Fiskens mikrobiologi - vurdering og styring af mikrobiologisk forderv. Indlæg ved Fiskekursus - Specialisering 2015 arrangeret af Fødevarestyrelsen
Period: 18 Nov 2015
Paw Dalgaard (Lecturer)
National Food Institute
Research Group for Microbial Food Safety and Quality

Description
Indlæg ved Fiskekursus - Specialisering 2015 arrangeret af Fødevarestyrelsen

Related event
Fiskekursus. Specialisering 2015
17/11/2015 → 19/11/2015
Glostrup, Denmark
Activity: Talks and presentations › Conference presentations

Histamin i fiskevarer. Indlæg ved Fiskekursus - Specialisering 2015 arrangeret af Fødevarestyrelsen
Period: 18 Nov 2015
Paw Dalgaard (Lecturer)
National Food Institute
Research Group for Microbial Food Safety and Quality

Description
Indlæg ved Fiskekursus arrangeret af Fødevarestyrelsen

Related event
Fiskekursus. Specialisering 2015
17/11/2015 → 19/11/2015
Glostrup, Denmark
Activity: Talks and presentations › Conference presentations

Karakterisering multi-resistente Salmonella Typhi ved helgenom sekventering
Period: 18 Nov 2015
Rene S. Hendriksen (Speaker)
National Food Institute
Research Group for Genomic Epidemiology

Related event

DANMAP-seminar /Europæisk Antibiotikadag
18/11/2015 → 18/11/2015
Copenhagen, Denmark
Activity: Talks and presentations › Conference presentations

Eftersporing af Fødevareudbud (Københavns Universitet)
Period: 16 Nov 2015 → 14 Dec 2015
Julia Christensen (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: Local

Related event

Eftersporing af Fødevareudbud (Københavns Universitet)
15/01/2016 → …
København
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

De nyeste resultater om børns kost
Period: 13 Nov 2015
Sisse Fagt (Invited speaker)
National Food Institute
Division of Risk Assessment and Nutrition

Related external organisation

Landbrug og Fødevarer
Axelborg, Axeltorv 3, 1609, København V, Denmark
Activity: Talks and presentations › Conference presentations

De nyeste resultater om børns kost
Period: 12 Nov 2015
Sisse Fagt (Invited speaker)
National Food Institute
Division of Risk Assessment and Nutrition

Description
På konferencen “Sunde børn”

Related external organisation

Landbrug og Fødevarer
Axelborg, Axeltorv 3, 1609, København V, Denmark
Activity: Talks and presentations › Conference presentations

-EFSA 5th AMR Network meeting
Period: 12 Nov 2015 → 13 Nov 2015
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

**Description**
EFSA 5th AMR Network meeting

**Related event**

- **EFSA 5th AMR Network meeting**
  12/11/2015 → 13/11/2015
  Parma, Italy
  Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

- **EFSA 5th AMR Network meeting**
  Period: 12 Nov 2015
  Rene S. Hendriksen (Speaker)
  National Food Institute
  Research Group for Genomic Epidemiology

  **Description**
  Confirmatory testing in relation to reporting antimicrobial resistance in animal and food - Commission implementing decision; Sanco /652 and Update on activities of the EURL on AMR

  **Related event**

- **EFSA 5th AMR Network meeting**
  12/11/2015 → 13/11/2015
  Parma, Italy
  Activity: Talks and presentations › Conference presentations

**Issues with extrapolation from existing clinical data/studies for population risk assessment – view from Denmark**
Period: 10 Nov 2015
Charlotte Bernhard Madsen (Speaker)
National Food Institute
Research Group for Gut Microbiology and Immunology

**Related external organisation**

**Fresenius**
Germany
Activity: Talks and presentations › Conference presentations

The Danish Microbiological Society Annual Congress 2015
Period: 9 Nov 2015
Veronica Martinez Rios (Participant)
National Food Institute
Research Group for Microbial Food Safety and Quality
Documents:
Abstract-DMS-P62
DMS-2015

**Related event**

The Danish Microbiological Society Annual Congress 2015
09/11/2015 → 09/11/2015
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.
Asymmetric flow field-flow fractionation for the detection and characterization of nanoparticles in food – a short tutorial

Period: 5 Nov 2015
Katrin Löschner (Speaker)
National Food Institute
Research Group for Nano-Bio Science

Description
With the increasing use of nanotechnology in food and consumer products, there is a need for reliable detection and characterization methods for nanoparticles (NPs) in complex matrices. NPs often interact with each other or with their surroundings leading to aggregation, adhesion to surfaces or dissolution in dispersion solvents. Accurate and precise characterization of metrics such as size, shape, particle mass and number concentration therefore remains a challenging analytical task. In order to determine quantitative metrics that are relevant in food monitoring or in risk assessment, asymmetric flow field-flow fractionation (AF4) hyphenated with optical detectors and inductively coupled plasma mass spectrometry (ICP-MS) has proven to be a powerful technique [1,2]. Several parameters of the AF4 influence the separation, including carrier liquid composition, membrane material, cross flow rate, spacer height, focus flow rate, focus time and injected mass. In order to acquire accurate data the AF4 separation method must be optimized for each new sample matrix and analyte NP combination [1,3,4].

This tutorial will give guidance for the application of AF4 to the detection and characterization of NPs in food. The most important AF4 separation parameters will be identified and described. The use and relevance of different detection methods, like multi-angle and dynamic light scattering, absorbance, ICP-MS and the new ICP-QQQ-MS, will be presented. Furthermore, the need for suitable sample preparation methods and independent verification of the results, e.g. by transmission electron microscopy (TEM) or single particle ICP-MS, will be highlighted. Finally, the possibility for determination of number-based particle size distribution will be discussed. The determination of a size distribution based on particle number is relevant for future regulatory purposes because of the European Commission’s recommendation of the definition of a nanomaterial as a “natural, incidental or manufactured material containing particles, in an unbound state or as an aggregate or as an agglomerate and where, for 50 % or more of the particles in the number size distribution, one or more external dimensions is in the size range 1 nm–100 nm” [5].

References:
Detection and characterization of aluminium-containing nanoparticles in a complex food matrix  
Period: 5 Nov 2015  
Manuel Correia (Speaker)  
National Food Institute  
Research Group for Nano-Bio Science  

Description  
1st European workshop: Analysis of nanoparticles in food, cosmetics and consumer products  

Related event  
7th International Symposium on Recent Advances in Food Analysis  
03/11/2015 → 06/11/2015  
Prague, Czech Republic  
Activity: Talks and presentations › Conference presentations  

Estimates of the relative contributions to the burden of disease due to selected foodborne hazards: A World Health Organization Expert Elicitation  
Period: 5 Nov 2015  
Tine Hald (Speaker)  
National Food Institute  
Research Group for Genomic Epidemiology  
Degree of recognition: International  
Documents:  
Abstract EE FERG ISVEE 2015 submitted new  

Related event  
14th International Symposium on Veterinary Epidemiology and Economics  
03/11/2015 → 07/11/2015  
Mérida, Yucatan, Mexico  
Activity: Talks and presentations › Conference presentations  

Simultaneous on-line detection of Si, Ti and Al-containing particles in toothpaste by asymmetric flow field-flow fractionation coupled with ICP-QQQ-MS  
Period: 5 Nov 2015  
Katrin Löschner (Speaker)  
National Food Institute  
Research Group for Nano-Bio Science  

Description  
Toothpaste is a complex mixture of chemicals and includes surfactants, whiteners and abrasives based on nano or micrometer sized SiO2, TiO2 and Al2O3. A fraction of toothpaste may be swallowed during its normal use and individuals may therefore be exposed to these metal oxides. The size of the particles is a determining factor for their biological fate and the possible intestinal uptake of these particles. Therefore, in order to characterize these nano or microparticles, a method development project was initiated aiming at simultaneous size separation of all three types of particles by
asymmetric flow field-flow fractionation (AF4). Multi angle light scattering was used for on-line size determination of the eluting particles, and ICP-QQQ-MS was invaluable for selective, simultaneous detection of all three elements under a fixed set of instrumental conditions. In this lecture, results on the AF4 and the ICP-QQQ-MS optimization work will be presented along with fractograms of real toothpaste samples using the coupled AF4-ICP-QQQ-MS system.

**Related event**

*7th International Symposium on Recent Advances in Food Analysis*

03/11/2015 → 06/11/2015
Prague, Czech Republic
Activity: Talks and presentations › Conference presentations

**Trace Forward - Trace Back in Foodborne Outbreaks Investigation: Barcelona**

Period: 5 Nov 2015
Anne Wingstrand (Lecturer)
National Food Institute
Division of Risk Assessment and Nutrition

**Description**
EC Better Training Safer Food (BTSF) courses on Foodborne Outbreaks Investigation

Lecture and Workshop

**Related external organisation**

Unknown external organisation
Activity: Talks and presentations › Conference presentations

**Journal of Applied Phycology (Journal)**

Period: 4 Nov 2015
Ditte Baun Hermund (Reviewer)
National Food Institute
Research Group for Bioactives – Analysis and Application

**Related journal**

Journal of Applied Phycology
0921-8971
Central database
Activity: Research › Peer review of manuscripts

**Strategies for mitigation of contaminants in food**

Period: 4 Nov 2015
Rie Romme Rasmussen (Lecturer)
National Food Institute
Research Group for Nano-Bio Science

**Description**
Abstract:

Contamination of food generally has a negative impact on the quality and may imply a risk to human health. Mitigation measures can minimise the contaminant exposure by changes in the primary production, food processing or dietary recommendations. The best strategy depends on the specific problem. Here are three examples: There is a worldwide concern about dietary inorganic arsenic (iAs) exposure since long-term intake has been associated with a range of health problems, including skin lesions, cardiovascular diseases and some forms of cancer (EFSA 2014, FAO/WHO 2011). Food and drinking water are the main sources of exposure for the general population in Europe. The main source with the highest iAs concentration is rice. Changes in agricultural practice (environment, rice variety and color, and grain size), processing (polishing, boiling practice) and dietary recommendations (avoid rice crackers) can reduce the dietary exposure rice products (Sharma et al 2014). In fish fillet production the byproducts are at present turned into ensilage and
sold as low priced animal feed. To increase the value of these byproducts high quality omega-3 fish oils and protein products intended for human consumption may be produced. Of course it should comply with the existing EU maximum levels for heavy metals and dioxins. The aquaculture practice (feed, size, age, fat content) and byproduct fraction (intestine or head, tail and bone) influence the contamination level in the raw material. For removal of dioxins deodorization of fish oil at high temperature is recommended. Substituting marine oil in the feed with plant oil will not only decrease dioxins but also the omega-3 level significantly. Although pesticide residues seldom exceed the maximum residue limits (European Commission 2002) consumer awareness is high. Home processing can in some cases reduce the pesticide residues e.g. in apples by washing, boiling, peeling and juicing (Rasmussen et al 2002). The dietary risk assessment can be refined by taking into account changes in contaminant level during processing because of more accurate estimates of the actual consumer exposures. However the agricultural practice, pre-harvest interval from last application of pesticide to harvest, pesticide properties and weather will not only influence the residue level but also alter the effect of home processing practices.


Keywords: inorganic arsenic in rice, metals and dioxins in fish, pesticides in apples, mitigation, food processing

Acknowledgement: Funding from The Danish AgriFish Agency (GUDP) — 4009-13-0762.

copyright: Tommy Licht Cederberg and Jens Jørgen Sloth from National Food Institute (DTU Food), Technical University of Denmark, Soeborg, Denmark

Documents:
Strategies for mitigation of contaminants in food_. RAFA 2015 Lecture 53 by RR Rasmussen et al

Related event
7th International Symposium on Recent Advances in Food Analysis
03/11/2015 → 06/11/2015
Prague, Czech Republic
Activity: Talks and presentations › Conference presentations

De nationale undersøgelser af danskernes kost og fysiske aktivitet
Period: 3 Nov 2015
Sisse Fagt (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition

Description
For den tværgående gruppe om tilsætningsstoffer

Related external organisation
Fødevarestyrelsen
Glostrup, Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Kødkursus - specialisering: Cases
Period: 3 Nov 2015
Tina Beck Hansen (Lecturer)
Research Group for Microbial Food Safety and Quality
National Food Institute
Documents:
cases_031115

Related external organisation
**Fødevarestyrelsen**  
Glostrup, Denmark  
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

**Kødkursus - specialisering: Saltning**  
Period: 3 Nov 2015  
Tina Beck Hansen (Lecturer)  
Research Group for Microbial Food Safety and Quality  
National Food Institute  
Documents: saltning_031115

**Related external organisation**

**Fødevarestyrelsen**  
Glostrup, Denmark  
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

**Kødkursus - specialisering: Varmebehandling - principper for risikoanalyse, HACCP, fødevaresikkerhed**  
Period: 3 Nov 2015  
Tina Beck Hansen (Lecturer)  
Research Group for Microbial Food Safety and Quality  
National Food Institute  
Documents: varmebehandling_031115

**Related external organisation**

**Fødevarestyrelsen**  
Glostrup, Denmark  
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

**Better Training for Safer Food (BTSF): Foodborne outbreak investigations**  
Period: 2 Nov 2015 → 6 Nov 2015  
Birgitte Helwigh (Organizer)  
National Food Institute  
Division of Risk Assessment and Nutrition  

**Description**  
Barcelona, Spain  
Degree of recognition: International

**Related event**

**Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days**  
15/12/2012 → 15/12/2016  
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.
Related event
"Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days"
15/12/2012 → 15/12/2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Period: 2 Nov 2015 → 6 Nov 2015
Anne Wingstrand (Speaker)
National Food Institute

Description
Barcelona, Spain
Degree of recognition: International

Related event
"Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days"
15/12/2012 → 15/12/2016
Activity: Talks and presentations › Conference presentations

Exploration of Campylobacter jejuni survival mechanisms in house flies
Period: 2 Nov 2015
Annette Nygaard Jensen (Speaker)
Research Group for Microbial Food Safety and Quality
National Food Institute

Description
Oral presentation. Abstract O040
Links:

Related event
"18th International Workshop on Campylobacter, Helicobacter and Related Organisms"
01/11/2015 → 05/11/2015
Rotorua, New Zealand
Activity: Talks and presentations › Conference presentations

Period: 2 Nov 2015
Paw Dalgaard (Invited speaker)
National Food Institute
Research Group for Microbial Food Safety and Quality

Description

Related event
"Virksomhedsseminar om pakning af kød. Teknologisk Institut, DMRI, 2 November 2015"
02/11/2015 → 02/11/2015
Tåstrup, Denmark
Activity: Talks and presentations › Conference presentations
Virksomhedsseminar om pakning af kød
Period: 2 Nov 2015
Tina Beck Hansen (Participant)
National Food Institute
Research Group for Microbial Food Safety and Quality

Related event
Virksomhedsseminar om pakning af kød
02/11/2015 → …
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Animal contribution to ESBL-producing Escherichia coli and MRSA infections in humans
Period: 29 Oct 2015
Valeria Bortolaia (Guest lecturer)
National Food Institute
Research Group for Genomic Epidemiology

Related event
Symposium on Selection and Spread of Antibiotic Resistances in Agro-Ecosystems and Food Production Environments
29/10/2015 → 29/10/2015
Fribourg, Switzerland
Activity: Talks and presentations › Conference presentations

TEACH FOOD seminar
Lene Duedahl-Olesen (Organizer)
Lars Bøgh Jensen (Organizer)
Håkan Vigre (Organizer)
Pernille Hammar Andersson (Organizer)
Sofie Katrine Lorentzen (Organizer)
National Food Institute
Research Group for Analytical Food Chemistry
Research Group for Microbial Food Safety
Research Group for Genomic Epidemiology
Office for Study Programmes and Student Affairs
Office for HR
Office for Finance and Accounting

Description
Seminar for teachers at DTU FOOD
Degree of recognition: Local

Related event
TEACH FOOD seminar: seminar for DTU FOOD teachers
29/10/2015 → 30/10/2015
Hvalsø, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

TEACH FOOD seminar
Susan Løvstad Holdt (Organizer)
National Food Institute

Research Group for Bioactives – Analysis and Application

Related event

**TEACH FOOD seminar: seminar for DTU FOOD teachers**
29/10/2015 → 30/10/2015
Hvalsø, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Period: 28 Oct 2015
Paw Dalgaard (Participant)
National Food Institute
Research Group for Microbial Food Safety and Quality

**Description**

Related event

28/10/2015 → 28/10/2015
Kgs. Lyngby, Denmark
Activity: Attending an event › Participating in or organising a conference

Kostvaners sammenhæng med helbred, levekår og livsstil
Period: 27 Oct 2015
Sisse Fagt (Lecturer)
National Food Institute
Division of Risk Assessment and Nutrition

Related external organisation

**University of Copenhagen**
Thorvaldsensvej 40, DK-1871 Frederiksberg C, Copenhagen, Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

**EU conference " farmers and Veterinarians together to tackle antimicrobial resistance"**
Period: 23 Oct 2015
Lina Cavaco (Participant)
National Food Institute
Research Group for Genomic Epidemiology

**Description**
EU conference " farmers and Veterinarians together to tackle antimicrobial resistance"

Related event

**EU conference " farmers and Veterinarians together to tackle antimicrobial resistance"**
23/10/2015 → 23/10/2015
Brussels, Belgium
Activity: Attending an event › Participating in or organising a conference
Faglig workshop 2015 - Laboratoriemøde. Fælles laboratoriedag mellem DTU Fødevareinstituttet og Fødevarestyrelsens laboratorium
Period: 22 Oct 2015
Tina Beck Hansen (Participant)
National Food Institute
Research Group for Microbial Food Safety and Quality

Related event
Faglig workshop 2015 - Laboratoriemøde. Fælles laboratoriedag mellem DTU Fødevareinstituttet og Fødevarestyrelsens laboratorium
22/10/2015 → …
Lyndby, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Period: 22 Oct 2015
Lisbeth Truelstrup Hansen (Lecturer)
National Food Institute
Research Group for Diagnostic Engineering

Description
Foredrag ved fælles Laboratoriemøde.
Forekomsten af Listeria arter og Listeria monocytogenes i 2 canadiske vandløb blev undersøgt over en 2-årig periode. Foredraget beskrev resultaterne.

Related external organisation
Unknown external organisation
Activity: Talks and presentations › Conference presentations

-WHO GLASS, the Implementation of the WHO global antimicrobial resistance surveillance system (GLASS)
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
WHO GLASS, the Implementation of the WHO global antimicrobial resistance surveillance system (GLASS)

Related event
-WHO GLASS, the Implementation of the WHO global antimicrobial resistance surveillance system (GLASS)
22/10/2015 → 23/10/2015
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

12th European Nutrition Conference (FENS)
Rikke Andersen (Participant)
National Food Institute
Research Group for Risk-Benefit

Description
Oral presentation: Vitamin D intake-status relationship among Danes aged 4-60 years during winter
FENS 2015

Related event

12th European Nutrition Conference (FENS)
20/10/2015 → 23/10/2015
Berlin, Germany
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Comparison of different methods for calculating usual intake
Anja Pia Biltoft-Jensen (Other)
National Food Institute
Division of Risk Assessment and Nutrition

Description
12th EUROPEAN NUTRITION CONFERENCE FENS BERLIN 20-23/10 2015

Related external organisation

The Federation of European Nutrition Societies (FENS)
Activity: Talks and presentations › Conference presentations

DNA Amplification Technology
Julia Christensen (Participant)
Research Group for Diagnostic Engineering
Division of Food Microbiology
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: Local

Related event

DNA Amplification Technology
01/09/2015 → 23/10/2015
København
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Training Course 4 on microbiological criteria (Event 2462): Presentation and workshop: Using microbiological criteria in HACCP
Tina Beck Hansen (Lecturer)
National Food Institute
Division of Food Microbiology

Description
Brush-up in HACCP, incl. one case problem of identifying CCPs and ideas for using microbiological criteria in monitoring, validation and verification in HACCP

Tutor

Related external organisation

BTSF Initiative
Barcelona, Spain
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities
EFSA@EXPO: EFSA's 2nd Scientific Conference - Shaping the Future of Food Safety, Together
Birgitte Helwigh (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: International

Related event
EFSA@EXPO: EFSA's 2nd Scientific Conference - Shaping the Future of Food Safety, Together
14/10/2015 → 16/10/2015
Milan, Italy
Activity: Attending an event › Participating in or organising a conference

Characterization of clonal complexes of Listeria monocytogenes strains of food origin in France: MVN meeting
Period: 9 Oct 2015
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
Characterization of clonal complexes of Listeria monocytogenes strains of food origin in France: MVN meeting
co-author of the abstact / poster

Related event
Characterization of clonal complexes of Listeria monocytogenes strains of food origin in France: MVN meeting
09/10/2015 → ...
France
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Beregning af D- og z-værdier
Period: 7 Oct 2015
Tina Beck Hansen (Guest lecturer)
National Food Institute
Research Group for Microbial Food Safety

Description
Gæsteforelæsning i varmeinaktiveringskinetik

Related event
Kursus 23923 Fødevaremicrobiologi E15
02/09/2015 → 02/12/2015
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Hormonforstyrrende stoffers effekt på brystudviklingen: Effects of endocrine disrupters on mammary gland development
Period: 7 Oct 2015
Karen Mandrup Egebjerg (Invited speaker)
National Food Institute
Research Group for Reproductive Toxicology

Description
Overview of the newest research in CeHoS on mammary gland effects of endocrine disrupters with special focus on the newly published article “Mixtures of environmentally relevant endocrine disrupting chemicals affect mammary gland development in female and male rats” in Reproductive Toxicology.
Related event

**Ceter for Hormonforstyrrende Stoffers Informationsdag: CeHoS Information day**
07/10/2015 → 07/10/2015
Copenhagen, Denmark
Activity: Talks and presentations › Conference presentations

**Seaweed based antioxidants - analysis and application**
Ditte Baun Hermund (Speaker)
National Food Institute
Research Group for Bioactives – Analysis and Application

Related event

**5th Nordic Seaweed Conference**
07/10/2015 → 08/10/2015
Greana, Denmark
Activity: Talks and presentations › Conference presentations

**Seaweed based antioxidants – analysis and application**
Period: 7 Oct 2015
Ditte Baun Hermund (Speaker)
National Food Institute
Research Group for Bioactives – Analysis and Application

Description

Application possibilities of seaweed based antioxidants

Related event

"To ord" om prædiktiv mikrobiologi
Period: 7 Oct 2015
Tina Beck Hansen (Lecturer)
National Food Institute
Research Group for Microbial Food Safety

Description

Gæsteforelæsning i prædiktiv mikrobiologi

Related event

**Kursus 23923 Fødevaremikrobiologi E15**
02/09/2015 → 02/12/2015
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

**Diplomingeniør - Introduktion til fødevarer: Overvågning og kontrol af fødevarebårne sygdomme**
Period: 1 Oct 2015
Anne Wingstrand (Lecturer)
National Food Institute

Description

Forelæsning
Better Training for Safer Food - Risk Assessment in Nutrition (Berlin, Germany)
Period: Sep 2015
Gitte Ravn-Haren (Lecturer)
National Food Institute
Research Group for Risk-Benefit

Identification of the bacterial composition of the gut microbiota in Danish farmed mink
Period: 30 Sep 2015
Martin Iain Bahl (Invited speaker)
National Food Institute
Research Group for Gut Microbiology and Immunology

Nordic Association of Agricultural Scientists: Autumn meeting in fur animal research 2015
29/09/2015 → 01/10/2015
Turku, Finland
Activity: Talks and presentations › Conference presentations

Joint EURL/NRL/OfL Workshop for Pesticide Residue in Food
Period: 30 Sep 2015 → 2 Oct 2015
Susan Strange Herrmann (Organizer)
Mette Erecius Poulsen (Organizer)
National Food Institute
Research Group for Analytical Food Chemistry

The Danish National Survey of Diet and Physical Activity
Period: 30 Sep 2015
Sisse Fagt (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Meeting with BfR and ANSES

Related organisation

The Danish National Survey of Diet and Physical Activity
Fagt, S. (Speaker)
30 Sep 2015
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Period: 28 Sep 2015 → 2 Oct 2015
Birgitte Helwigh (Organizer)
Lone Jannok Porsbo (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Berlin, germany
Degree of recognition: International

Related event

Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

EURL Campylobacter workshop
Period: 28 Sep 2015 → 30 Sep 2015
Annette Nygaard Jensen (Participant)
National Food Institute
Research Group for Microbial Food Safety

Related event

EURL Campylobacter workshop
28/09/2015 → 30/09/2015
Uppsala, Sweden
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

KU SUND - Veterinær etik og Videnskabsteori: Zoonoser og fødevaresikkerhed
Period: 24 Sep 2015
Anne Wingstrand (Lecturer)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Forelæsning
Documents:
Vet. etik og videnskabsteori - Zoonoser og Fødevaresikkerhed 2015 AWIN til PES

Related external organisation

Unknown external organisation
Activity: Talks and presentations › Conference presentations

Unsupervised machine learning of food images.
Anja Pia Biltoft-Jensen (Supervisor)
National Food Institute
Division of Risk Assessment and Nutrition

Description

Activity: Examinations and supervision › Supervisor activities

Det troede vi, vi vidste ... om nødder
Period: 18 Sep 2015
Heddie Mejborn (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: National

Related event

Vidensdag i Fagligt Selskab for Ernæringsprofessionelle
18/09/2015 → …
Copenhagen, Denmark
Activity: Talks and presentations › Conference presentations

Detection and Characterization of Nanoparticles in Food and Biological Materials
Period: 16 Sep 2015
Katrin Löschner (Invited speaker)
National Food Institute
Research Group for Nano-Bio Science

Related event

Food Analysis Congress 2015 : Safety, Quality, Novel Technologies
15/09/2015 → 16/09/2015
Cambridge, United Kingdom
Activity: Talks and presentations › Conference presentations

Food Analysis Congress
Period: 15 Sep 2015 → 16 Sep 2015
Jens Jørgen Sloth (Organizer)
National Food Institute
Research Group for Nano-Bio Science

Description
Chairman of conference
Links:

Related event

Food Analysis Congress 2015 : Safety, Quality, Novel Technologies
15/09/2015 → 16/09/2015
Cambridge, United Kingdom
Activity: Attending an event › Participating in or organising a conference

PAH in Danish Professional barbecued meat - effect of Heat source and Meat Type
Period: 13 Sep 2015 → 17 Sep 2015
Lene Duedahl-Olesen (Speaker)
National Food Institute
Research Group for Analytical Food Chemistry

Related event

International Symposium on Polycyclic Aromatic Compounds (ISPAC 25)
13/09/2015 → 17/09/2015
Bordeaux, France
Activity: Talks and presentations › Conference presentations

Workshop on the use of QSARs for regulatory purposes with special focus on the new free online Danish QSAR predictions database for 600,000 substances
Period: 12 Sep 2015
Eva Bay Wedebye (Organizer)
National Food Institute
Research Group for Molecular and Reproductive Toxicology

Description
Workshop organized by the QSAR team at DTU Food, financed by funds from the Nordic Council of Ministers and the Danish EPA, in relation to our release of the new free DTU / Danish QSAR database on the DTU homepage.
Degree of recognition: International

Related event

Workshop on the use of QSARs for regulatory purposes with special focus on the new free online Danish QSAR predictions database for 600,000 substances
Kgs. Lyngby, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Workshop on the use of QSARs for regulatory purposes with special focus on the new free online Danish QSAR predictions database for 600,000 substances
Period: 12 Sep 2015
Nikolai Georgiev Nikolov (Speaker)
National Food Institute
Research Group for Molecular and Reproductive Toxicology

Description
Workshop organized by the QSAR team at DTU Food, financed by funds from the Nordic Council of Ministers and the Danish EPA, in relation to our release of the new free DTU / Danish QSAR database on the DTU homepage.
Degree of recognition: International

Related event

Workshop on the use of QSARs for regulatory purposes with special focus on the new free online Danish QSAR predictions database for 600,000 substances
Kgs. Lyngby, Denmark
Activity: Talks and presentations › Conference presentations

TRiMiCri. A Tool for Risk Based Microbiological criteria
Period: 10 Sep 2015
Maarten Nauta (Speaker)
National Food Institute
Description
Introduction to contribution software fair

Related event
9th International Conference on Predictive Modelling in Food
08/09/2015 → 12/09/2015
Rio de Janeiro, Brazil
Activity: Talks and presentations › Conference presentations

Assessing the effect of risk mitigation by concentration reduction: Linear regression vs. process risk model
Period: 9 Sep 2015
Maarten Nauta (Speaker)
National Food Institute
Research Group for Risk-Benefit

Related event
9th International Conference on Predictive Modelling in Food
08/09/2015 → 12/09/2015
Rio de Janeiro, Brazil
Activity: Talks and presentations › Conference presentations

Modelling of microbial interactions in food – applications and challenges.
Period: 9 Sep 2015
Paw Dalgaard (Keynote speaker)
National Food Institute
Research Group for Microbial Food Safety and Quality

Description
Invited keynote-presentation

Related event
9th International Conference on Predictive Modelling in Food
08/09/2015 → 12/09/2015
Rio de Janeiro, Brazil
Activity: Talks and presentations › Conference presentations

9th International Conference on Predictive Modelling in Food
Period: 8 Sep 2015 → 12 Sep 2015
Tina Beck Hansen (Participant)
National Food Institute
Research Group for Microbial Food Safety and Quality

Description
Participated as co-author of two oral presentations and two posters

Related event
9th International Conference on Predictive Modelling in Food
08/09/2015 → 12/09/2015
Rio de Janeiro, Brazil
Activity: Attending an event › Participating in or organising a conference
9th International Conference on Predictive Modelling in Food  
Period: 8 Sep 2015 → 12 Sep 2015  
Cleide Oliveira de Almeida Møller (Participant)  
National Food Institute  
Research Group for Microbial Food Safety and Quality  

Related event  
9th International Conference on Predictive Modelling in Food  
08/09/2015 → 12/09/2015  
Rio de Janeiro, Brazil  
Activity: Attending an event › Participating in or organising a conference  

Food Spoilage and Safety Predictor. Oral presentation and demonstration at Software Fair. 9th International Conference on Predictive Modelling in Food, 8-12 September 2015, Rio de Janeiro, Brazil.  
Period: 8 Sep 2015 → 12 Sep 2015  
Paw Dalgaard (Speaker)  
National Food Institute  
Research Group for Microbial Food Safety and Quality  

Description  

Related event  
9th International Conference on Predictive Modelling in Food  
08/09/2015 → 12/09/2015  
Rio de Janeiro, Brazil  
Activity: Talks and presentations › Conference presentations  

Modelling of microbial interactions in food - applications and challenges  
Period: 8 Sep 2015 → 12 Sep 2015  
Paw Dalgaard (Keynote speaker)  
National Food Institute  
Research Group for Microbial Food Safety and Quality  

Description  

Related event  
9th International Conference on Predictive Modelling in Food  
08/09/2015 → 12/09/2015  
Rio de Janeiro, Brazil  
Activity: Talks and presentations › Conference presentations  

Hvordan bruger vi risikovurdering i forskellige sammenhæng?  
Period: 4 Sep 2015  
Håkan Vigre (Speaker)  
National Food Institute  
Research Group for Genomic Epidemiology  

Description  
Presentation at Dyrlægerens Dag - Mikrobiologisk Risiko Analyse
Related event

Dyrlægernes Dag 2015: Dyrlægen i risikosamfundet
04/09/2015 → 04/09/2015
Activity: Talks and presentations › Conference presentations

Trace Forward - Trace Back in Foodborne Outbreaks: Tallinn
Period: 3 Sep 2015
Anne Wingstrand (Lecturer)
National Food Institute
Division of Risk Assessment and Nutrition
Description
Presentation and workshop
EC Better Training Safer Food (BTSF) courses on Foodborne Outbreaks Investigation
Unknown external organisation
Activity: Talks and presentations › Conference presentations

COST MP1206- Electrospinning of Chitosan
Period: 2 Sep 2015 → 4 Sep 2015
Ana Carina Loureiro Mendes (Invited speaker)
National Food Institute
Research Group for Nano-Bio Science
Related event

COST MP1206 – Workshop: Electrospinning of Chitosan
02/09/2015 → 04/09/2015
Munster, Germany
Activity: Talks and presentations › Conference presentations

Mucoadhesion: Principles, Testing Methods and Applications
Period: 2 Sep 2015 → 3 Sep 2015
Karen Boutrup Stephansen (Invited speaker)
National Food Institute
Research Group for Nano-Bio Science
Related event

Mucoadhesion: Principles, Testing Methods and Applications
02/09/2015 → 03/09/2015
Münster, Germany
Activity: Talks and presentations › Conference presentations

Ernæring 23732
Period: 1 Sep 2015 → 1 Dec 2015
Gitte Ravn-Haren (Lecturer)
National Food Institute
Research Group for Risk-Benefit
Description
Course
Degree of recognition: Local
Kostvaner i Danmark - hvor langt er vi fra anbefalingerne?
Period: 1 Sep 2015
Sisse Fagt (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition

Related external organisation

University of Copenhagen
Thorvaldsensvej 40, DK-1871 Frederiksberg C, Copenhagen, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

One Health Risk Communication in Policy on Emerging Risks- the English Experience
Period: Aug 2015
Johanne Ellis-Iversen (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: International

Related external organisation

University of Copenhagen
Thorvaldsensvej 40, DK-1871 Frederiksberg C, Copenhagen, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Period: 31 Aug 2015 → 4 Sep 2015
Birgitte Helwigh (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: International

Related event

Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Period: 31 Aug 2015 → 4 Sep 2015
Lone Jannok Porsbo (Speaker)
Anne Wingstrand (Speaker)
National Food Institute
Degree of recognition: International

Related event

Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Talks and presentations › Conference presentations

International Conference of the European Chitin Society
Period: 30 Aug 2015 → 2 Sep 2015
Karen Boutrup Stephansen (Participant)
National Food Institute
Research Group for Nano-Bio Science

**Related event**

**International Conference of the European Chitin Society**
30/08/2015 → 02/09/2015
Münster, Germany
Activity: Attending an event › Participating in or organising a conference

Ana Carina Loureiro Mendes (Participant)
National Food Institute
Research Group for Nano-Bio Science

**Description**
Poster Presentation

**Related event**

**International Conference of the European Chitin Society**
30/08/2015 → 02/09/2015
Münster, Germany
Activity: Attending an event › Participating in or organising a conference

Tina Beck Hansen (Participant)
National Food Institute
Research Group for Microbial Food Safety and Quality

**Description**

Small devices - big potentials.
Period: 28 Aug 2015

**Related event**

Small devices - big potentials.: Automating assessment & collection of dietary data with ICT
28/08/2015 → …
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Predictive microbiology in Quantitative Microbiological Risk Assessment (QMRA) applied to food**

Cleide Oliveira de Almeida Møller (Lecturer)
National Food Institute
Research Group for Microbial Food Safety and Quality

**Description**
An introduction to the use of predictive microbiology to QMRA in food as well as a practical application of a QMRA in food production at the catering sector, were given.

Documents:
QMRA workshop at UFRGS-Brazil
Slides of a practical application of a QMRA in food production

**Related event**

Workshop on QMRA applied to food
27/08/2015 → 28/08/2015
Porto Alegre, Brazil
Activity: Talks and presentations › Conference presentations
Hygiejne og prædiktiv mikrobiologi
Period: 26 Aug 2015
Paw Dalgaard (Lecturer)
National Food Institute
Research Group for Microbial Food Safety and Quality

Description
Invited presentation at ‘Løsninger til fremtidens hygiejniske design indenfor fødevarer, pharma og biotek’. DTU Fødevareinstituttet, 26 August 2015

Related event
Løsninger til fremtidens hygiejniske design indenfor fødevarer, pharma og biotek
26/08/2015 → …
Kgs. Lyngby, Denmark
Activity: Talks and presentations › Conference presentations

Member of examining committee for Ph.D. D. Sylvan Dabadé ‘Shrimp quality and safety management along the supply chain in Benin’ at Wageningen University, The Netherlands (External organisation)
Period: 25 Aug 2015
Paw Dalgaard (Participant)
National Food Institute
Research Group for Microbial Food Safety and Quality

Description
Ph.D. D. Sylvan Dabadé. Shrimp quality and safety management along the supply chain in Benin. 25 August 2015, Wageningen University, Wageningen, The Netherlands.
Degree of recognition: International

Related external organisation
Member of examining committee for Ph.D. D. Sylvan Dabadé ‘Shrimp quality and safety management along the supply chain in Benin’ at Wageningen University, The Netherlands
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

BfR Symposium Zoonosen und Lebensmittelsicherheit 2015
Period: 20 Aug 2015
Birgitte Helwigh (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: International

Related event
BfR Symposium Zoonosen und Lebensmittelsicherheit 2015
17/08/2015 → 28/08/2015
Berlin, Germany
Activity: Talks and presentations › Conference presentations

Global Data and International outbreaks - integrated surveillance – One Health
Period: 20 Aug 2015
Birgitte Helwigh (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: International
Training Course 3 on microbiological criteria (Event 2461): Presentation and workshop: Using microbiological criteria in HACCP

Period: 20 Aug 2015 → 1 Sep 2015
Tina Beck Hansen (Lecturer)
National Food Institute
Division of Food Microbiology

Description
Brush-up in HACCP, incl. one case problem of identifying CCPs and ideas for using microbiological criteria in monitoring, validation and verification in HACCP

Tutor

Related external organisation
Bundesinstitut für Risikobewertung
Berlin, Germany
Activity: Talks and presentations › Conference presentations

Metagenom påvisning af fødevarebårne patogener

Period: 3 Aug 2015 → 1 Dec 2015
Julia Christensen (Participant)
National Food Institute
Division of Risk Assessment and Nutrition

Related event

Global and Regional Incidence and Mortality of Diarrheal Diseases Commonly Transmitted through Food: Estimates from the WHO Foodborne Epidemiology Reference Group
Period: 28 Jul 2015
Sara Monteiro Pires (Speaker)
Prevalence and diversity of Listeria species and Listeria monocytogenes in an urban and agricultural source watershed:
Period: 28 Jul 2015
Lisbeth Truelstrup Hansen (Lecturer)
National Food Institute
Research Group for Diagnostic Engineering

Description
Oral presentation

Related event
Annual Meeting of International Association for Food Protection (IAFP) 2015 : Recent Developments in Food Mycology: From Safety to Spoilage
25/07/2015 → 28/07/2015
Portland, United States
Activity: Talks and presentations › Conference presentations

Input from academia to application of predictive food microbiology models by industry and authorities – a European perspective
Period: 27 Jul 2015
Paw Dalgaard (Lecturer)
National Food Institute
Research Group for Microbial Food Safety and Quality

Description
Invited presentation for Symposium (S40) “Steps towards the practical use of microbial models for food safety assessment by the food industry” at Annual Meeting of International Association for Food Protection (IAFP), Portland, Oregon, 25-28 July, USA (Journal of Food Protection 78 (Supplement A), page 11)
Annual Meeting of International Association for Food Protection (IAFP 2015) : Recent Developments in Food Mycology: From Safety to Spoilage
25/07/2015 → 28/07/2015
Portland, United States
Activity: Talks and presentations › Conference presentations

42nd Annual Meeting of the Controlled Release Society
Period: 26 Jul 2015 → 29 Jul 2015
Karen Boutrup Stephansen (Participant)
National Food Institute
Research Group for Nano-Bio Science

Source attribution of foodborne diseases: applicability of available methods
Period: 26 Jul 2015
Sara Monteiro Pires (Speaker)
National Food Institute
Research Group for Risk-Benefit
Degree of recognition: International

WTO/SPS Agreement: Burden for trade - Benefit for health
Period: 26 Jul 2015
Jens Kirk Andersen (Lecturer)
National Food Institute
Research Group for Microbial Food Safety and Quality

Description
An example of the use of the SPS agreement to use risk assessment on a case-by-case basis to document the Danish approach to maintain a high level of consumer protection. The Development of a risk-based microbiological criterion, and the TRiMiCri tool to explore the effect of a microbiological criterion on public health vs. cost in form of action in cases of un-conformity

Links:
https://iafp.confex.com/iafp/2015/webprogram/start.html (Video recording of presentations)
Annual Meeting of the Controlled Release Society - Nordic  
Period: 25 Jul 2015  
Karen Boutrup Stephansen (Speaker)  
National Food Institute  
Research Group for Nano-Bio Science  

Related event  
Annual Meeting of the Controlled Release Society - Nordic  
25/07/2015 → 25/07/2015  
Edinburgh, Denmark  
Activity: Talks and presentations › Conference presentations  

Beer brewing and quality control  
Period: 24 Jul 2015  
Tina Beck Hansen (Internal examiner)  
National Food Institute  
Research Group for Microbial Food Safety and Quality  
Division of Food Microbiology  

Description  
Intern bedømmelse af 8 rapporter  
Activity: Examinations and supervision › Internal examination  

23836 Quantitative Microbiological Risk Assessment  
Period: Jun 2015  
Ana Sofia Ribeiro Duarte (Participant)  
National Food Institute  
Research Group for Genomic Epidemiology  

Description  
Course Lecturer  
Related event  
23836 Quantitative Microbiological Risk Assessment 2015  
01/06/2015 → 30/06/2015  
Denmark  
Activity: Other  

Strategidag mellem FVST og DTU  
Period: 23 Jun 2015  
Tina Beck Hansen (Invited speaker)  
National Food Institute  
Division of Microbiology and Risk Assessment  

Description  
præsentation af FF3 initiativer omkring alternative temperaturgrænser  
Related event  
Strategidag mellem FVST og DTU  
23/06/2015 → 23/06/2015  
Lyngby, Denmark  
Activity: Talks and presentations › Conference presentations
Strategidag mellem FVST og DTU
Period: 23 Jun 2015
Tina Beck Hansen (Organizer)
National Food Institute
Research Group for Microbial Food Safety and Quality

Description
Planlægning af den årlige strategidag mellem FVST og DTU Fødevareinstituttet

Related event
Strategidag mellem FVST og DTU
23/06/2015 → 23/06/2015
Lyngby, Denmark
Activity: Attending an event › Participating in or organising a conference

Strategidag mellem FVST og DTU
Period: 23 Jun 2015
Helle Bisgaard Korsgaard (Participant)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Strategidag mellem FVST og DTU. Oplæg og diskussion om emner inden for fødevaresikkerhed.

Related event
Strategidag mellem FVST og DTU
23/06/2015 → 23/06/2015
Lyngby, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Strategidag mellem FVST og DTU
Period: 23 Jun 2015
Anne Mette Bollerslev (Invited speaker)
National Food Institute
Research Group for Microbial Food Safety and Quality

Related event
Strategidag mellem FVST og DTU
23/06/2015 → 23/06/2015
Lyngby, Denmark
Activity: Talks and presentations › Conference presentations

Owusu Amponsah
Start date: 19 Jun 2015 → 19 Dec 2015
Håkan Vigre (Host)
National Food Institute
Research Group for Genomic Epidemiology

Description
Hosting Phd student Owusu Amponsah from Department of Planning, Kwame Nkrumah University of Science and Technology, Ghana. Research project SAWAFO
Degree of recognition: International
Activity: Hosting a guest lecturer
Relationship between food allergy and contact sensitisation
Period: 18 Jun 2015
Charlotte Bernhard Madsen (Speaker)
National Food Institute
Research Group for Gut Microbiology and Immunology

Related external organisation
Cosmetic industry
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Interventions with vitamin D in Denmark
Rikke Andersen (Invited speaker)
National Food Institute
Research Group for Risk-Benefit

Description
Oral presentation: Interventions with vitamin D in Denmark
Symposium at the 19th Nordic Congress of General Practice 16-18 June 2015

Related event
The 19th Nordic Congress of General Practice
16/06/2015 → 18/12/2015
Göteborg, Sweden
Activity: Talks and presentations › Conference presentations

Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Birgitte Helwigh (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Barcelona, Spain
Degree of recognition: International

Related event
Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Workshop om insekter til foder og fødevarer
Period: 15 Jun 2015
Dorte Lau Baggesen (Speaker)
National Food Institute

Description
Det Europæiske fokus - Kommissionens forespørgsel til EFSA og europæiske risikovurderinger
Documents:
20150615_præsentation_dlba

Related event
Workshop om insekter til foder og fødevarer: Dialog mellem myndigheder og forskere
15/06/2015 → 15/06/2015
København, Denmark
Activity: Talks and presentations › Conference presentations

12th International Congress on Engineering and Food
Markus Wied Dethlefsen (Participant)

National Food Institute

Description
Presented two posters: P1.055 (Coating properties of extruded fish feed pellets affected by pore structures) and P1.093 (Astaxanthin both as colouring agent and antioxidant in coated fish feed pellets). The goal of ICEF12 is to exchange new scientific knowledge of food engineering and to promote the interaction between professionals from academia, industry and government. The Congress will explore new paths for innovations in a rapidly changing food sector. ICEF12 will address questions related to the challenges that engineers are facing bringing science and creativity into food innovations. The Congress will be a vital opportunity to see what the future is for the bio-food industry, the impact of globalization and what place the local production and environmental issues should have in the world knowledge based bio-economy.
ICEF12 will serve to ensure that future challenges for the bio-food industry are anticipated and discussed and that food engineers are meeting these challenges in order to provide adequate and innovative solutions. This is a significant opportunity for you to hear from leading edge speakers and to network with colleagues in industry and academia to ensure you keep abreast of recent developments in this fast evolving field. Topics 1. Advances in food engineering: Cooling and freezing; Thermal processing; Non-thermal processing; Drying and dehydration; Hygiene and cleaning; Separation and purification; High pressure processing; Mass transfer operations; Food fluid mechanics; Food process design ; Food safety, validation processes; Postharvest storage and food handling; Encapsulation processes; Fermentation and chemical reaction processes; Image processing; Mixing; Crystallization; Nanoengineering; Equilibrium processes. 2. Engineering properties of foods and materials science: Mechanical properties; Thermophysical properties; Physicochemical properties; Phase transitions; Rheological properties; Food structure; Packaging properties; Mixing properties; Transport properties; Equilibrium properties; Functional properties. 3. Emerging technologies and novel processes: New paths for food process innovation; Processes for functional food production; Bioprocessing; Oral processing; In vitro digestion and digestive system. 4. Modeling in food engineering: Modeling and simulation; Automation and process control; Risk assessment (chemical or biological safety); Transport phenomena; Quality parameters; Novel approaches in modeling; Kinetics modeling (microbiology, quality). 5. Sustainable engineering: Food process sustainability; Life cycle approach and carbon footprint; Waste reduction and remediation; Efficient processes (water and energy); Food security systems; Sustainability of traditional processes. 6. Future of food engineering: Education; Research; Worldwide regulations; Curriculum development; Leadership skills and mentoring; New tools (online and apps). 7. Special Session 1: Food Quality Evaluation Throughout the Food Chain: A State-of-the-Art Approach Integrating Fingerprinting and Kinetic Principles. 8. Special Session 2: Irregularities, upsets and breakdowns in food processing 9. Special Session 3: Open Innovation & Partnerships: A Platform for Meeting Food Engineering Future Challenges 10. Special Session 4: Integrating food engineering across Europe – European Academy of Food Engineering (sponsored by the European Academy of Food Engineering, EAFE) 11. Special Session 5: Food fortification technologies for a globalized world 12. Special Session 6: Future of Food Engineering (Trends!)

Documents:
Poster programme

Related event

12th International Congress on Engineering and Food
14/06/2015 → 18/06/2015
Québec City, Canada
Activity: Attending an event › Participating in or organising a conference

Aberham Hailu Feyissa (Speaker)

National Food Institute
Research Group for Food Production Engineering

Description
Modelling of coupled heat and electric field distribution during ohmic heating of solid foods with varying sizes

Related event

12th International Congress on Engineering and Food
Québec City, Canada  
**Activity:** Talks and presentations › Conference presentations

**Member of examining committee for Ph.D Mehmet Baris Ates 'Investigating the effects of novel heat and high pressure processing on Listeria and Bacillus inactivation in a model Food' at Norwegian University of Life Sciences (NMBU) (External organisation)**  
**Period:** 11 Jun 2015  
**Paw Dalgaard (Participant)**  
National Food Institute  
Research Group for Microbial Food Safety and Quality  

**Description**  
Ph.D. Mehmet Baris Ates. Investigating the effects of novel heat and high pressure processing on Listeria and Bacillus inactivation in a model Food. 11 June 2015, Norwegian University of Life Sciences (NMBU), Ås, Norway.

**Related external organisation**  
**Member of examining committee for Ph.D Mehmet Baris Ates 'Investigating the effects of novel heat and high pressure processing on Listeria and Bacillus inactivation in a model Food' at Norwegian University of Life Sciences (NMBU)**  
**Activity:** Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

**Obesity-associated fecal microbiota from human modulates body mass and metabolites in mice**  
**Period:** 11 Jun 2015  
**Li Zhang (Speaker)**  
National Food Institute  
Research Group for Gut Microbiology and Immunology  

**Description**  
Oral presentation at the EMBL Conference 2015: The Human Microbiome.

**Related event**  
**EMBL Conference 2015: The Human Microbiome**  
**Period:** 10/06/2015 → 12/06/2015  
Heidelberg, Germany  
**Activity:** Talks and presentations › Conference presentations

**WHO AGISAR 6 meeting**  
**Period:** 10 Jun 2015 → 12 Jun 2015  
**Rene S. Hendriksen (Participant)**  
National Food Institute  
Research Group for Genomic Epidemiology  

**Description**  
WHO AGISAR 6 meeting

**Related event**  
**WHO AGISAR 6 meeting**  
**Period:** 10/06/2015 → 12/06/2015  
Seoul, Korea, Republic of  
**Activity:** Attending an event › Participating in or organising workshops, courses, seminars etc.
Research Group for Genomic Epidemiology

Description
Whole Genome Sequencing and integrated surveillance of antimicrobial resistance: "Opportunities and challenges

Related event
- WHO AGISAR 6 meeting
10/06/2015 → 12/06/2015
Seoul, Korea, Republic of
Activity: Talks and presentations › Conference presentations

Training Course 2 on microbiological criteria (Event 2460): Presentation and workshop: Using microbiological criteria in HACCP
Period: 7 Jun 2015 → 8 Jun 2015
Tina Beck Hansen (Lecturer)
National Food Institute
Division of Food Microbiology

Description
Brush-up in HACCP, incl. one case problem of identifying CCPs and ideas for using microbiological criteria in monitoring, validation and verification in HACCP

Tutor

Related external organisation
BTSF Initiative
Rome, Italy
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Evaluation of the Food Safety Programme at IRTA, Spain (External organisation)
Period: 4 Jun 2015 → 5 Jun 2015
Paw Dalgaard (Participant)
National Food Institute
Research Group for Microbial Food Safety and Quality

Description
Evaluation of the Food Safety Programme at IRTA (Institute of Agri-food Research and Technology), 4-5 June 2015, Monells, Spain.
Degree of recognition: International

Related external organisation
Evaluation of the Food Safety Programme at IRTA, Spain
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

Nordic Seaweed extracts as natural antioxidants in omega-3 PUFA enriched granola bars
Period: 4 Jun 2015
Ditte Baun Hermund (Speaker)
National Food Institute
Research Group for Bioactives – Analysis and Application

Description
Young Scientist Award recipient 2015

Related event
28th Nordic Lipid Symposium
03/06/2015 → 06/06/2015
Reykjavik, Iceland
Activity: Talks and presentations › Conference presentations

**28th Nordic Lipid Symposium**
Period: 3 Jun 2015 → 6 Jun 2015
Ditte Baun Hermund (Participant)
National Food Institute
Research Group for Bioactives – Analysis and Application

**Description**
Young Scientist Award
Degree of recognition: International

**Related event**

**28th Nordic Lipid Symposium**
03/06/2015 → 06/06/2015
Reykjavik, Iceland
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Nordic seaweed extracts as natural antioxidants in omega-3 PUFA enriched granola bars**
Period: 3 Jun 2015 → 6 Jun 2015
Ditte Baun Hermund (Speaker)
National Food Institute
Research Group for Bioactives – Analysis and Application

**Related event**

**28th Nordic Lipid Symposium**
03/06/2015 → 06/06/2015
Reykjavik, Iceland
Activity: Talks and presentations › Conference presentations

**Lassen AD. Salt og sundhed. Kampagnenetværksmøde i Fødevarestyrelsen**
Period: 2 Jun 2015
Anne Dahl Lassen (Consultant)
National Food Institute
Division of Risk Assessment and Nutrition

**Related external organisation**

Fødevarestyrelsen
Glostrup, Denmark
Activity: Public and private sector consultancy › Consultancy

**Forbrugerne vil ét men gør noget andet – hvorfor? – Fair snak hele vejen rundt.**
Period: 21 May 2015
Anne Dahl Lassen (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: National

**Related external organisation**

CBS, Copenhagen
Activity: Talks and presentations › Conference presentations
PathoNGen-Trace, Progress Meeting
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
PathoNGen-Trace, Progress Meeting

Related event

PathoNGen-Trace, Progress Meeting
18/05/2015 → 19/05/2015
Berlin, Germany
Activity: Attending an event » Participating in or organising workshops, courses, seminars etc.

Møde i Teknologisk Instituts HACCP-erfagruppe for fiskebranchen
Period: 12 May 2015
Ole Mejlholm (Speaker)
Research Group for Microbial Food Safety and Quality
National Food Institute

Description
Workshop omkring brugen af prædiktive modeller (Food Spoilage and Safety Predictor) til vurdering og styring af holdbarhed og sikkerhed (24 deltagere).

Related event

Møde i Teknologisk Instituts HACCP-erfagruppe for fiskebranchen
12/05/2015 → …
Hirtshals, Denmark
Activity: Talks and presentations » Guest lectures, external teaching and course activities at other universities

8th GMI meeting
Period: 11 May 2015
Rene S. Hendriksen (Speaker)
National Food Institute
Research Group for Genomic Epidemiology

Description
Proficiency testing - Progress report 2015

Related event

8th GMI meeting
11/05/2015 → 13/05/2015
Beijing, China
Activity: Talks and presentations » Conference presentations

-8th the Global Microbial Identifier meeting
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
8th the Global Microbial Identifier meeting

**Related event**

8th the Global Microbial Identifier meeting  
11/05/2015 → 13/05/2015  
Beijing, China  
*Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.*

**LC/MS methods for determination of lipophilic toxins**  
Kevin Jørgensen (Organizer)  
Division of Food Chemistry  
National Food Institute  
Research Group for Analytical Food Chemistry  

**Description**  
5-days workshop and training on LC/MS methods for determination of lipophilic toxins, NAQIAD branch 6, Can Tho, Vietnam  
Doner: Danish Government; FVST Dansk projektleder

**Related event**

LC/MS methods for determination of lipophilic toxins  
11/05/2015 → 15/05/2015  
Can Tho, Viet Nam  
*Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.*

**Antibiotikaresistens i økologiske og konventionelle svinebesætninger – et EU-studie**  
Period: 8 May 2015  
Annette Nygaard Jensen (Invited speaker)  
National Food Institute  
Research Group for Microbial Food Safety and Quality  
Links:  

**Related event**

Dansk Veterinær Hyologisk Selskab, Forårsmøde 2015  
07/05/2015 → 08/05/2015  
Kolding, Denmark  
*Activity: Talks and presentations › Talks and presentations in private or public companies and organisations*

**Better Training Safer Food**  
Håkan Vigre (Organizer)  
National Food Institute  
Research Group for Genomic Epidemiology  

**Description**  
Better Training for Safer Food - Mikrobiological Risk Assessment  
One week training course in the EU program better training for safer food.  
*Training coordinator*  
*Degree of recognition: International*  

**Related event**
**Better Training Safer Food**  
04/05/2015 → 08/05/2015  
Tallinn, Estonia  
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Course in Microbiological Risk Assessment**  
Leonardo de Kneegt (Lecturer)  
National Food Institute  
Research Group for Genomic Epidemiology  

**Description**  
Better Training Safer Food course for QMRA held in Tallinn, Estonia.

**Related event**

**Better Training Safer Food**  
04/05/2015 → 08/05/2015  
Tallinn, Estonia  
Activity: Talks and presentations › Conference presentations

**Training Course 1 on microbiological criteria (Event 2459): Presentation and workshop: Using microbiological criteria in HACCP**  
Tina Beck Hansen (Lecturer)  
National Food Institute  
Division of Food Microbiology  

**Description**  
Brush-up in HACCP, incl. one case problem of identifying CCPs and ideas for using microbiological criteria in monitoring, validation and verification in HACCP

**Tutor**

**Related external organisation**

**BTSF Initiative**  
Riga, Latvia  
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

**Better Training for Safer Food - Risk Analysis**  
Period: 3 May 2015 → 5 May 2015  
Tine Hald (Lecturer)  
National Food Institute  
Research Group for Genomic Epidemiology  

**Description**  
Tutor at course

**Related external organisation**

**BTSF, Tallin**  
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

**EFSA Focal Point (External organisation)**  
Period: 1 May 2015 → …  
Birgitte Helwigh (Participant)  
National Food Institute
Division of Risk Assessment and Nutrition

Description
EFSA Focal Point in Denmark
Degree of recognition: International

Related external organisation
EFSA Focal Point
Parma, Italy
Activity: Membership › Membership of research networks or expert groups

8th Copenhagen Workshop on Endocrine Disrupters
Period: Apr 2015
Marta Axelstad Petersen (Organizer)
National Food Institute
Research Group for Molecular and Reproductive Toxicology

Description
Attending the conference and co-author on 3 posters

Related event
8th Copenhagen Workshop on Endocrine Disrupters
27/04/2015 → 30/04/2015
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising a conference

Mammary gland effects of bisphenol A
Period: 29 Apr 2015
Karen Mandrup Egebjerg (Invited speaker)
National Food Institute
Research Group for Reproductive Toxicology

Description
Invited speaker

Related event
8th Copenhagen Workshop on Endocrine Disrupters
27/04/2015 → 30/04/2015
Copenhagen, Denmark
Activity: Talks and presentations › Conference presentations

Prædiktiv mikrobiologi
Period: 28 Apr 2015
Tina Beck Hansen (Speaker)
National Food Institute
Division of Food Microbiology

Description
Forelæsning og øvelser om prædiktiv mikrobiologi for veterinærstuderende (2 timer)

Gæsteforelæser
Documents:
predictive_micro_280415_Tina Beck

Related external organisation
Bisphenol A and five structural analogues induce adipocyte differentiation and other obesity-related endpoints in 3T3-L1 cells
Period: 27 Apr 2015 → 30 Apr 2015
Cecilie Nethe Ramskov Tetzlaff (Other)
Terje Svingen (Other)
Anne Marie Vinggaard (Other)
Camilla Taxvig (Other)
National Food Institute
Research Group for Molecular and Reproductive Toxicology
Copenhagen Center for Health Technology

Related event

8th Copenhagen Workshop on Endocrine Disrupters
27/04/2015 → 30/04/2015
Copenhagen, Denmark
Activity: Talks and presentations › Conference presentations

Effects of chemical mixtures on female reproductive endpoints
Period: 27 Apr 2015 → 30 Apr 2015
Hanna Katarina Liilith Johansson (Other)
Anne Marie Vinggaard (Other)
Terje Svingen (Other)
Ulla Hass (Other)
Julie Boberg (Other)
National Food Institute
Research Group for Molecular and Reproductive Toxicology
Copenhagen Center for Health Technology
Degree of recognition: International

Related event

8th Copenhagen Workshop on Endocrine Disrupters
27/04/2015 → 30/04/2015
Copenhagen, Denmark
Activity: Talks and presentations › Conference presentations

Emerging Chemicals in food packaging - toxicological profiling of knowns and unknowns
Period: 27 Apr 2015 → 30 Apr 2015
Anna Kjerstine Rosenmai (Other)
Linda Bengtström (Other)
Barbara van Vugt-Lussenburg (Other)
Jens Hejslev Petersen (Other)
Camilla Taxvig (Other)
Terje Svingen (Other)
Laurianne Lesné (Other)
Mona-Lise Binderup (Speaker)
Marianne Dybdahl (Other)
Cecilie Nethe Ramskov Tetzlaff (Other)
Bernard Jégou (Other)
Xenia Trier (Other)
Research Group for Genomic Epidemiology

**Related event**

**25th European Congress of Clinical Microbiology and Infectious Diseases**
Period: 25 Apr 2015 → 28 Apr 2015
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising a conference

**NanoDefine (EU FP7 Project) Workshop - Internal training for PhD students and PostDocs**
Period: 24 Apr 2015
Vienna, Austria
Activity: Other

**9th EURL-AR Workshop 2015**
Period: 23 Apr 2015 → 24 Apr 2015
Lyngby, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.
Annette Nygaard Jensen (Participant)
National Food Institute
Research Group for Microbial Food Safety and Quality

Related event

9th EURL-AR Workshop 2015
23/04/2015 → 24/04/2015
Lyngby, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Description
European Union Reference Laboratory Antimicrobial Resistance and FWD ECDC, – Joint Annual Workshop 2015

Related event

European Union Reference Laboratory Antimicrobial Resistance and FWD ECDC, – Joint Annual Workshop 2015
23/04/2015 → 25/04/2015
Kgs. Lyngby, Denmark
Activity: Attending an event › Participating in or organising a conference

Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
European Union Reference Laboratory Antimicrobial Resistance and FWD ECDC, – Joint Annual Workshop 2015

Kit Granby (Invited speaker)
National Food Institute

Description
Mejeriforskningens dag 2015, Billund Danmark

Paw Dalgaard (Lecturer)
National Food Institute
Research Group for Microbial Food Safety and Quality

Description
Invited presentation at Mejeriforskningens Dag 2015

Related event

Mejeriforskningens Dag 2015
23/04/2015 → 23/04/2015
Billund, Denmark
Activity: Talks and presentations › Conference presentations

Prædiktiv mikrobiologi og risikovurdering af mejeriprodukter
Period: 23 Apr 2015
Veronica Martinez Rios (Participant)
National Food Institute
Research Group for Microbial Food Safety and Quality

Related event
Prædiktiv mikrobiologi og riskvurdering af mejeriprodukter
23/04/2015 → …
Billund, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Vidensyntese, Økologiens bidrag til samfundsgoder
Period: 22 Apr 2015
Annette Nygaard Jensen (Participant)
National Food Institute
Research Group for Microbial Food Safety and Quality
Description
Præsentation og paneldiskussion af arbejdet med vidensyntesen
Documents:
Økologiens betydning for samfundsgoder - Vidensyntese 2105
Links:
http://icrofs.dk/publikationer/vidensynteser/

Related event
Vidensyntese, Økologiens bidrag til samfundsgoder
22/04/2015 → …
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Optimering af PCR analyse på StepOne og Stratagene MX
Period: 21 Apr 2015 → 22 Apr 2015
Julia Christensen (Speaker)
Research Group for Diagnostic Engineering
Division of Food Microbiology
National Food Institute
Division of Risk Assessment and Nutrition

Related event
Optimering af PCR analyse på StepOne og Stratagene MX
21/04/2015 → 22/04/2015
Activity: Talks and presentations › Conference presentations

Emmanuel de-Graft Johnson Owusu-Ansah
Start date: 17 Apr 2015 → 15 Oct 2015
Tine Hald (Host)
National Food Institute
Research Group for Genomic Epidemiology
Degree of recognition: International
Activity: Hosting a guest lecturer

EU FVO training course on AMR
Period: 15 Apr 2015 → 16 Apr 2015
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

**Description**
EU FVO training course on AMR

**Related event**
EU FVO training course on AMR
15/04/2015 → 16/04/2015
Kgs. Lyngby, Denmark
Activity: Attending an event › Participating in or organising a conference

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Campylobacter in primary poultry production
Period: 14 Apr 2015
Annette Nygaard Jensen (Participant)
National Food Institute
Research Group for Microbial Food Safety

**Description**
Presentation of CamChain results as add on

**Related event**
Campylobacter in primary poultry production: CamCon stakeholder meeting
14/04/2015 → …
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

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Quantitative risk assessment
Period: 14 Apr 2015
Maarten Nauta (Invited speaker)
National Food Institute
Division of Epidemiology and Microbial Genomics

**Description**
Presentation of final results of EU FP7 project CamCon WP4

**Related event**
Campylobacter in primary poultry production: CamCon stakeholder meeting
14/04/2015 → …
Copenhagen, Denmark
Activity: Talks and presentations › Conference presentations

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Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Period: 13 Apr 2015 → 17 Apr 2015
Birgitte Helwigh (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

**Description**
Lisbon, Portugal
Degree of recognition: International

**Related event**
Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

One Health International Summer Course 2015
Period: 13 Apr 2015 → 21 Aug 2015
Tine Hald (Organizer)
Maria Vang Johansen (Organizer)
Liza Rosenbaum Nielsen (Organizer)
Lars Erik Larsen (Organizer)
Anders Dalsgaard (Organizer)
National Food Institute
Research Group for Genomic Epidemiology
National Veterinary Institute
Virology

Description
One Health International Summer Course 2015
6-week elearning part + 2 week on campus part, a total of 5 ECTS
Degree of recognition: International

Related event

One Health International Summer Course 2015
13/04/2015 → 21/08/2015
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Predictive microbiology
Period: 13 Apr 2015
Tina Beck Hansen (Lecturer)
National Food Institute
Research Group for Microbial Food Safety and Quality

Description
4-timers undervisning
Course lectured by Tina Beck Hansen

Related event

Course 23102 Food Safety in Production Chains F15
02/02/2015 → 11/05/2015
Kgs Lyngby, Denmark
Activity: Other

Meals in the Danish diet 2013
Period: 12 Apr 2015
Sisse Fagt (Invited speaker)
National Food Institute
Division of Risk Assessment and Nutrition

Related external organisation

University of Oslo
Norway
Activity: Talks and presentations › Conference presentations
The school as arena for meals to children in Denmark
Period: 12 Apr 2015
Sisse Fagt (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition

Related external organisation
University of Oslo
Norway
Activity: Talks and presentations › Conference presentations

Microbial aspects of food preservation
Period: 9 Apr 2015
Tina Beck Hansen (Lecturer)
National Food Institute
Research Group for Microbial Food Safety and Quality

Description
4-timers undervisning
(Course lecturer)

Related event
Course 23102 Food Safety in Production Chains F15
02/02/2015 → 11/05/2015
Kgs Lyngby, Denmark
Activity: Other

IFAMA World Conference
Period: 1 Apr 2015 → 31 Mar 2018
Henning Høgh Jensen (Organizer)
National Food Institute

Description
Member of Scientific Committee

Related event
IFAMA World Conference
19/06/2016 → 22/06/2016
Aarhus, Denmark
Activity: Attending an event › Participating in or organising a conference

Videnscenter for Fødevareinnovation (External organisation)
Period: 1 Apr 2015 → …
Henning Hegh Jensen (Participant)
National Food Institute

Description
Board member
Links:
http://www.vifu.net

Related external organisation
Videnscenter for Fødevareinnovation
**Innovation and R&D in the Danish Food Ingredients Sector**
Period: 31 Mar 2015
Henning Høgh Jensen (Lecturer)
National Food Institute
Division of Industrial Food Research

**Related event**
*Ingrediensfremstød: Virkshomhedsfremstød i Japan*
31/03/2015 → ...
Tokyo, Japan
Activity: Talks and presentations › Conference presentations

**Use of animal models to understand the role of the gut microbiota in humans**
Period: 26 Mar 2015
Martin Iain Bahl (Invited speaker)
National Food Institute
Division of Food Microbiology

**Related event**
*Evolution and Interactions in gut microbiomes of various hosts*
26/03/2015 → ...
Copenhagen, Denmark
Activity: Talks and presentations › Conference presentations

**Whole genome sequencing of foodborne Listeria in Denmark: Pilot project for implementation in routine surveillance**
Period: 26 Mar 2015
Charlotta Löfström (Invited speaker)
National Food Institute
Division of Food Microbiology

**Related external organisation**
*Unknown external organisation*
Activity: Talks and presentations › Conference presentations

**9th Workshop of the NRLs for Listeria Monocytogenes**
Charlotta Löfström (Invited speaker)
National Food Institute
Division of Food Microbiology

**Related event**
*9th Workshop of the NRLs for Listeria Monocytogenes*
25/03/2015 → 27/03/2015
Paris, France
Activity: Talks and presentations › Conference presentations

**Composite, nanofabrication, food and pharma related application and packaging, controlled release**
Karen Boutrup Stephansen (Speaker)
National Food Institute
Research Group for Nano-Bio Science

Related event

Composite, nanofabrication, food and pharma related application and packaging, controlled release
25/03/2009 → 27/03/2015
Novi Sad, Serbia
Activity: Talks and presentations › Conference presentations

Gram negatives: Enterobacteriaceae and other -Proteobacteriaceae
Period: 23 Mar 2015
Rene S. Hendriksen (Lecturer)
National Food Institute
Research Group for Genomic Epidemiology
Description
DTU course 23258; General Medical Microbiology

Related external organisation

Unknown external organisation
Activity: Talks and presentations › Conference presentations

Seminar om Cocktail effekter
Period: 19 Mar 2015
Gitte Ravn-Haren (Participant)
National Food Institute
Research Group for Risk-Benefit
Degree of recognition: Local

Related event

Seminar om Cocktail effekter
19/03/2015 → …
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Food allergy, Allergy causing food, Thresholds
Period: 17 Mar 2015
Charlotte Bernhard Madsen (Speaker)
National Food Institute
Research Group for Gut Microbiology and Immunology

Related external organisation

Fødevarestyrelsen
Glostrup, Denmark
Activity: Talks and presentations › Conference presentations

Seminar om Danskernes Kostvaner
Period: 12 Mar 2015
Gitte Ravn-Haren (Participant)
National Food Institute
Research Group for Risk-Benefit
Degree of recognition: Local

**Related event**

**Seminar om Danskernes Kostvaner**  
12/03/2015 → …  
Kgs. Lyngby, Denmark  
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**H2020 EU Compare Kick-off Meeting**  
Rene S. Hendriksen (Participant)  
National Food Institute  
Research Group for Genomic Epidemiology  
Description  
H2020 EU Compare Kick-off Meeting  

**Related event**

**H2020 EU Compare Kick-off Meeting**  
11/03/2015 → 12/03/2015  
Copenhagen, Denmark  
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Quality Risk Management & HACCP**  
Period: 5 Mar 2015  
Tina Beck Hansen (Lecturer)  
National Food Institute  
Research Group for Microbial Food Safety  
Description  
gæsteundervisning  

**Related event**

**Course 28855 GMP and quality in pharmaceutical, biotech and food industry F15**  
05/02/2015 → 07/05/2015  
Kgs. Lyngby, Denmark  
Activity: Other

**Potentiel effekt af at spise Nøglehulsmærkede produkter: fokus på indtag af næringsstoffer og fuldkorn.**  
Period: 4 Mar 2015  
Anja Pia Biltoft-Jensen (Speaker)  
National Food Institute  
Division of Risk Assessment and Nutrition  
Description  
Præsentation 4/3 2015 Stockholm, Nordisk Nøglehulsdag  

**Related external organisation**

**National Food Agency of Denmark**  
Denmark  
Activity: Talks and presentations › Conference presentations

**Course in Microbiological Risk Assessment**  
Period: 2 Mar 2015  
Leonardo de Knegt (Lecturer)
National Food Institute
Research Group for Genomic Epidemiology

**Description**
Better Training Safer Food course for QMRA held in Berlin, Germany.

**Related event**

**Teaching Quantitative Microbial Risk Assessment - Better Training for Safer Food (BTSF)**
Period: 2 Mar 2015 → 6 Mar 2015
Ana Sofia Ribeiro Duarte (Guest lecturer)

National Food Institute
Research Group for Genomic Epidemiology
Degree of recognition: International

**Related event**

**Teaching Quantitative Microbial Risk Assessment - Better Training for Safer Food (BTSF)**
Period: 2 Mar 2015 → 6 Mar 2015
Maarten Nauta (Organizer)

National Food Institute
Division of Epidemiology and Microbial Genomics

**Description**
BTSF course in Microbiological Risk Assessment

One week training course in the EU program better training for safer food

Training coordinator

**Related event**

**Teaching Quantitative Microbial Risk Assessment - Better Training for Safer Food (BTSF)**
Period: 2 Mar 2015 → 6 Mar 2015
Maarten Nauta (Organizer)

National Food Institute
Division of Epidemiology and Microbial Genomics

**Description**
BTSF course in Microbiological Risk Assessment

One week training course in the EU program better training for safer food

Training coordinator

**Related event**

**Tiered risk assessment approached in food allergy**
Period: 2 Mar 2015
Charlotte Bernhard Madsen (Organizer)

National Food Institute
Research Group for Gut Microbiology and Immunology

**Description**
Workshop in EU project iFAAM

Degree of recognition: International

Documents:
iFAAM_flyer_v3
Related event

**Tiered risk assessment approached in food allergy**
02/03/2015 → …
Brussels
Activity: Attending an event › Participating in or organising a conference

**Molekylære Metoder til Mikrobiologisk Fødevaresikkerhed**
Period: 1 Mar 2015 → 1 Jun 2015
Julia Christensen (Participant)
National Food Institute
Division of Risk Assessment and Nutrition

Related event

**Molekylære Metoder til Mikrobiologisk Fødevaresikkerhed**
01/03/2015 → 01/06/2015
København
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Better Training for Safer Food - Risk Assessment in Nutrition (Lisbon, Portugal)**
Period: Feb 2015
Gitte Ravn-Haren (Lecturer)
National Food Institute
Research Group for Risk-Benefit

Description
Lisbon, Portugal 2015

Related organisation

**Better Training for Safer Food - Risk Assessment in Nutrition (Lisbon, Portugal)**
Ravn-Haren, G. (Lecturer)
Feb 2015
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

**Complutense University**
Period: Feb 2015
Ana Sofia Ribeiro Duarte (Visiting researcher)
National Food Institute
Research Group for Genomic Epidemiology
Degree of recognition: International
Activity: Visiting an external institution › Visiting another research institution

**Sammenhænge mellem tarmflora og metaboliske sygdomme**
Period: 26 Feb 2015
Martin Iain Bahl (Invited speaker)
National Food Institute
Division of Food Microbiology

Related event

**Fodercentralkursus**
25/02/2015 → 26/02/2015
Grenå, Denmark
Activity: Talks and presentations › Conference presentations
1st Annual Meeting MeatCrossCon  
Period: 23 Feb 2015 → 24 Feb 2015  
Tina Beck Hansen (Participant)  
National Food Institute  
Research Group for Microbial Food Safety and Quality  

**Description**  
deltager og referent i MCC’s første årlige møde  

**Related event**  
1st Annual Meeting MeatCrossCon  
23/02/2015 → 24/02/2015  
Mørkhøj, Denmark  
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.  

13th International Fresenius Conference "Pesticides: Food Safety and Dietary Risk Assessment"  
Period: 18 Feb 2015 → 19 Feb 2015  
Bodil Hamborg Jensen (Speaker)  
Division of Risk Assessment and Nutrition  
Degree of recognition: International  

**Related organisation**  
13th International Fresenius Conference "Pesticides: Food Safety and Dietary Risk Assessment"  
Jensen, B. H. (Speaker)  
18 Feb 2015 → 19 Feb 2015  
Activity: Talks and presentations › Conference presentations  

Ranking of fruit and vegetables by cumulative dietary exposure assessment  
Period: 18 Feb 2015 → 19 Feb 2015  
Jens Hinge Andersen (Invited speaker)  
National Food Institute  
Division of Risk Assessment and Nutrition  
Documents:  
Ranking (Fresenius 2015 Mainz) 150128a jhia  
Ranking (Fresenius 2015 Mainz) 150128a jhia  

**Related event**  
13th International Fresenius Conference "Pesticides: Food Safety and Dietary Risk Assessment"  
18/02/2015 → 19/11/2015  
Mainz, Germany  
Activity: Talks and presentations › Conference presentations  

**Using Quantitative methods in Food Safety Risk Assessment**  
Period: 13 Feb 2015  
Maarten Nauta (Invited speaker)  
National Food Institute  
Division of Epidemiology and Microbial Genomics  

**Description**  
2.5 hour training on invitation  

**Related external organisation**
Scientific Committee on Food Safety (VKM) Norway
Oslo, Norway
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

HACCP – Hazard Analysis & Critical Control Points
Period: 12 Feb 2015
Tina Beck Hansen (Lecturer)
National Food Institute
Research Group for Microbial Food Safety and Quality

Description
4-timers undervisning

Related event

Course 23102 Food Safety in Production Chains F15
02/02/2015 → 11/05/2015
Kgs Lyngby, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Dietary assessment methods
Period: 4 Feb 2015 → 5 Feb 2015
Anja Pia Biltoft-Jensen (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Lecturing for a whole day in dietary assessment methods at related subjects

Related external organisation
BTSF
Activity: Talks and presentations › Conference presentations

Lecturing in the education "Master i Fødevarekvalitet og -sikkerhed" at Copenhagen University
Period: 2 Feb 2015 → 24 Mar 2015
Håkan Vigre (Lecturer)
National Food Institute
Research Group for Genomic Epidemiology

Description
Lecturing in the course Mikrobiologisk og Kemisk fødevaresikkerhed
Degree of recognition: National

Related external organisation
University of Copenhagen
Thorvaldsensvej 40, DK-1871 Frederiksberg C, Copenhagen, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Feeds & Pet Food Extrusion at Texas A&M University
Period: 1 Feb 2015 → 6 Feb 2015
Markus Wied Dethlefsen (Participant)
National Food Institute

Description

Documents:
Course Programme, Texas A&M University

Related event

Feeds & Pet Food Extrusion at Texas A&M University: 25th Annual Practical Short Course
01/02/2015 → 06/02/2015
College Station, United States
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Kursus i kemisk risikovurdering - BTSF
Period: Jan 2015 → Jul 2017
Annette Petersen (Other)
Max Hansen (Other)
Anoop Kumar Sharma (Other)
National Food Institute
Division of Risk Assessment and Nutrition
Activity: Other

Teknologisk Institut
Period: Jan 2015
Julia Christensen (Visiting researcher)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: Local
Activity: Visiting an external institution › Visiting another research institution

Workshop om bæredygtig brug af biocider: DTU Center for Hygiejnisk Design
Period: 28 Jan 2015
Gun Linnea Wirtanen (Lecturer)
National Food Institute
Research Group for Microbial Food Safety and Quality
Description
Presentation on DTU HDC activities
Documents:
Agenda workshop bæredygtig brug af biocider
DTU HDC avtivities

Related external organisation

Unknown external organisation
Activity: Talks and presentations › Conference presentations

IDA - Risikovurdering i praksis
Period: 27 Jan 2015
Tina Beck Hansen (Participant)
National Food Institute
Division of Food Microbiology

Related event
IDA - Risikovurdering i praksis
27/01/2015 → …
København, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

37th Symposium i Anvendt Statistik 2015
Period: 26 Jan 2015 → 28 Jan 2015
Cleide Oliveira de Almeida Møller (Participant)
National Food Institute
Division of Food Microbiology

Related event
37th Symposium i Anvendt Statistik 2015
26/01/2015 → 28/01/2015
Kongens Lyngby, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Comparison of different methods for calculating usual intakes
Period: 26 Jan 2015 → 28 Jan 2015
Anja Pia Biltoft-Jensen (Other)
Elisabeth Wreford Andersen (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Department of Informatics and Mathematical Modeling

Description
Det 37. symposium i anvendt statistik 26.-28. januar 2015- Danmarks Tekniske Universitet

Related external organisation
Danmarks Statistik
Denmark
Activity: Talks and presentations › Conference presentations

Predictive Food Microbiology
Period: 23 Jan 2015
Tina Beck Hansen (Internal examiner)
National Food Institute
Division of Food Microbiology

Description
Intern bedømmelse af 4 rapporter samt bedømmelse af projektpræsentation og 2 eksamensspørgsmål for 20 studerende.
Activity: Examinations and supervision › Internal examination

Norges Forskningsråd (External organisation)
Period: 21 Jan 2015
Bo Munk Jørgensen (Member)
National Food Institute
Division of Industrial Food Research

Description
Vurdering af ansøgninger til Norges Forskningsråd (NFR). (Den seneste af en række vurderingsopgaver for NFR)
Degree of recognition: International

Related external organisation

Norges Forskningsråd
Activity: Membership › Membership in review committee

Training in Microbiological Risk Assessment: EDES training on Microbiological Risk Assessment
Period: 19 Jan 2015 → 23 Jan 2015
Ana Sofia Ribeiro Duarte (Speaker)
National Food Institute
Research Group for Genomic Epidemiology

Description
Training in Microbiological Risk Assessment: EDES training on Microbiological Risk Assessment - Mauritius
Degree of recognition: International

Related event

Training in Microbiological Risk Assessment: EDES training on Microbiological Risk Assessment
19/01/2015 → 23/01/2015
Mauritius
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Training Risk Assessment Microbiology in Mauritius
Period: 19 Jan 2015 → 23 Jan 2015
Maarten Nauta (Other)
National Food Institute
Division of Epidemiology and Microbial Genomics

Description
Course Lecturer
Activity: Other

Master i Fødevarekvalitet og -sikkerhed
Period: 1 Jan 2015 → 20 Dec 2015
Tine Hald (Lecturer)
National Food Institute
Research Group for Genomic Epidemiology

Description
Tine Hald responsible for a module on Risk Assessment of Foodborne Hazards (9 ECTS) and a module on Foodborne Outbreak Investigation (4 ECTS)
Related external organisation

University of Copenhagen
Thorvaldensvej 40, DK-1871 Frederiksberg C, Copenhagen, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Risikoanalyse af fødevarebårne kontaminanter
Period: 1 Jan 2015 → 20 Apr 2015
Julia Christensen (Participant)
Research Group for Diagnostic Engineering
Division of Food Microbiology
National Food Institute
Division of Risk Assessment and Nutrition

Related event

Risikoanalyse af fødevarebårne kontaminanter
01/01/2015 → 20/04/2015
København
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

A guided tour of essential statistical methods
Period: 2014 → …
Barbara Vad Andersen (Participant)
National Food Institute
Division of Industrial Food Research

Description
Overview of essential statistical methods and identification of appropriate techniques.

Related event

A guided tour of essential statistical methods
27/01/2014 → 31/01/2014
Roskilde, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Bioinformatics (Journal)
Period: 2014
Siu Hung Joshua Chan (Reviewer)
Systems Biotechnology
National Food Institute

Description
Bioinformatics

Related journal

Bioinformatics
1367-4803
Central database
Activity: Research › Peer review of manuscripts
Campylobacter styregruppe (Event)
Period: 2014 → …
Flemming Bager (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: National

Related event
Campylobacter styregruppe
01/01/2014 → …
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

Current Nutrition & Food Science (Journal)
Period: 2014
Susan Løvstad Holdt (Reviewer)
National Food Institute
Research Group for Bioactives – Analysis and Application
Description
Peer-review
Degree of recognition: International

Related journal
Current Nutrition & Food Science
1573-4013
Scopus rating (2017): SJR 0.17 SNIP 0.22, Web of Science (2018): Indexed yes
Central database
Activity: Research › Peer review of manuscripts

EFSA Food Packaging (FiP) network (External organisation)
Period: 2014 → …
Gitte Alsing Pedersen (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Related external organisation
EFSA Food Packaging (FiP) network
Parma, Italy
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

Epidemiology and Infection (Journal)
Period: 2014
Ana Sofia Ribeiro Duarte (Reviewer)
National Food Institute
Research Group for Genomic Epidemiology
Degree of recognition: International

Related journal
Epidemiology and Infection
0950-2688
Central database
Activity: Research › Peer review of manuscripts

**European Food Safety Authority (External organisation)**
Period: 2014 → …
Gitte Alsing Pedersen (Participant)
National Food Institute
Division of Risk Assessment and Nutrition

**Description**
Member of EFSA Scientific network of food ingredients and food packaging (FIP) unit on food contact materials, the EFSA FCM Network

**Related external organisation**
**European Food Safety Authority**
Italy
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

**European Journal of Lipid Science and Technology (Journal)**
Period: 2014
Charlotte Jacobsen (Editor)
National Food Institute
Division of Industrial Food Research

**Description**
Assistant editor

**Related journal**
**European Journal of Lipid Science and Technology**
1438-7697

**Central database**
Activity: Research › Journal editor

**Food Microbiology (Journal)**
Period: 2014
Ana Sofia Ribeiro Duarte (Reviewer)
National Food Institute
Research Group for Genomic Epidemiology
Degree of recognition: International

**Related journal**
**Food Microbiology**
0740-0020

**Central database**
Activity: Research › Peer review of manuscripts

"*Genetic variation and vitamin D status -The VitmaD study with a genetic perspective*"
Period: 2014
Ioanna Nissen (Invited speaker)
National Food Institute
Research Group for Risk-Benefit

Description
Seminar, Vitamin D status and intake in Nordic countries – what is recommended and how to meet recommendations? Helsinki, Finland

Related external organisation
Unknown external organisation
Activity: Talks and presentations › Conference presentations

Network for Zoonoses Monitoring Data, European Food Safety Authority (External organisation)
Period: 2014 → ...
Helle Bisgaard Korsgaard (Participant)
National Food Institute
Division of Risk Assessment and Nutrition

Description
National delegate in EFSAs Zoonoses Data Collection Network related to data for Antimicrobial resistance

Related external organisation
Network for Zoonoses Monitoring Data, European Food Safety Authority
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

Safety and Health Effects of Aquatic Food
Period: 2014 → ...
Susan Løvstad Holdt (Guest lecturer)
National Food Institute
Research Group for Bioactives – Analysis and Application

Description
Lecture on seaweed bioactive compounds, analyses and application
Degree of recognition: Regional

Related organisation
Safety and Health Effects of Aquatic Food
Holdt, S. L. (Guest lecturer)
2014 → ...
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Samspilliet mellom kost faktorer og genetiske polymorfer i antioxidant gener i forhold til risiko for brystkæft
Period: 2014 → ...
Gitte Ravn-Haren (Main supervisor)
National Food Institute
Research Group for Risk-Benefit

Description
Specialkursus
Degree of recognition: Local
Activity: Examinations and supervision › Supervisor activities

Styregruppe for salmonellahandlingsplan hos svin (Event)
Period: 2014 → ...
Flemming Bager (Participant)
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: National

Related event

Styregruppe for salmonellahandlingsplan hos svin
01/01/2014 → …
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

Trends in Food Science & Technology (Journal)
Period: 2014 → …
Aberham Hailu Feyissa (Reviewer)
National Food Institute
Research Group for Food Production Engineering

Related journal

Trends in Food Science & Technology
0924-2244
Central database
Activity: Research › Peer review of manuscripts

Cover Illustration (APMIS) December 2014
Period: Dec 2014
Sünje Johanna Pamp (Participant)
National Food Institute
Division of Epidemiology and Microbial Genomics

Description
Documents:
Pamp.CytA.2009-Fig_APMIS.December.2014
Activity: Other

DTU Sustain Conference 2014
Period: 17 Dec 2014
Susan Løvstad Holdt (Speaker)
National Food Institute
Division of Industrial Food Research
Documents:
Sustain DTU conf-IMTA-SLHoldt et al-abstract
Links:
http://prezi.com/pho94laaonj7/?utm_campaign=share&utm_medium=copy&rc=ex0share

Related event

DTU Sustain Conference 2014
17/12/2014 → 17/12/2014
Lyngby, Denmark
Activity: Talks and presentations › Conference presentations

Sustain DTU conference: Creation technology for a sustainable society
Period: 17 Dec 2014
Hamed Safafar (Lecturer)
National Food Institute
Division of Industrial Food Research

**Description**
Development of harvesting and up concentration technologies for microalgae as an ingredient in fish feed

**Related event**

- **DTU Sustain Conference 2014**
  17/12/2014 → 17/12/2014
  Lyngby, Denmark
  Activity: Talks and presentations › Conference presentations

- **12th International Conference on Molecular Epidemiology and Evolutionary Genetics of Infectious Diseases**
  Period: 12 Dec 2014
  Rene S. Hendriksen (Participant)
  National Food Institute
  Research Group for Genomic Epidemiology

  **Description**
  Largest Vibrio cholera outbreak in Cameroon history studied using whole genome sequencing

  **Related event**

- **12th International Conference on Molecular Epidemiology and Evolutionary Genetics of Infectious Diseases**
  Period: 11 Dec 2014 → 13 Dec 2014
  Bangkok, Thailand
  Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

- **12th International Conference on Molecular Epidemiology and Evolutionary Genetics of Infectious Diseases**
  Period: 11 Dec 2014 → 13 Dec 2014
  Bangkok, Thailand
  Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**ArcticNet Annual Conference**

- **ArcticNet Annual Conference**
  Period: 10 Dec 2014
  Lisbeth Truelstrup Hansen (Participant)
  National Food Institute
  Research Group for Diagnostic Engineering

  **Description**
  Poster

Related event

ArcticNet Annual Conference
09/12/2014 → 12/12/2014
Ottawa, Canada
Activity: Attending an event › Participating in or organising a conference

WHO Workshop on introduction to microbial whole genome sequencing and analysis for microbiologists
Period: 9 Dec 2014
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology
Description
WHO Workshop on introduction to microbial whole genome sequencing and analysis for microbiologists

Related event

WHO Workshop on introduction to microbial whole genome sequencing and analysis for microbiologists
09/12/2014 → 09/12/2014
Bangkok, Thailand
Activity: Attending an event › Participating in or organising a conference

Bioactive compounds extracted from seaweed and application in food systems
Period: 8 Dec 2014
Ditte Baun Hermund (Guest lecturer)
National Food Institute
Research Group for Bioactives – Analysis and Application
Degree of recognition: International

Related event

2nd International Conference on Algal Biorefinery: A potential source of food, feed, biochemicals, biofuels and biofertilizers
27/08/2014 → 29/08/2014
Lyngby, Denmark
Activity: Talks and presentations › Conference presentations

Workshop e-learning
Period: 3 Dec 2014
Lina Cavaco (Participant)
National Food Institute
Division of Epidemiology and Microbial Genomics

Related event

Workshop e-learning
03/12/2014 → …
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Akrylamid i kaffe
Period: 2 Dec 2014
Kit Granby (Invited speaker)
National Food Institute
Description
Drikker du sund eller farlig kaffe, IDA Levnedsmiddelskabet, Ingeniørhuset, Kalvebod Brygge 31-33, Kbh, DK
Related external organisation

Unknown external organisation
Activity: Talks and presentations › Conference presentations

Emerging Risks Identified by the EFSA Network
Period: 2 Dec 2014
Helle Bisgaard Korsgaard (Speaker)
National Food Institute

Description
Presentation of the Emerging Risks Network at the joint Zoonoses meeting for staff at DTU Food, DTU Vet, DVFA and SSI
Degree of recognition: National

Related event
Joint Zoonoses meeting
02/12/2014 → 02/12/2014
Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Microbiological Risk Assessment: Hazard vs. Risk Based Approaches in Food Safety Assessment
Period: 2 Dec 2014
Maarten Nauta (Invited speaker)
National Food Institute
Division of Epidemiology and Microbial Genomics
Documents:
Hazard vs risk_flyer_v14

Related event
Hazrd vs. Risk based approaches in Food Safety Assessment
02/12/2014 → …
Brussels, Belgium
Activity: Talks and presentations › Conference presentations

Surveillance of Antimicrobial Resistance for Local and Global Action
Period: 2 Dec 2014 → 3 Dec 2014
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
Surveillance of Antimicrobial Resistance for Local and Global Action

Related event
Surveillance of Antimicrobial Resistance for Local and Global Action
02/12/2014 → 03/12/2014
Stockholm, Sweden
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Analytical methods for determination of marine biotoxins
Period: 1 Dec 2014 → 5 Dec 2014
Kevin Jørgensen (Organizer)
National Food Institute
Division of Food Chemistry
Description
5-days workshop and training on analytical methods for determination of marine biotoxins, EU EDES training course, Kingston, Jamaica

EU EDES training course, Kingston, Jamaica

Related event

Analytical methods for determination of marine biotoxins
01/12/2014 → 05/12/2014
Kingston, Jamaica
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Lav gode undervisningsvideoer
Period: 1 Dec 2014
Lina Cavaco (Participant)
National Food Institute
Division of Epidemiology and Microbial Genomics
LearningLab DTU

Description
Workshop Lab- lav gode undervisningsvideoer

Related event

Lav gode undervisningsvideoer
01/12/2014 → …
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Trace forward - trace back in foodborne outbreaks
Period: 27 Nov 2014
Anne Wingstrand (Lecturer)
National Food Institute
Division of Epidemiology and Microbial Genomics

Description
EC Better Training Safer Food (BTSF) courses on Foodborne Outbreaks Investigation

Related external organisation

Unknown external organisation
Activity: Talks and presentations › Conference presentations

Microalgae workshop
Period: 26 Nov 2014
Charlotte Jacobsen (Organizer)
Division of Industrial Food Research
National Food Institute

Description
Organizer of seminar

Related event

Microalgae workshop
Kalundborg, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.
Rheology Workshop by Anton Paar at University of Bradford
Period: 26 Nov 2014 → 27 Nov 2014
Markus Wied Dethlefsen (Participant)
National Food Institute

Description
The following topics were studied: - Basic theory of rheology - Rheological parameters, measuring systems and test methods - Discussion of the flow behaviour of viscous liquids and the deformation behaviour of viscoelastic materials - Typical applications in Research and Development and Quality Control - Interpretation of flow, creep, relaxation, oscillatory, time and temperature curves and the practical use of the test results - Measurements using rotational and oscillatory rheometers

Related event
Rheology Workshop by Anton Paar at University of Bradford
Bradford, United Kingdom
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

TRiMiCri workshop
Period: 26 Nov 2014
Maarten Nauta (Lecturer)
National Food Institute
Division of Epidemiology and Microbial Genomics

Description
Workshop on DTU's TRiMiCri tool for risk based microbiological criteria

Related external organisation
EFSA MRA network
Parma, Italy
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

28th EFFoST International Conference | 7th International Food Factory for the Future Conference
Aberham Hailu Feyissa (Speaker)
National Food Institute
Research Group for Food Production Engineering

Description
Developing and modelling of ohmic heating for solid food products

Related event
28th EFFoST International Conference | 7th International Food Factory for the Future Conference
Uppsala, Sweden
Activity: Talks and presentations › Conference presentations

Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Birgitte Helwigh (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Lisbon, Portugal
Degree of recognition: International

Related event

Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Attending an event › Participating in or organising a conference

Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Anne Wingstrand (Speaker)
National Food Institute
Division of Epidemiology and Microbial Genomics
Description
Lisbon, Portugal
Degree of recognition: International

Related event

Bageriteknologikursus - Specialisering 2014
Period: 21 Nov 2014
Tina Beck Hansen (Speaker)
National Food Institute
Division of Food Microbiology
Description
1 times undervisning af FVSTs tilsyndførende i bakteriologisk fødevaresikkerhed i bagerier
Documents:
Glostrup_slides_211114
Related external organisation

Fødevarestyrelsen
Glostrup, Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

FENAMI Project Course: Advances in Bioinspired Nanomaterials and Approaches in Life Sciences
Period: 17 Nov 2014 → 21 Nov 2014
Ana Carina Loureiro Mendes (Lecturer)
National Food Institute
Research Group for Nano-Bio Science
Related event

FENAMI Project Course: Advances in Bioinspired Nanomaterials and Approaches in Life Sciences
17/11/2015 → 21/11/2016
Münster, Germany
Activity: Talks and presentations › Conference presentations

Insects - a new driver in the bioeconomy
Period: 13 Nov 2014
Annette Nygaard Jensen (Participant)
Related event

Insects - a new driver in the bioeconomy
13/11/2014 → …
Aarhus, Denmark
Activity: Attending an event › Participating in or organising a conference

Lactobacillus acidophilus affects intestinal bile acid metabolism and vitamin E acetate metabolism in mono-colonized mice
Period: 13 Nov 2014
Henrik Munch Roager (Lecturer)
National Food Institute
Division of Food Microbiology

Related event

Dansk VitaminNetværk: Vitamindag 2014
13/11/2014 → …
København, Denmark
Activity: Talks and presentations › Conference presentations

Whole grain intake in Danes
Period: 12 Nov 2014
Heddie Mejborn (Lecturer)
National Food Institute
Division of Nutrition

Description
Foredrag

Selskabet for Ernæringsforskning.

Related external organisation

Unknown external organisation
Activity: Talks and presentations › Conference presentations

Whole-grain Intake in Danes
Period: 12 Nov 2014
Heddie Mejborn (Speaker)
National Food Institute

Degree of recognition: National

Related event

Selskabet for Ernæringsforskning
12/11/2014 → …
Copenhagen, Denmark
Activity: Talks and presentations › Conference presentations

Chemical Food Safety
Period: 10 Nov 2014 → 14 Nov 2014
Anoop Kumar Sharma (Organizer)
Description
Course coordinator for the course

Related event

Chemical Food Safety: Better Training for Safer Foods
10/11/2014 → 14/11/2014
Lissabon, Portugal
Activity: Attending an event › Participating in or organising a conference

Danmarks Mikrobiologiske Selskabs symposium 2014
Period: 10 Nov 2014
Lars Bogø Jensen (Participant)
National Food Institute
Division of Food Microbiology

Description
Som formand i DMS er jeg medarrangør af denne konference

Documents:
Final_Programme_DMS_Congress_2014

Related event

Danmarks Mikrobiologiske Selskabs symposium 2014
10/11/2014 → …
København, Denmark
Activity: Attending an event › Participating in or organising a conference

Gliadin Affects Glucose Homeostasis and Intestinal Metagenome in C57BL/6 Mice Fed a High-Fat Diet
Period: 10 Nov 2014
Li Zhang (Speaker)
National Food Institute
Division of Food Microbiology

Related event

The Danish Microbiological Society Annual Congress 2014
10/11/2014 → …
Copenhagen, Denmark
Activity: Talks and presentations › Conference presentations

Modulation of the microbiome by prebiotic oligosaccharides
Period: 10 Nov 2014
Louise Kristine Vigsnaes (Lecturer)
National Food Institute
Division of Food Microbiology

Description
Mundøglæn præsentation til DMS den 10 november 2014

Related external organisation

Unknown external organisation
Activity: Talks and presentations › Conference presentations
The Danish Microbiological Society Annual Congress 2014
Period: 10 Nov 2014
Tina Beck Hansen (Participant)
National Food Institute
Division of Food Microbiology

Description
Deltagelse med posterpræsentation

Related event
The Danish Microbiological Society Annual Congress 2014
Period: 10 Nov 2014
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising a conference

Cleide Oliveira de Almeida Møller (Participant)
National Food Institute
Division of Food Microbiology

Related event
The Danish Microbiological Society Annual Congress 2014
Period: 10 Nov 2014
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Correlations between intestinal flora and metabolic diseases
Period: 7 Nov 2014
Martin Iain Bahl (Invited speaker)
National Food Institute
Division of Food Microbiology

Description
Oral presentation at Abildgaards Mink Symposium

Oral presentation at Abildgaards Mink Symposium
Documents:
Abstract_Martin_Iain_Bahl

Related event
Abildgaards Mink Symposium
Period: 06/11/2014 → 07/11/2014
København, Denmark
Activity: Talks and presentations › Conference presentations

Møde om kriterier i opskæringsleddet
Period: 7 Nov 2014
Tina Beck Hansen (Speaker)
National Food Institute
Division of Food Microbiology

Description
Afrapportering af projekt om Salmonella og hygiejneparametre i opskæringsvirksomheder
Documents:
salmonella_hygiejneparametre_opskæring

Related external organisation

Fødevarestyrelsen
Glostrup, Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Trace forward - trace back in foodborne outbreaks
Period: 6 Nov 2014
Anne Wingstrand (Lecturer)
National Food Institute
Division of Epidemiology and Microbial Genomics
Description
EC Better Training Safer Food (BTSF) courses on Foodborne Outbreaks Investigation

Related external organisation

Unknown external organisation
Activity: Talks and presentations › Conference presentations

Better Training for Safer Food (BTSF): Foodborne outbreak Investigations
Period: 3 Nov 2014 → 7 Nov 2014
Birgitte Helwigh (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition
Description
Tallinn, Estonia
Degree of recognition: International

Related event

Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Period: 3 Nov 2014 → 7 Nov 2014
Anne Wingstrand (Speaker)
National Food Institute
Description
Tallinn, Estonia
Degree of recognition: International

Related event

Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Talks and presentations › Conference presentations

Course 23521 Hygienic Design in the Food Industry: Hygienic Design, Cleanroom Technology and Cleaning Operations
Period: 3 Nov 2014 → 10 Dec 2014
Gun Linnea Wirtanen (Lecturer)
National Food Institute
Research Group for Microbial Food Safety and Quality

Description
Course teacher with responsibility to correct course assignments and exams incl. lecturing in air microbiology and cleanroom technology

Related external organisation

Unknown external organisation
Activity: Talks and presentations › Conference presentations

Critical review of the Danish Listeria monocytogenes effort
Period: 3 Nov 2014 → 4 Nov 2014
Paw Dalgaard (Participant)
National Food Institute
Division of Industrial Food Research

Related event

Critical review of the Danish Listeria monocytogenes effort: Danish Veterinary and Food Administration (DVFA)
03/11/2014 → 04/11/2014
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Critical review of the Danish Listeria monocytogenes effort
Period: 3 Nov 2014 → 4 Nov 2014
Charlotta Löfström (Participant)
National Food Institute
Division of Food Microbiology

Related event

Critical review of the Danish Listeria monocytogenes effort: Danish Veterinary and Food Administration (DVFA)
03/11/2014 → 04/11/2014
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

2014 AAPS Annual Meeting and Exposition
Period: 1 Nov 2014 → 6 Nov 2014
Karen Boutrup Stephansen (Participant)
National Food Institute
Division of Industrial Food Research

Description
Presentation of poster

Related event

2014 AAPS Annual Meeting and Exposition
02/11/2014 → 06/11/2014
San Diego, CA, United States
Activity: Attending an event › Participating in or organising a conference

Mykotoksiner i fødevarer - identifikation og bestemmelse med et praktisk perspektiv
Period: 1 Nov 2014
Peter Have Rasmussen (Invited speaker)
National Food Institute
Division of Food Chemistry

**Description**
DL-F konference i København

**Related external organisation**

**Unknown external organisation**
Activity: Talks and presentations › Conference presentations

**Standadising test methods - missing aspects**
Period: Oct 2014
Marta Axelstad Petersen (Lecturer)
National Food Institute
Division of Toxicology and Risk Assessment

**Description**
Inviteret foredragsholder på Fresenius konference om Hormonforstyrrende stoffer

**Related external organisation**

**Unknown external organisation**
Activity: Talks and presentations › Conference presentations

**SafeOrganic Closing Seminar**
Period: 30 Oct 2014
Annette Nygaard Jensen (Organizer)
National Food Institute
Division of Food Microbiology

**Description**
Præsentation af projektresultater for SafeOrganic (CORE Organic II projekt)
Documents:
SafeOrganic Closing Seminar Cph 30 Oct 2014

**Related event**

**SafeOrganic Closing Seminar**
30/10/2014 → …
Mørkhøj, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Skriv klare og effektive tekster til myndighederne**
Period: 30 Oct 2014
Tina Beck Hansen (Participant)
National Food Institute
Division of Food Microbiology

**Related event**

**Skriv klare og effektive tekster til myndighederne**
30/10/2014 → …
Søborg, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.
Arsenic compounds in foodstuffs – recent developments in speciation analysis and food safety assessment
Jens Jørgen Sloth (Invited speaker)
National Food Institute
Division of Food Chemistry
Description
Tutorial on As compounds in food and their analysis
Links:

Related event
Food Analysis Congress 2014
29/10/2014 → 30/10/2014
Barcelona, Spain
Activity: Talks and presentations › Conference presentations

Danish Seafood Association (DSA)
Period: 29 Oct 2014
Michael Engelbrecht Nielsen (Invited speaker)
National Food Institute
Division of Toxicology and Risk Assessment
Division of Industrial Food Research

Related event
Danish Seafood Association (DSA): Ferskfisk-gruppen
29/10/2014 → …
Hanstholm, Denmark
Activity: Talks and presentations › Conference presentations

μTAS 2014
Period: 26 Oct 2014
Dang Duong Bang (Participant)
National Food Institute
Division of Food Microbiology
Description
Poster presentation

Related event
μTAS 2014
26/10/2014 → 30/10/2014
Saint Antonio, TX, United States
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Trace forward - trace back in foodborne outbreaks
Period: 23 Oct 2014
Anne Wingstrand (Lecturer)
National Food Institute
Division of Epidemiology and Microbial Genomics
Description
EC Better Training Safer Food (BTSF) courses on Foodborne Outbreaks Investigation
Kødkursus - specialisering 2014: Saltning
Period: 22 Oct 2014
Tina Beck Hansen (Speaker)
National Food Institute
Division of Food Microbiology
Description
Undervisning af tilsynsførende i fødevaresikkerhed ved saltning af kødprodukter
Documents:
saltning_vejle_221014

Vitamin D status and intake in Nordic countries
Rikke Andersen (Invited speaker)
National Food Institute
Division of Nutrition
Description
VitmaD – Results from a Vitamin D fortification project in Denmark
Seminar: "Vitamin D status and intake in Nordic countries – what is recommended and how to meet recommendations?"
Related event
Vitamin D status and intake in Nordic countries
22/10/2014 → 23/10/2014
Helsinki, Finland
Activity: Talks and presentations › Conference presentations
2nd qPCR & Digital PCR Congress
Period: 20 Oct 2014
Mette Sofie Rousing Fachmann (Participant)
National Food Institute
Division of Food Microbiology
Department of Systems Biology

Description
Poster presentation

Related event
2nd qPCR & Digital PCR Congress: Developments & Potential of qPCR & dPCR as a Tool for Progressing Molecular Biology Research
20/10/2014 → 21/10/2014
London, United Kingdom
Activity: Attending an event › Participating in or organising a conference

Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Birgitte Helwigh (Organizer)
Birgitte Borck Høg (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Lisbon, Portugal
Degree of recognition: International

Related event
Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Anne Wingstrand (Speaker)
National Food Institute
Division of Epidemiology and Microbial Genomics

Description
Lisbon, Portugal
Degree of recognition: International

Related event
Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Talks and presentations › Conference presentations

An update on the analysis of lipid-soluble arsenic compounds in marine oils – new compounds and new challenges
Period: 17 Oct 2014
Jens Jørgen Sloth (Invited speaker)
National Food Institute
Division of Food Chemistry
Related event

EU-RL Workshop on Trace Elements in Food of Animal Origin
17/10/2014 → …
Rom, Italy
Activity: Talks and presentations › Conference presentations

Deltagelse i Ph.D. bedømmelsesudvalg
Period: 13 Oct 2014
Dorte Lau Baggesen (External examiner)
Division of Food Microbiology
National Food Institute

Description
Deltagelse i bedømmelse af Luu Quynh Huong’s Ph.d. afhandling og forsvar
Activity: Examinations and supervision › External examination

Environmental endocrine disrupters and early aging
Period: 9 Oct 2014
Marta Axelstad Petersen (Lecturer)
National Food Institute
Division of Toxicology and Risk Assessment

Related event

Temadag om miljø og aldring, Sundhedsstyrelsens Rådgivende Videnskablige Udvalg for Miljø og Sundhed
09/10/2014 → …
København, Denmark
Activity: Talks and presentations › Conference presentations

*Pro et Cons* for akkreditering af højt specialiseret forsknings- og referencelaboratorium
Period: 9 Oct 2014
Dorte Lau Baggesen (Invited speaker)
National Food Institute
Division of Food Microbiology
Documents:
20141009_DEKS_Dorte Lau Baggesen

Related event

DEKS Brugermøde
09/10/2014 → …
København, Denmark
Activity: Talks and presentations › Conference presentations

4th Nordic Seaweed Conference
Urd Grandorf Bak (Participant)
National Food Institute

Description

Related event

4th Nordic Seaweed Conference
08/10/2014 → 09/10/2014
Grenaa, Denmark
Activity: Attending an event › Participating in or organising a conference

4th Nordic Seaweed Conference
Ditte Baun Hermund (Participant)
National Food Institute
Division of Industrial Food Research

Description
Poster

Related event
4th Nordic Seaweed Conference
08/10/2014 → 09/10/2014
Grenaa, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

4th Nordic Seaweed Conference
Susan Løvstad Holdt (Speaker)
National Food Institute
Division of Industrial Food Research
Documents:
Grenaa-Amino acid in seaweed IMTA-Holdt et al 2014-final

Related event
4th Nordic Seaweed Conference
08/10/2014 → 09/10/2014
Grenaa, Denmark
Activity: Talks and presentations › Conference presentations

Development of dispersion procedures for surface-functionalized CuO nanoparticles to use in large-scale toxicity studies.
Period: 8 Oct 2014
Manuel Correia (Speaker)
National Food Institute
Research Group for Nano-Bio Science

Related event
NanoSafety Forum for Young Scientists, Syracuse, Italy
08/10/2014 → 09/10/2014
Syracuse, Italy
Activity: Talks and presentations › Conference presentations

Fiskekursus - specialisering
Period: 8 Oct 2014
Ole Mejlholm (Lecturer)
Research Group for Microbial Food Safety and Quality
National Food Institute

Description
20 participants from the Danish Veterinary and Food Administration Listeria monocytogenes: How to manage and prevent growth in seafood products (oral presentation) and PC exercises Marination of fish and seafood products – what can go wrong with respect to shelf-life and safety (oral presentation)
One-day workshop with participants from the Danish Veterinary and Food Administration

**Related event**

**Fiskekursus - specialisering: Fødevarestyrelsen**
08/10/2014 → …
Copenhagen, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

**Integreret produktudvikling i fødevareindustrien**
Period: 8 Oct 2014
Heddie Mejborn (Guest lecturer)
Division of Nutrition
National Food Institute

**Description**
Gæsteforelæser

**Related event**

**Integreret produktudvikling i fødevareindustrien**
01/09/2014 → …
Kgs. Lyngby, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

**Source attribution methods: typing of antibiotic resistant bacteria and surveillance data modelling**
Sara Monteiro Pires (Speaker)
National Food Institute
Research Group for Risk-Benefit

**Related event**

**The European College for Veterinary Public Health Annual Scientific Meeting**
07/10/2014 → 10/10/2015
Copenhagen, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

**Bulletin of the International Dairy Federation (Journal)**
Period: 1 Oct 2014
Mikael Pedersen (Peer reviewer)
Division of Food Chemistry
National Food Institute

**Description**

Article in IDF bulletin

**Related journal**

**Bulletin of the International Dairy Federation**
0250-5118
Central database
Activity: Research › Peer review of manuscripts

**Danish Seafood Association (DSA)**
Period: 1 Oct 2014
Michael Engelbrecht Nielsen (Invited speaker)
National Food Institute
Division of Toxicology and Risk Assessment
Division of Industrial Food Research

Related event

Danish Seafood Association (DSA) : Lakse- og røgeri-gruppe
01/10/2014 → …
Esbjerg, Denmark
Activity: Talks and presentations › Conference presentations

Mikrobiologisk grønt- og frugtsikkerhed
Period: 1 Oct 2014 → 1 Dec 2014
Julia Christensen (Participant)
Research Group for Diagnostic Engineering
Division of Food Microbiology
National Food Institute
Division of Risk Assessment and Nutrition
Degree of recognition: Local

Related event

Mikrobiologisk grønt- og frugtsikkerhed
01/10/2014 → 01/12/2014
København
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Quantitative and Qualitative Analysis of PFAS in food contact materials and human blood: by On-line SPE UHPLC ESI–QTOF MS
Period: 1 Oct 2014
Xenia Trier (Lecturer)
National Food Institute
Division of Food Chemistry

Related event

Agilent European Mass Spectrometry Meeting
30/09/2014 → 02/10/2014
Liverpool, United Kingdom
Activity: Talks and presentations › Conference presentations

WGS som epidemologisk værktøj
Period: 1 Oct 2014
Charlotta Löfström (Lecturer)
National Food Institute
Division of Food Microbiology

Related event

Fælles laboratoriedag med FVSTs laboratorier
01/10/2014 → …
Kgs. Lyngby, Denmark
Activity: Talks and presentations › Conference presentations
Perinatal Bisphenol A (BPA) exposure causes non-monotonic dose-response relationships on some reproductive and neurobehavioural endpoints
Period: Sep 2014
Marta Axelstad Petersen (Lecturer)
National Food Institute
Division of Toxicology and Risk Assessment

Description
Short oral presentation

Related event
42nd Annual Conference of the European Teratology Society
01/09/2014 → 04/09/2014
Hamburg, Germany
Activity: Talks and presentations › Conference presentations

Monitoring of antimicrobial resistance in Campylobacter – EURL AR activities in framework of the new EU regulation
Period: 30 Sep 2014 → 1 Oct 2014
Lina Cavaco (Invited speaker)
National Food Institute
Division of Epidemiology and Microbial Genomics

Description
Talk as invited speaker to workshop

Related event
EURL Campylobacter Workshop 2014
28/09/2014 → 01/10/2014
Uppsala, Sweden
Activity: Talks and presentations › Conference presentations

Censor for kandidatprojekt
Period: 26 Sep 2014
Martin Iain Bahl (External examiner)
National Food Institute
Division of Food Microbiology

Description
Censor for kandidatprojekt skrevet af Christina Balle. (Vejlder Søren J. Sørensen)
Activity: Examinations and supervision › External examination

Application of new x-ray possibilities in the aquaculture industry
Period: 24 Sep 2014 → 26 Sep 2014
Michael Engelbrecht Nielsen (Invited speaker)
National Food Institute
Division of Toxicology and Risk Assessment

Description
Aquaculture continues to be the fastest growing animal food-producing sector in the world with an annual growth of approximately 10% during the last decades. The industry has changed from a low-tech industry to highly sophisticated and automated solutions. This industrialization has created new challenges in relation to fish feed production and product quality assurance. We have demonstrated that new x-ray methods could be a solution to some of these challenges, and will present results in relation to fish feed pellets and fish tissue changes.

Related event
EURL-AR Traning Course
Period: 24 Sep 2014 → 26 Sep 2014
Annette Nygaard Jensen (Participant)
National Food Institute
Division of Food Microbiology

Related event
EURL-AR Traning Course: Selective isolation, identification and susceptibility testing of ESBL-, AmpC- and carbapenemase-producing E. coli
24/09/2014 → 26/09/2014
Lyngby, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

New legislation on AMR monitoring- ESBL/AmpC and carbapenemase producing organisms
Period: 24 Sep 2014 → 26 Sep 2014
Lina Cavaco (Organizer)
National Food Institute
Division of Epidemiology and Microbial Genomics

Description
EURL-AR Training course

Related event
New legislation on AMR monitoring- ESBL/AmpC and carbapenemase producing organisms: Isolation, identification and confirmatory testing
24/09/2014 → 26/10/2014
Kgs Lyngby, Denmark
Activity: Attending an event › Participating in or organising a conference

Tangnetværksmøde
Period: 24 Sep 2014
Urd Grandorf Bak (Participant)
National Food Institute
Division of Industrial Food Research

Description
I forbindelse med Tang-Match

Related event
Tangnetværksmøde: CP Kelco
24/10/2014 → ...
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Period: 22 Sep 2014 → 26 Sep 2014
Birgitte Helwigh (Organizer)
Lone Jannok Porsbo (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition
Division of Epidemiology and Microbial Genomics

Description
Rome, Italy
Degree of recognition: International

Related event

Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Period: 22 Sep 2014 → 26 Sep 2014
Anna Charlotte Schultz (Speaker)
National Food Institute
Research Group for Microbial Food Safety

Description
Rome, Italy
Degree of recognition: International

Related event

Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Talks and presentations › Conference presentations

11th EuroFedLipid Conference
Period: 14 Sep 2014
Charlotte Jacobsen (Chairman)
Division of Industrial Food Research
National Food Institute

Description
11th EuroFedLipid Conference

Session chair, scientific committee, reviewer

Related event

11th EuroFedLipid Conference
14/09/2014 → 17/09/2014
Montpellier, France
Activity: Attending an event › Participating in or organising a conference

Seaweed based food ingredients to inhibit lipid oxidation in fish-oil-enriched mayonnaise
Period: 14 Sep 2014 → 17 Sep 2014
Ditte Baun Hermund (Other)
National Food Institute
Division of Industrial Food Research

Description
Poster

Related event

12th Euro Fed Lipid Congress: Oils, Fats and Lipids: From lipidomics to industrial innovation
Antioxidative properties of some phototropic microalgae grown in waste water
Period: 13 Sep 2014 → 17 Sep 2014
Hamed Safafar (Lecturer)
National Food Institute
Division of Industrial Food Research

Related event

12th Euro Fed Lipid Congress: Oils, Fats and Lipids: From lipidomics to industrial innovation
14/09/2014 → 17/09/2014
Montpellier, France
Activity: Talks and presentations › Conference presentations

-7th Meeting on Global Microbial Identifier
Period: 11 Sep 2014 → 12 Sep 2014
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
7th Meeting on Global Microbial Identifier

Related event

-7th Meeting on Global Microbial Identifier
York, United Kingdom
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

-7th Meeting on Global Microbial Identifier
Period: 11 Sep 2014
Rene S. Hendriksen (Speaker)
National Food Institute
Research Group for Genomic Epidemiology

Description
Ring trials and QA/QC - Progress report

Related event

-7th Meeting on Global Microbial Identifier
York, United Kingdom
Activity: Talks and presentations › Conference presentations

-Pathogen Genomics: Application in Plant Health
Period: 10 Sep 2014
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
Pathogen Genomics: Application in Plant Health
Related event

-Pathogen Genomics: Application in Plant Health
Period: 10 Sep 2014
Rene S. Hendriksen (Speaker)
National Food Institute
Research Group for Genomic Epidemiology
Description
Genome sequencing – the ultimate answer to global real time genotyping and surveillance

Related event

Relationship between food allergy and contact sensitisation
Period: 10 Sep 2014
Charlotte Bernhard Madsen (Speaker)
National Food Institute
Research Group for Gut Microbiology and Immunology

Related external organisation

Miljøstyrelsen
Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Kost- og Ernæringsforbundets inspirationsmøder
Period: 8 Sep 2014 → 10 Sep 2014
Heddie Mejborn (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Description
Ernærings- og sundhedsmæssige effekter af fuldkorn.
Degree of recognition: National

Related event

Kost- og Ernæringsforbundets inspirationsmøder
Period: 08/09/2014 → 10/09/2014
Denmark
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

50th Congress of the European Societies of Toxicology (EUROTOX)
Period: 7 Sep 2014 → 10 Sep 2014
Anoop Kumar Sharma (Participant)
National Food Institute
Division of Toxicology and Risk Assessment
Description
Poster presentation at the conference

Presentation at conference: Genotoxicity of Bisphenol A

Related event

50th Congress of the European Societies of Toxicology (EUROTOX)
07/09/2014 → 10/09/2014
Edinburgh, United Kingdom
Activity: Attending an event › Participating in or organising a conference

Speciation analysis of lipid-soluble arsenic compounds (arsenolipids) in marine oils – new compounds and new challenges
Period: 7 Sep 2014 → 10 Sep 2014
Jens Jørgen Sloth (Invited speaker)
National Food Institute
Division of Food Chemistry

Related event

128th AOAC International 2014 Annual Meeting
07/09/2014 → 10/09/2014
Boca Raton, United States
Activity: Talks and presentations › Conference presentations

EU-RL/NRL Workshop 2014
Period: 4 Sep 2014 → 5 Sep 2014
Anne Kruse Lykkeberg (Guest lecturer)
National Food Institute
Division of Food Chemistry

Related event

EU-RL/NRL Workshop 2014: Pesticide Residues in Cereals and Feedingstuff
04/09/2014 → 05/09/2014
København, Denmark
Activity: Talks and presentations › Conference presentations

Screening method by LC and GC-QTOF
Period: 4 Sep 2014
Anne Kruse Lykkeberg (Lecturer)
National Food Institute
Division of Food Chemistry
Documents:
Screening method by LC and GC-QTOF

Related event

EU-RL/NRL Workshop 2014: Pesticide Residues in Cereals and Feedingstuff
04/09/2014 → 05/09/2014
København, Denmark
Activity: Talks and presentations › Conference presentations

International Study Group of Systems Biology 2014
Period: 2 Sep 2014 → 5 Sep 2014
Siu Hung Joshua Chan (Speaker)
Systems Biotechnology
National Food Institute

Description

Oral presentation

Participation in conference

Related event

International Study Group of Systems Biology 2014: From Cell to Organism
02/09/2014 → 05/09/2014
Durham, United Kingdom
Activity: Talks and presentations › Conference presentations

Electrospinning: Exploiting Electrohydrodynamics and Rheology for the Control of Nanofiber Structural and Physical Properties
Period: 1 Sep 2014
Karen Boutrup Stephansen (Participant)
National Food Institute

Description

Electrospinning: Exploiting Electrohydrodynamics and Rheology for the Control of Nanofiber Structural and Physical Properties

Related event

Electrospinning: Exploiting Electrohydrodynamics and Rheology for the Control of Nanofiber Structural and Physical Properties
01/09/2014 → 05/09/2014
Udine, Italy
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Prøveforberedelse til next gen sequencing og real-time PCR
Period: 1 Sep 2014 → 1 Nov 2014
Julia Christensen (Participant)
Research Group for Diagnostic Engineering
Division of Food Microbiology
National Food Institute
Division of Risk Assessment and Nutrition

Related event

Prøveforberedelse til next gen sequencing og real-time PCR
01/09/2014 → 01/11/2014
København
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Censor: Censor for specialestuderende i human ernæring
Period: 28 Aug 2014
Vibeke Kildegaard Knudsen (External examiner)
National Food Institute

Description

Vurdering af speciale med titlen 'Determinants of dietary supplement use - a cross-sectional study in middle-aged Danes'
Activity: Examinations and supervision › External examination

Effects on rat reproductive system after developmental exposure to mixtures of endocrine disrupter compounds
Period: 28 Aug 2014
Karen Mandrup Egebjerg (Invited speaker)
National Food Institute
Division of Toxicology and Risk Assessment

**Description**
Invited speaker at the 12th European Congress of Toxicologic Pathology with focus on Toxicopathology of the endocrine and endocrine regulated organs, Berlin, Germany.

**Related event**

*Cutting Edge Pathology: 2nd Joint European Congress of the ESVP, ESTP and ECVP*
27/08/2013 → 30/08/2014
Berlin, Germany
Activity: Talks and presentations › Conference presentations

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Urd Grandorf Bak (Participant)
National Food Institute

**Description**
Praktisk hjælp samt deltagende ved mange oplæg og ved networking og poster session

**Related event**

*2nd International Conference on Algal Biorefinery*
Lyngby, Denmark
Activity: Attending an event › Participating in or organising a conference

**Bioactive compounds extracted from seaweed and application in food systems**
Ditte Baun Hermund (Speaker)
National Food Institute
Division of Industrial Food Research

**Description**
Oral Presentation: Bioactive compounds extracted from seaweed and application in food systems. [PhD student Ditte B. Larsen, National Food Institute, DTU, Denmark]

**Related event**

*2nd International Conference on Algal Biorefinery: A potential source of food, feed, biochemicals, biofuels and biofertilizers*
27/08/2014 → 29/08/2014
Lyngby, Denmark
Activity: Talks and presentations › Conference presentations

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Hamed Safafar (Lecturer)
National Food Institute
Division of Industrial Food Research

**Related event**

*Lipid profiling of some autotrophic microalgae grown on waste water*
Period: 27 Aug 2014
Hamed Safafar (Lecturer)
Opponent ved ph.d. forsvar
Period: 23 Aug 2014
Martin Iain Bahl (External examiner)
Division of Food Microbiology
National Food Institute

Description
Deltagelse i bedømmelsesudvalg samt opponent ved ph.d. forsvar for Lukasz Krych (Vejleder Dennis S. Nielsen)
Activity: Examinations and supervision › External examination

Global data and international outbreaks: Integrated surveillance - One Health
Period: 22 Aug 2014
Birgitte Helwigh (Lecturer)
National Food Institute
Division of Epidemiology and Microbial Genomics

Description
Presentation given at a BfR summerschool

Related external organisation
Unknown external organisation
Activity: Talks and presentations › Conference presentations

60th International Congress of Meat Science and Technology
Dimitrios Spanos (Participant)
National Food Institute
Division of Industrial Food Research
Documents:
ICoMST Poster 1
ICoMST Poster 2

Related event
60th International Congress of Meat Science and Technology
17/08/2014 → 22/08/2014
Punta del Este, Uruguay
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Health management in the food area: The use of DALYs in food policies
Period: 13 Aug 2014
Maarten Nauta (Speaker)
National Food Institute
Division of Epidemiology and Microbial Genomics

Related event
Life Safety and Health management
12/08/2014 → 13/08/2014
Lyngby, Denmark
Activity: Talks and presentations › Conference presentations
Beer brewing and quality control
Period: 8 Aug 2014
Tina Beck Hansen (Internal examiner)
National Food Institute
Division of Food Microbiology

Description
Intern bedømmelse af 8 rapporter
Activity: Examinations and supervision › Internal examination

Developing Tools for Risk Assessment and Risk-based Food Control: The Challenge of Harmonization and the Road to the Future
Period: 5 Aug 2014
Maarten Nauta (Speaker)
National Food Institute
Division of Epidemiology and Microbial Genomics

Related event
International Association for Food Protection Conference 2014
03/08/2014 → 06/08/2014
Indianapolis, United States
Activity: Talks and presentations › Conference presentations

3rd International Conference on Electrospinning
Karen Boutrup Stephansen (Participant)
National Food Institute

Description
Presentation of a poster

Related event
3rd International Conference on Electrospinning
04/08/2014 → 07/08/2014
San Francisco, CA, United States
Activity: Attending an event › Participating in or organising a conference

Food Spoilage and Safety Predictor (FSSP) software
Period: 3 Aug 2014
Paw Dalgaard (Lecturer)
National Food Institute
Division of Industrial Food Research

Description
Dalgaard, P., Mejholm, O., Cowan, B. (2014). Food Spoilage and Safety Predictor (FSSP) software. Abstract T3-02 for oral presentation at Annual Meeting of International Association for Food Protection (IAFP), Indianapolis, Indiana, 3-6 August 2014, USA. (Journal of Food Protection 77 (Supplement A), page 30)

Related event
International Association for Food Protection Conference 2014
03/08/2014 → 06/08/2014
Indianapolis, United States
Activity: Talks and presentations › Conference presentations
Entrepreneurship in Food  
Period: 1 Aug 2014 → 1 Sep 2014  
Julia Christensen (Participant)  
Research Group for Diagnostic Engineering  
National Food Institute  
Division of Risk Assessment and Nutrition  

Related event  
Entrepreneurship in Food  
Period: 01/08/2014 → 01/09/2014  
København  
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

WHO WPRO training course  
Period: 30 Jul 2014 → 1 Aug 2014  
Rene S. Hendriksen (Organizer)  
National Food Institute  
Research Group for Genomic Epidemiology  

Description  
WHO WPRO National Workshop on Syndromic Surveillance and Testing of Enteric Pathogens (Next Generation Sequencing)

Related event  
WHO WPRO training course: WHO WPRO National Workshop on Syndromic Surveillance and Testing of Enteric Pathogens  
Period: 30/07/2014 → 01/08/2014  
Hanoi, Viet Nam  
Activity: Attending an event › Participating in or organising a conference

5th International Conference on Advanced Nano Materials  
Period: 2 Jul 2014 → 4 Jul 2014  
Karen Boutrup Stephansen (Speaker)  
National Food Institute  

Description  
Oral presentation at "International Conference on Advanced Nano Materials"

Related event  
5th International Conference on Advanced Nano Materials  
Period: 02/07/2014 → 04/07/2014  
Averiro, Portugal  
Activity: Talks and presentations › Conference presentations

3rd International Conference on Food Oral Processing  
Period: 1 Jul 2014  
Hilal Yilmaz Celebioglu (Speaker)  
National Food Institute  
Division of Industrial Food Research  

Description  
Interaction between β-LG & BSM: A Structural and Tribological Approach in Relation to Oral Processing
Danish Pesticide Monitoring Programme 2004-2011: Assessment of cumulative dietary exposure of the Danish population
Period: 1 Jul 2014
Jens Hinge Andersen (Speaker)
National Food Institute
Division of Risk Assessment and Nutrition
Documents:
Dietary Exposure (EPRW 2014 Dublin) JHIA
Abstract

23836 Quantitative Microbiological Risk Assessment
Period: Jun 2014
Ana Sofia Ribeiro Duarte (Participant)
National Food Institute
Research Group for Genomic Epidemiology
Description
Course lecturer
Related event
23836 Quantitative Microbiological Risk Assessment 2014
01/06/2014 → 30/06/2014
Denmark
Activity: Other

Development of a LC-QTOF screening method for pesticides and mycotoxins in cereals
Period: 30 Jun 2014 → 3 Jul 2014
Anne Kruse Lykkeberg (Other)
National Food Institute
Division of Food Chemistry
Description
Poster - presented by Mette Erecius Poulsen

Forfatter af poster
Documents:
LC-QTOF pesticide and mycotoxin
Related event
10th European Pesticide Residue Workshop
30/06/2014 → 03/07/2014
Dublin, Ireland
Activity: Talks and presentations › Conference presentations
Development of a LC-QTOF screening method for pesticides and mycotoxins in cereals
Period: 30 Jun 2014 → 3 Jul 2014
Peter Have Rasmussen (Lecturer)
National Food Institute
Division of Food Chemistry

Description
Poster presented

Related event
10th European Pesticide Residue Workshop
30/06/2014 → 03/07/2014
Dublin, Ireland
Activity: Talks and presentations › Conference presentations

Screening method validation of pesticide residues in cereals using GC-QTOF
Period: 30 Jun 2014 → 3 Jul 2014
Anne Kruse Lykkeberg (Other)
National Food Institute
Division of Food Chemistry

Description
Poster præsenteret af Mette Erecius Poulsen
Jeg deltog ikke selv
Documents:
Poster pesticide screening GC-QTOF-Dublin140625

Related event
10th European Pesticide Residue Workshop
30/06/2014 → 03/07/2014
Dublin, Ireland
Activity: Talks and presentations › Conference presentations

Uncovering the real burden of foodborne diseases: Integrating burden of disease and source attribution
Period: 30 Jun 2014 → 3 Jul 2014
Sara Monteiro Pires (Speaker)
National Food Institute
Research Group for Risk-Benefit
Degree of recognition: International

Related event
Society for Applied Microbiology's Summer Conference 2014
30/06/2014 → 03/07/2014
Brighton, United Kingdom
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations

Censor for Bachelorprojekt
Period: 26 Jun 2014
Martin Iain Bahl (External examiner)
Division of Food Microbiology
National Food Institute
Description
Censor for bachelorprojekt skrevet af Anne Egfjord og Rikke Christensen. (Vejlder Karsten Kristiansen og Pia Kiilerich)
Activity: Examinations and supervision › External examination

**Temadag om fiskeolie**
Period: 25 Jun 2014
Charlotte Jacobsen (Invited speaker)
National Food Institute
Division of Industrial Food Research

**Related event**

**Temadag om fiskeolie**
25/06/2014 → …
Århus, Denmark
Activity: Talks and presentations › Conference presentations

**Better Training for Safer Food (BTSF): Foodborne outbreak investigations**
Period: 23 Jun 2014 → 26 Jun 2014
Birgitte Helwigh (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

**Description**
Tallinn, Estonia
Degree of recognition: International

**Related event**

**Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days**
15/12/2012 → 15/12/2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Better Training for Safer Food (BTSF): Foodborne outbreak investigations**
Period: 23 Jun 2014 → 26 Jun 2014
Lone Jannok Porsbo (Speaker)
National Food Institute

**Description**
Tallinn, Estonia
Degree of recognition: International

**Related event**

**Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days**
15/12/2012 → 15/12/2016
Activity: Talks and presentations › Conference presentations

**5th Congress of the International Society for Applied Phycology**
Period: 22 Jun 2014 → 27 Jun 2014
Susan Løvstad Holdt (Speaker)
National Food Institute
Division of Industrial Food Research

**Related event**

**5th Congress of the International Society for Applied Phycology**
22/06/2014 → 27/06/2014
5th Congress of the International Society for Applied Phycology
Period: 22 Jun 2014 → 27 Jun 2014
Susan Løvstad Holdt (Speaker)
National Food Institute
Division of Industrial Food Research
Documents:
ISAP2014 Sugarkelp as biofilter-GSMarinho et al_final!

5th Congress of the International Society for Applied Phycology
Period: 22 Jun 2014 → 27 Jun 2014
Susan Løvstad Holdt (Speaker)
National Food Institute
Division of Industrial Food Research

Related event

The Commercial IMTA and future seaweed biofilter potential in Denmark
Period: 22 Jun 2014 → 27 Jun 2014
Susan Løvstad Holdt (Invited speaker)
National Food Institute
Division of Industrial Food Research
Documents:
The Commercial IMTA and future seaweed biofilter potential-SLHoldt-final

Related event

Muscle Based Food Network
Period: 17 Jun 2014
Michael Engelbrecht Nielsen (Participant)
National Food Institute
Division of Toxicology and Risk Assessment
**Description**
Fish health and fish quality

**Related event**

**Muscle Based Food Network: Issue changes in meat affecting the meat quality – Causes, detection and prevention**
17/06/2014 → …
Horsens, Denmark
Activity: Attending an event › Participating in or organising a conference

**5th International Conference on the Development of Biomedical Engineering**
Period: 16 Jun 2014
Dang Duong Bang (Organizer)
Division of Food Microbiology
National Food Institute

Description
Conference organiser and Chair of Lab-on-a-chip session

**Related event**

**5th International Conference on the Development of Biomedical Engineering**
16/06/2014 → 18/06/2014
Ho Chi minh City, Viet Nam
Activity: Attending an event › Participating in or organising a conference

**EFSA Scientific Colloquium N°20 on "Use of Whole Genome Sequencing (WGS) of food-borne pathogens for public health protection"**
Period: 16 Jun 2014 → 17 Jun 2014
Dorte Lau Baggesen (Chairman)
Division of Food Microbiology
National Food Institute

Description
Co-chair for diskussionsgruppe
Chair for WGS of foodborne pathogens: cross-sectorial coordination and international cooperation

**Related event**

**EFSA Scientific Colloquium N°20 on "Use of Whole Genome Sequencing (WGS) of food-borne pathogens for public health protection"**
16/06/2014 → 17/06/2014
Parma, Italy
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**EFSA Scientific Colloquium N°20 on "Use of Whole Genome Sequencing (WGS) of food-borne pathogens for public health protection"**
Period: 16 Jun 2014 → 17 Jun 2014
Charlotta Löfström (Participant)
National Food Institute
Division of Food Microbiology
Links:

**Related event**

**EFSA Scientific Colloquium N°20 on "Use of Whole Genome Sequencing (WGS) of food-borne pathogens for public health protection"**
16/06/2014 → 17/06/2014
Parma, Italy
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**-EFSA Scientific Colloquium on WGS of food-borne pathogens for public health protection**

Period: 16 Jun 2014 → 17 Jun 2014
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

**Description**
EFSA Scientific Colloquium on WGS of food-borne pathogens for public health protection

**Related event**

**-EFSA Scientific Colloquium on WGS of food-borne pathogens for public health protection**
16/06/2014 → 17/06/2014
Parma, Italy
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

"Lab-on-a-chip (LOC) systems for food safety. Possibilities of application and development of LOC systems in Vietnam"

Period: 16 Jun 2014
Dang Duong Bang (Invited speaker)
National Food Institute
Division of Food Microbiology

**Links:**
http://www.springer.com/engineering/biomedical+engineering/book/978-3-319-11775-1 (5th International conference on the development of Biomedical Engineering Conference proceeding, page 9)

**Related event**

5th International Conference on the Development of Biomedical Engineering
16/06/2014 → 18/06/2014
Ho Chi Minh City, Viet Nam
Activity: Talks and presentations › Conference presentations

**Qualitative and quantitative analysis of PFAS in food paper packaging and in human plasma by LC-QTOF MS, on-line SPE and 19F NMR**

Period: 16 Jun 2014
Xenia Trier (Lecturer)
National Food Institute
Division of Food Chemistry

**Related event**

6th International PFAS Workshop: Per- and Polyfluorinated Alkyl Substances – PFASs
15/06/2014 → 18/06/2014
Idstein, Germany
Activity: Talks and presentations › Conference presentations

10th International CDIO Conference
Period: 15 Jun 2014 → 19 Jun 2014
Lars Bogø Jensen (Participant)
National Food Institute
Division of Food Microbiology
Description
International konference om undervisning i forhold til CDIO
Documents:
The impact of students’ knowledge levels on the performances in a Design-Build project
Collaboration between courses in the interdisciplinary course Food Microbiology
Links:
http://www.cdio.org/node/5931

Related event

10th International CDIO Conference: Sharing successful engineering education experiences
15/06/2014 → 19/06/2014
Barcelona, Spain
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

10th International CDIO Conference
Period: 15 Jun 2014 → 19 Jun 2014
Tina Birk (Participant)
National Food Institute
Division of Food Microbiology
Documents:
Collaboration between courses in the interdisciplinary course Food Microbiology

Related event

10th International CDIO Conference: Sharing successful engineering education experiences
15/06/2014 → 19/06/2014
Barcelona, Spain
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

LC-HRMS Practical Session
Period: 13 Jun 2014
Anne Kruse Lykkeberg (Lecturer)
National Food Institute
Division of Food Chemistry

Related event

Joint Training EURL-CF/FV LC and GC HRMS
12/06/2014 → 13/06/2014
Almeria, Spain
Activity: Talks and presentations › Conference presentations

Application of HR-LC-MS in screening methods for pesticides in cereals
Period: 12 Jun 2014 → 13 Jun 2014
Anne Kruse Lykkeberg (Lecturer)
National Food Institute
Division of Food Chemistry
Documents:
LC-QTOF - Almeria

Related event

Joint Training EURL-CF/FV LC and GC HRMS
12/06/2014 → 13/06/2014
Almeria, Spain
Activity: Talks and presentations › Conference presentations
Joint Training EURL-CF/FV LC and GC HRMS
Period: 12 Jun 2014 → 13 Jun 2014
Anne Kruse Lykkeberg (Organizer)
National Food Institute
Division of Food Chemistry

Description
Medarrangør sammen med folk fra Universitetet i Almeria

Related event
Joint Training EURL-CF/FV LC and GC HRMS
12/06/2014 → 13/06/2014
Almeria, Spain
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

-Global Foodborne Infections Network (GFN) Stakeholder Meeting
Period: 11 Jun 2014 → 13 Jun 2014
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
Global Foodborne Infections Network (GFN) Stakeholder Meeting

Related event
-Global Foodborne Infections Network (GFN) Stakeholder Meeting
11/06/2014 → 13/06/2014
Geneva, Switzerland
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Salt and water distribution in commercial Icelandic heavily salted Atlantic cod as affected by catching method, pre- and post-rigor processing, and pre-salting method: A 23Na and 1H multi-parametric MR analysis.
Period: 9 Jun 2014 → 11 Jun 2014
Maria Guðjónsdóttir (Lecturer)
National Food Institute
Division of Industrial Food Research

Related event
44th WEFTA meeting: SEAFOOD science for a changing demand
09/06/2014 → 11/06/2014
Bilbao, Spain
Activity: Talks and presentations › Conference presentations

A genomic dissection of travel associated ESBL producing Salmonella Typhi originating from the Philippines - A one-off occurrence or threat to the effective treatment of typhoid fever.
Period: 4 Jun 2014
Rene S. Hendriksen (Speaker)
National Food Institute
Research Group for Genomic Epidemiology

Related event
NGS kurset for kliniske og molekylære mikrobiologer
Seminar and workshop for preparation for an update of the Codex Alimentarius's HACCP standard.
Period: 3 Jun 2014 → 6 Jun 2014
Tina Beck Hansen (Participant)
National Food Institute
Division of Food Microbiology

Description
HACCP - the road ahead

Seminar and workshop for preparation for an update of the Codex Alimentarius's HACCP standard.

Deltagelse på vegne af DTU Fødevareinstituttet og FVST

Related event
Seminar and workshop for preparation for an update of the Codex Alimentarius's HACCP standard.
03/06/2014 → 06/06/2014
Finland
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

7th International Symposium on Hormone and Veterinary Drug Analysis
Period: 2 Jun 2014 → 5 Jun 2014
Anne Kruse Lykkeberg (Participant)
National Food Institute
Division of Food Chemistry

Related event
7th International Symposium on Hormone and Veterinary Drug Analysis
02/06/2014 → 05/06/2014
Gent, Belgium
Activity: Attending an event › Participating in or organising a conference

7th Nordic Conference on Plasma Spectrochemistry
Period: 1 Jun 2014 → 4 Jun 2014
Jens Jørgen Sloth (Organizer)
Division of Food Chemistry
National Food Institute
Research Group for Nano-Bio Science
Degree of recognition: International

Related event
7th Nordic Conference on Plasma Spectrochemistry
01/06/2014 → 04/06/2014
Loen, Norway
Activity: Attending an event › Participating in or organising a conference

Late Lessons from Early Warnings
Period: 28 May 2014
Xenia Trier (Organizer)
National Food Institute
Division of Food Chemistry

Description
Late Lessons from Early Warnings: Science, Precaution, Innovation.

Related event
Late Lessons from Early Warnings
28/05/2014 → …
Lyngby, Denmark
Activity: Attending an event › Participating in or organising a conference

Towards Harmonization of Food Safety Risk Modelling and its Resources
Period: 28 May 2014
Maarten Nauta (Lecturer)
National Food Institute
Division of Epidemiology and Microbial Genomics

Related event
IAFP Webinar PDG Microbial Modelling and Risk Analysis
28/05/2014 → …
Denmark
Activity: Talks and presentations › Conference presentations

Nordic Seminar on Source Attribution of
Period: 26 May 2014 → 28 May 2014
Leonardo de Knegt (Participant)
National Food Institute
Division of Epidemiology and Microbial Genomics

Description
Presenter of the lecture "Source attribution of Salmonella in Denmark using molecular data".

Related event
Nordic Seminar on Source Attribution of
26/05/2014 → 28/06/2014
Holte, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Nordic Seminar on Source Attribution of
Period: 26 May 2014 → 28 May 2014
Ana Sofia Ribeiro Duarte (Participant)
National Food Institute
Division of Epidemiology and Microbial Genomics

Related event
Nordic Seminar on Source Attribution of
26/05/2014 → 28/06/2014
Holte, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Myndighedsbetjening Modul II
Period: 22 May 2014
Annette Nygaard Jensen (Participant)
National Food Institute
Division of Food Microbiology

Related event

Modelling cross contamination in food processing: Theori and Application
Period: 20 May 2014
Cleide Oliveira de Almeida Møller (Lecturer)
National Food Institute
Division of Food Microbiology

Description
In this course a discussion related to modelling cross contamination in food processing was encouraged after presenting the theorii and the application of the model proposed by Møller et al (2012) to predict and validate not only Salmonella but different pathogens and different food processing as well.
Documents:
Modelling cross contamination in food processing_CleideMoeller

Related event

Modelling cross contamination in food processing: theori and application
20/05/2014 → 20/05/2014
Campinas, Brazil
Activity: Talks and presentations › Conference presentations

Salt and water distribution in commercial Icelandic heavily salted Atlantic cod as affected by catching method, pre- and post-rigor processing, and pre-salting method: A 23Na and 1H multi-parametric MR analysis.
Period: 20 May 2014 → 23 May 2014
María Guðjónsdóttir (Lecturer)
National Food Institute
Division of Industrial Food Research

Related event

12th International Conference on the Applications of Magnetic Resonance in Food Science
20/05/2014 → 23/05/2014
Cesena, Italy
Activity: Talks and presentations › Conference presentations

Kursus, Myndighedsbetjening, Modul I
Period: 19 May 2014
Anne Wingstrand (Participant)
National Food Institute
Division of Epidemiology and Microbial Genomics

Related event

Kursus, Myndighedsbetjening, Modul I
19/05/2014 → …
Markhøj, Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.
**Kursus, Myndighedsbetjening, Modul I**  
**Period:** 19 May 2014  
Annette Nygaard Jensen (Participant)

National Food Institute  
Division of Food Microbiology

**Related event**

**Kursus, Myndighedsbetjening, Modul I**  
19/05/2014 → …  
Mørkhøj, Copenhagen, Denmark  
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**International Vitamin Conference 2016**  
**Period:** 15 May 2014 → 27 May 2016  
Jette Jakobsen (Organizer)

National Food Institute  
Research Group for Bioactives – Analysis and Application

**Description**  
Chair of Steering and Scientific Committee and Local Organising Committee

**Related event**

**International Vitamin Conference 2016**  
25/05/2016 → 27/05/2016  
Copenhagen, Denmark  
Activity: Attending an event › Participating in or organising a conference

**Vitamin D - The sunshine vitamin in our food**  
**Period:** 15 May 2014  
Jette Jakobsen (Invited speaker)  
National Food Institute  
Division of Food Chemistry

**Related event**

**3rd International Vitamin Conference**  
12/05/2014 → 15/05/2014  
Washington DC, United States  
Activity: Talks and presentations › Conference presentations

**Energy saving using Food process modeling**  
**Period:** 13 May 2014  
Aberham Hailu Feyissa (Speaker)  
National Food Institute  
Research Group for Food Production Engineering

**Description**  
SUSTAINABILITY, RESOURCE SAVINGS AND ENERGY / ENVIRONMENTAL EFFICIENCY WITH FOCUS ON SAFETY DESIGN

**Related event**

**Technology Update: hygiejnisk design**  
13/05/2014 → 13/05/2014  
Denmark  
Activity: Talks and presentations › Conference presentations
Identification of primary cilia in cells of the adult human testis
Period: 13 May 2014 → 17 May 2014
Marie Berg Nygaard (Speaker)
Kristian Almstrup (Other)
Søren Tvorup Christensen (Other)
Terje Svingen (Other)
National Food Institute
Research Group for Molecular and Reproductive Toxicology
Degree of recognition: International

Related event
18th European Workshop on Molecular and Cellular Endocrinology of the Testis
13/05/2014 → 17/05/2014
Elsinore, Denmark
Activity: Talks and presentations › Conference presentations

Validation of endogenous normalising genes for expression analysis in adult human testis and testicular neoplasms
Period: 13 May 2014 → 17 May 2014
Terje Svingen (Speaker)
Anne Jørgensen (Other)
Ewa Rajpert-De Meyts (Other)
National Food Institute
Research Group for Molecular and Reproductive Toxicology
Degree of recognition: International

Related event
18th European Workshop on Molecular and Cellular Endocrinology of the Testis
13/05/2014 → 17/05/2014
Elsinore, Denmark
Activity: Talks and presentations › Conference presentations

11th Protein.DTU Workshop
Period: 12 May 2014
Dimitrios Spanos (Participant)
National Food Institute
Division of Industrial Food Research

Related event
11th Protein.DTU Workshop
12/05/2014 → …
Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Detection and characterization of nanoparticles in food and biological materials
Period: 7 May 2014
Katrin Löschner (Invited speaker)
National Food Institute
Division of Food Chemistry

Description
With the increasing use of nanotechnology in food and consumer products, there is a need for reliable detection and characterization methods for nanoparticles (NPs) in complex matrices. NPs often interact with each other or with their surroundings leading to aggregation, adhesion to surfaces or dissolution in dispersion solvents. Accurate and precise
characterization of metrics such as size, shape, particle mass and number concentration therefore remains a challenging analytical task. In order to determine quantitative metrics that are relevant in food monitoring or in risk assessment, asymmetric flow field flow fractionation (AF4) hyphenated with inductively coupled plasma mass spectrometry (ICP-MS) has proven to be a powerful technique [1]. In order to acquire accurate data the AF4 separation method and settings must be optimized for each new sample matrix and analyte NP combination [1,2]. Furthermore, additional information obtained by an imaging method such as transmission electron microscopy (TEM) proved to be necessary for trouble shooting and for independent verification of results. An AF4-ICP-MS method was developed for the separation, detection and characterization of silver nanoparticles (AgNPs) in chicken meat. AgNPs are presently one of the most frequently used nanomaterials in consumer products related to food, such as food storage containers and dietary supplements. Aqueous and enzymatic extraction strategies were tested to liberate the AgNPs from the meat matrix into liquid suspension. The resulting AF4-ICP-MS fractograms, which corresponded to the enzymatic digests, showed a major nano-peak (about 80 % recovery) plus smaller peaks that eluted close to the void volume of the fractograms. In order to gain further insight into the sizes of the separated AgNPs, or their possible dissolved state, fractions of the eluate were collected and subjected to ICP-MS analysis in single particle (sp) mode. As a second example an AF4-ICP-MS method for the detection and characterization of silicon dioxide NPs in tomato soup will be presented. Finally, the possibility of using alkaline pre-treatment of biological tissue prior to sp-ICP-MS analysis of their content of gold nanoparticles (AuNPs) was tested and compared with enzymatic sample preparation [3]. The results showed that the same results, with respect to the obtained number-based size distribution for AuNPs, were obtained for the two preparation methods. In contrast, the alkaline method was superior for quantification of AuNPs and was comparable with that obtained by ICP-MS after digestion of the samples in aqua regia. [1] K. Loeschner, J. Navratilova, S. Legros, S. Wagner, R. Grombe, J. Snell, F. von der Kammer, and E.H. Larsen, J. Chrom. A., 1272, 116 (2013). [2] K. Loeschner, J. Navratilova, C. Købler, K. Mølhave, S. Wagner, F. von der Kammer, and E.H. Larsen, Anal. Bioanal. Chem., 405, 8185 (2013). [3] K. Loeschner, M. Brabrand, J. Sloth, and E.H. Larsen, Anal. Bioanal. Chem., Epub ahead of print, DOI: 10.1007/s00216-013-7431-y (2013).
Smitterisiko ved udbringning af gylle
Period: 7 May 2014
Annette Nygaard Jensen (Invited speaker)
Division of Food Microbiology
National Food Institute
Documents:
A N Jensen Sygdomsfremkaldende bakterier gylle 7 maj 2014 pdf

105th AOCS Annual Meeting
Period: 6 May 2014
Ditte Baun Hermund (Speaker)
National Food Institute
Division of Industrial Food Research
Description
As this years AOCS European section travel grant reciever, a presentation of my PhD was given at the section breakfast.

5th International IUPAC Symposium for Trace Elements in Food
Period: 6 May 2014 → 9 May 2014
Jens Jørgen Sloth (Organizer)
Division of Food Chemistry
National Food Institute
Description
Arranger af konferencen sammen med Prof Søren Husted fra KU (PLEN)

5th International IUPAC Symposium for Trace Elements in Food
Period: 06/05/2014 → 09/05/2014
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising a conference

Årlig konference i Dansk Universitetspædagogiske netværk
Period: 5 May 2014 → 6 May 2014
Lars Boge Jensen (Participant)
National Food Institute
Division of Food Microbiology
Documents:
Program DUN Konferencen 2014
Related event

Årlig konference i Dansk Universitetspædagogiske netværk
05/05/2014 → 06/05/2014
Svendborg, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Better Training for Safer Food (BTSF): Foodborne outbreak investigations**

**Period:** 5 May 2014 → 9 May 2014

Birgitte Helwigh (Organizer)
Lone Jannok Porsbo (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition
Division of Epidemiology and Microbial Genomics

**Description**
Lisbon, Portugal
Degree of recognition: International

Related event

**Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days**

15/12/2012 → 15/12/2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**105th AOCS Annual Meeting**

**Period:** 4 May 2014 → 7 May 2014

Ditte Baun Hermund (Participant)
National Food Institute
Research Group for Bioactives – Analysis and Application

**Description**
Travel grant - European section
Degree of recognition: International

Related event

**105th AOCS Annual Meeting**

04/05/2014 → 07/05/2014
San Antonio, TX, United States
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.
105th AOCS Annual Meeting & Expo (Event)
Period: 4 May 2014
Charlotte Jacobsen (Reviewer)
National Food Institute
Division of Industrial Food Research
Description
105th AOCS Annual Meeting & Expo
Session Chair

Related event

105th AOCS Annual Meeting & Expo
04/05/2014 → 07/12/2014
San Antonio, TX, United States
Activity: Research › Peer review of manuscripts

Novel bioactive algae based food ingredients
Period: 4 May 2014 → 8 May 2014
Ditte Baun Hermund (Speaker)
National Food Institute
Division of Industrial Food Research
Description
Travel grant from European Section of AOCS
Related event

105th AOCS Annual Meeting
04/05/2014 → 07/05/2014
San Antonio, TX, United States
Activity: Talks and presentations › Conference presentations

Novel bioactive algae based food ingredients
Period: 4 May 2014 → 7 May 2014
Ditte Baun Hermund (Guest lecturer)
National Food Institute
Research Group for Bioactives – Analysis and Application
Degree of recognition: International
Related external organisation
American Oil Chemists Society
Activity: Talks and presentations › Conference presentations

Miljøstyrelsen (External organisation)
Period: 1 May 2014 → …
Xenia Trier (Participant)
National Food Institute
Division of Food Chemistry
Description
Advisory Board
Substitution af fluorstoffer i tekstiler
Trace back - trace forward in the food production chain: One Health Summer School, Module 3, E-learning, Lecture no. 4
Period: Apr 2014 → …
Anne Wingstrand (Lecturer)
National Food Institute
Division of Epidemiology and Microbial Genomics

Description
E-learning lecture.

Related event
14th Annual Executive Seminars in Analytical Chemistry
30/04/2014 → 30/04/2014
Copenhagen, Denmark
Activity: Talks and presentations › Conference presentations

Dispersion and characterization of surface-functionalized CuO nanoparticles for toxicity testing.
Period: 23 Apr 2014 → 26 Apr 2014
Manuel Correia (Speaker)
National Food Institute
Research Group for Nano-Bio Science

Description
Poster presentation

Related event
7th International Nanotoxicology Congress, Antalya, Turkey
23/04/2014 → 26/04/2014
Antalya, Turkey
Activity: Talks and presentations › Conference presentations

8th Workshop of the EUR-L and NRLs for Listeria monocytogenes
Period: 10 Apr 2014 → 11 Apr 2014
Charlotta Löfström (Participant)
National Food Institute
Division of Food Microbiology

Related event
8th Workshop of the EURL and NRLs for Listeria monocytogenes
10/04/2014 → 11/04/2014
Teramo, Italy
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

University of Campinas and São Paulo University
Period: 8 Apr 2014 → 4 Jun 2014
Cleide Oliveira de Almeida Møller (Visiting researcher)
Division of Food Microbiology
National Food Institute
Description
External stay at UNICAMP and USP/Brazil to develop activities related to the project MeatCrosCon
Activity: Visiting an external institution › Visiting another research institution

EURL-AR Workshop
Period: 7 Apr 2014 → 8 Apr 2014
Lina Cavaco (Participant)
National Food Institute
Division of Epidemiology and Microbial Genomics
Description
EURL-AR Workshop 2014
Related event
EURL-AR Workshop
07/04/2014 → 08/04/2014
Lyngby, Denmark
Activity: Attending an event › Participating in or organising a conference

EURL-AR Workshop
Period: 7 Apr 2014 → 8 Apr 2014
Annette Nygaard Jensen (Participant)
National Food Institute
Division of Food Microbiology
Division of Epidemiology and Microbial Genomics
Links:
http://eurl-ar.eu/146-presentations.htm
Description
EURL-AR Workshop 2014
Related event
EURL-AR Workshop
07/04/2014 → 08/04/2014
Lyngby, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

-European Union Reference Laboratory, Antimicrobial Resistance – Annual Workshop 2014
Period: 7 Apr 2014 → 8 Apr 2014
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology
Description
European Union Reference Laboratory, Antimicrobial Resistance – Annual Workshop
Related event

European Union Reference Laboratory, Antimicrobial Resistance – Annual Workshop 2014
07/04/2014 → 08/04/2014
Kgs Lyngby, Denmark
Activity: Attending an event › Participating in or organising a conference

Accredited LC-ESI-QTOF-MS method for quantification and screening of fluorinated surfactants (PFAS) in food paper and board
Period: 3 Apr 2014
Xenia Trier (Lecturer)
National Food Institute
Division of Food Chemistry

Related event

Mass Spectrometry Users Meeting 2014
03/04/2014 → 03/04/2014
Copenhagen, Denmark
Activity: Talks and presentations › Conference presentations

Toxicological risk assessment of food chemicals
Period: 3 Apr 2014
Niels Hadrup (Lecturer)
National Food Institute
Division of Toxicology and Risk Assessment

Description
A lecture given to Danish high school students: The lecture was given at the Danish Natural History Museum.

Related external organisation

Unknown external organisation
Activity: Talks and presentations › Conference presentations

Trace forward - trace back in foodborne outbreaks
Period: 3 Apr 2014
Anne Wingstrand (Lecturer)
National Food Institute
Division of Epidemiology and Microbial Genomics

Description
EC Better Training Safer Food (BTSF) courses on Foodborne Outbreaks Investigation.

tutor on case

Related external organisation

Unknown external organisation
Activity: Talks and presentations › Conference presentations

Staalcentrum (External organisation)
Period: 1 Apr 2014 → …
Henning Høgh Jensen (Participant)
National Food Institute

Description
Staalcentrum har fokus på opbygning og formidling af viden om optimal anvendelse af konstruktionsmaterialer og hygiejnisk design.
Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Period: 31 Mar 2014 → 4 Apr 2014
Birgitte Helwigh (Organizer)
Birgitte Borck Høg (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition

Description
Tallinn, Estonia
Degree of recognition: International

Related event
Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Period: 31 Mar 2014 → 4 Apr 2014
Lone Jannok Porsbo (Speaker)
National Food Institute
Division of Epidemiology and Microbial Genomics

Description
Tallinn, Estonia
Degree of recognition: International

Related event
Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Talks and presentations › Conference presentations

Campylobacter, Helicobacter, Spirochaetes and anaerobe lecture
Period: 27 Mar 2014
Lina Cavaco (Lecturer)
National Food Institute
Division of Epidemiology and Microbial Genomics

Description
Lecture in General Medical Microbiology course.

Related external organisation
Unknown external organisation
Activity: Talks and presentations › Conference presentations

EU WG AMR
Period: 27 Mar 2014
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

**Description**
EU WG AMR

**Related event**
EU WG AMR
27/03/2015 → 27/03/2015
Brussels, Belgium
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Bageriteknologikursus - Specialisering 2014**
Period: 26 Mar 2014
Tina Beck Hansen (Lecturer)
National Food Institute
Division of Food Microbiology

**Description**
Undervisning af tilsynsførende i bakteriologisk fødevaresikkerhed i bagarier.
Documents:
- microbial food safety of bakery products 260314

**Related external organisation**
Fødevarestyrelsen
Glostrup, Denmark
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

**Climate change variability: experiences, coping and adaptation strategies among the smallholder organic vegetable farmers in Central Kenya**
Henning Høgh Jensen (Lecturer)
National Food Institute
Division of Industrial Food Research

**Description**

**Related event**
Egerton 8th International Conference
26/03/2014 → 28/03/2014
Kenya
Activity: Talks and presentations › Conference presentations

**Iodine in seaweed**
Jens Jørgen Sloth (Invited speaker)
National Food Institute
Division of Food Chemistry

**Related event**
Nordic Iodine Meeting
25/03/2014 → 26/03/2014
Supervision of PhD students at DTU
Period: 25 Mar 2014
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
Supervision of PhD students at DTU

Related event
Supervision of PhD students at DTU
25/03/2014 → 25/03/2014
Kgs- Lyngby, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

53rd Annual Meeting of Society of Toxicology and ToxExpo
Period: 24 Mar 2014 → 27 Mar 2014
Kristine Grønning Kongsbak (Participant)
Center for Biological Sequence Analysis
Integrative Systems Biology
National Food Institute
Division of Toxicology and Risk Assessment

Description
Ecology from farm to fork of microbial drug resistance and transmission (EFFORT)
Links:
http://www.onehealth.se/ohs/sites/default/files/attachments/node152/Friibergh_2014_Ana_Sofia_Ribeiro_Duarte.pdf
(Presentation of EU-FP7 EFFORT project)

Related event
5th Nordic One Health Conference: Interdisciplinary meeting on infectious diseases and antibiotic resistance
19/03/2014 → 20/03/2014
Friibergh, Sweden
Activity: Talks and presentations › Conference presentations

Vibrio, Neisseria, Bordetella and Legionella lecture
Period: 20 Mar 2014
Lina Cavaco (Lecturer)
National Food Institute
Division of Epidemiology and Microbial Genomics

**Description**
Lecture in General Medical Microbiology course.

**Related external organisation**

**Unknown external organisation**
Activity: Talks and presentations › Conference presentations

**Chemical Food Safety**
Anoop Kumar Sharma (Organizer)
Division of Toxicology and Risk Assessment
National Food Institute

**Description**
Course coordinator for the course Chemical Food Safety

**Related event**

**Chemical Food Safety: EDES**
17/03/2014 → 21/03/2014
Gaborone, Botswana
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Gram negatives: Enterobacteriaceae and other -Proteobacteriaceae**
Period: 13 Mar 2014
Rene S. Hendriksen (Lecturer)
National Food Institute
Research Group for Genomic Epidemiology

**Description**
DTU course 23258; General Medical Microbiology.

**Related external organisation**

**Unknown external organisation**
Activity: Talks and presentations › Conference presentations

**Training in Microbiological Risk Assessment: EDES training on Microbiological Risk Assessment**
Period: 10 Mar 2014 → 14 Mar 2014
Ana Sofia Ribeiro Duarte (Lecturer)
Division of Epidemiology and Microbial Genomics
National Food Institute

**Description**
Organization of and lecturing in one-week training course for food safety stakeholders

**Related event**

**Training in Microbiological Risk Assessment: EDES training on Microbiological Risk Assessment**
10/03/2014 → 14/03/2014
Botswana
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities
Training Risk Assessment Microbiology in Botswana  
**Period:** 9 Mar 2014 → 14 Mar 2014  
Maarten Nauta (Other)  
National Food Institute  
Division of Epidemiology and Microbial Genomics  
**Description**  
Course lecturer  
Activity: Other

**Staphylococcus and Streptococcus lecture**  
**Period:** 6 Mar 2014  
Lina Cavaco (Lecturer)  
National Food Institute  
Division of Epidemiology and Microbial Genomics  
**Description**  
Lecture in General Medical Microbiology course.

**Related external organisation**  
**Unknown external organisation**  
Activity: Talks and presentations › Conference presentations

**Supervision of PhD students at DTU**  
**Period:** 5 Mar 2014 → 20 May 2014  
Rene S. Hendriksen (Participant)  
National Food Institute  
Research Group for Genomic Epidemiology  
**Description**  
3 time one day course  
Supervision of PhD students at DTU

**Related event**  
**Supervision of PhD students at DTU**  
05/03/2015 → 20/05/2015  
Kgs. Lyngby, Denmark  
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**Better Training for Safer Food (BTSF): Foodborne outbreak investigations**  
**Period:** 3 Mar 2014 → 7 Mar 2014  
Birgitte Helwigh (Organizer)  
Lone Jannok Porsbo (Organizer)  
National Food Institute  
Division of Risk Assessment and Nutrition  
**Description**  
Rome, Italy  
Degree of recognition: International

**Related event**  
**Better Training for Safer Food (BTSF): Foodborne outbreak investigations:**  
30 courses of 5 days  
15/12/2012 → 15/12/2016  
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.
Collateral damage of disaster relief: introduction of pandemic cholera in Haiti
Period: 3 Mar 2014
Rene S. Hendriksen (Invited speaker)
National Food Institute
Research Group for Genomic Epidemiology

Related event

Field Epidemiology Scientific Meeting – Public Health England
Period: 3 Mar 2014
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
Field Epidemiology Scientific Meeting – Public Health England

Related event

University of Auckland
Period: 1 Mar 2014 → 1 Jul 2014
Henrik Munch Roager (Visiting researcher)
National Food Institute
Division of Food Microbiology

Description
Visiting Researcher at University of Auckland, New Zealand at the The Metabolomics Laboratory, led by Associate Professor Silas Villas-Bôas
Activity: Visiting an external institution » Visiting another research institution

Forudsigelse af sikker opbevaringstemperatur ved lunholdelse af færdigretter
Period: 27 Feb 2014
Tina Beck Hansen (Lecturer)
National Food Institute
Division of Food Microbiology

Description
Foredrag
Documents:
lunholdelse_tibha_270214

Related event

Temadag *Prædiktiv mikrobiologi - et centralt redskab til produktudvikling og dokumentation af fødevaresikkerhed*
27/02/2014 → 27/02/2014
Lyngby, Denmark
Activity: Talks and presentations › Conference presentations

**Genes, Diet and Body Weight**  
**Period:** 27 Feb 2014  
**Gitte Ravn-Haren (Participant)**  
National Food Institute  
Research Group for Risk-Benefit  

**Related event**

**Genes, Diet and Body Weight**  
27/02/2014 → …  
Frederiksberg, Denmark  
Activity: Attending an event › Participating in or organising a conference

**Sikker opvarmning og nedkøling, styring af smørrebrøds- og sandwichproduktion**  
**Period:** 27 Feb 2014  
**Tina Beck Hansen (Lecturer)**  
National Food Institute  
Division of Food Microbiology  

**Description**

Præsentation af den videnskabelige baggrund for redskaberne til forudsigelse af sikker opvarmning og nedkøling samt styring af smørrebrøds- og sandwichproduktion  

**Related event**

**Temadag "Prædiktiv mikrobiologi - et centraalt redskab til produktudvikling og dokumentation af fødevaresikkerhed"**  
27/02/2014 → 27/02/2014  
Lyngby, Denmark  
Activity: Talks and presentations › Conference presentations

**Lecture on Actinomyces, Corynebacterium and Mycobacterium Genus**  
**Period:** 20 Feb 2014  
**Lina Cavaco (Lecturer)**  
National Food Institute  
Division of Epidemiology and Microbial Genomics  

**Description**

Lecture in General Medical Microbiology course.  

**Related external organisation**

**Unknown external organisation**  
Activity: Talks and presentations › Conference presentations

**Fighting infections: natural defense mechanisms, the immune system, microbial control, antibiotics and vaccination**  
**Period:** 13 Feb 2014  
**Lina Cavaco (Lecturer)**  
National Food Institute  
Division of Epidemiology and Microbial Genomics

**Description**

Lecture at General Medical Microbiology course.

**Related external organisation**
Introduction to General medical microbiology
Period: 6 Feb 2014
Lina Cavaco (Lecturer)
National Food Institute
Division of Epidemiology and Microbial Genomics
Description
First lecture of General medical microbiology course.

Novel bioactive algae based food ingredients
Period: 6 Feb 2014
Ditte Baun Hermund (Speaker)
National Food Institute
Division of Industrial Food Research
Description
Extraction and characterization of bioactive compounds from seaweed and application in fish oil enriched food emulsions.

Copenhagen Area Algae Seminar
06/02/2014 → 06/02/2014
Lyngby, Denmark
Activity: Talks and presentations › Conference presentations

Better Training for Safer Food (BTSF): Foodborne outbreak investigations
Period: 3 Feb 2014 → 7 Feb 2014
Birgitte Helwigh (Organizer)
Lone Jannok Porsbo (Organizer)
National Food Institute
Division of Risk Assessment and Nutrition
Division of Epidemiology and Microbial Genomics
Description
Rome, Italy
Degree of recognition: International

Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.
Description
Rome, Italy
Degree of recognition: International

Related event
Better Training for Safer Food (BTSF): Foodborne outbreak investigations: 30 courses of 5 days
15/12/2012 → 15/12/2016
Activity: Talks and presentations › Conference presentations

Developmental neurotoxicity - an in vivo scientists views on in vitro alternatives
Period: Jan 2014
Marta Axelstad Petersen (Lecturer)
National Food Institute
Division of Toxicology and Risk Assessment

Description
inviteret foredragsholder

Related event
ISTNET Developmental Neurotoxicity Workshop
20/01/2014 → 23/01/2014
Zurich, Switzerland
Activity: Talks and presentations › Conference presentations

Teaching & Learning (UDtU Module 1)
Period: 21 Jan 2014 → 24 Jan 2014
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
Teaching & Learning (UDtU Module 1)

Related event
Teaching & Learning (UDtU Module 1)
21/01/2015 → 24/01/2015
Kgs. Lyngby, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

-DG SANCO Meeting with the Directors of the EU reference laboratories in the food, feed and animal health sectors
Period: 17 Jan 2014
Rene S. Hendriksen (Participant)
National Food Institute
Research Group for Genomic Epidemiology

Description
DG SANCO Meeting with the Directors of the EU reference laboratories in the food, feed and animal health sectors

Related event
-DG SANCO Meeting with the Directors of the EU reference laboratories in the food, feed and animal health sectors
17/01/2014 → 17/01/2014
Brussels, Belgium
**Mejeriforskningens dag**
Period: 1 Jan 2014 → 31 Mar 2015
Henning Høgh Jensen (Organizer)
National Food Institute
Division of Industrial Food Research
Links:
http://mejeritekniskelskab.dk/kalender/mejeriforskningens-dag-0#.VT6lt5OVgXg

**Related event**
**Mejeriforskningens dag**
23/04/2015 → …
Billund, Denmark
Activity: Attending an event › Participating in or organising a conference

**Academic Writing**
Period: 2013 → …
Barbara Vad Andersen (Participant)
National Food Institute
Division of Industrial Food Research

**Description**
The course focuses on essential techniques for effective writing and presentation of scientific information

**Related event**
**Academic Writing**
02/09/2013 → 05/09/2013
Frederiksberg, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**AST Basics- E-learning Coursera based course on Antimicrobials, antimicrobial resistance definitions and methods**
Period: 2013 → 2014
Lina Cavaco (Lecturer)
National Food Institute
Division of Epidemiology and Microbial Genomics

**Description**
Coursera course building up for EURL-AR network and production of video lectures

**Related external organisation**
**DTU- EURL-AR**
Denmark
Activity: Other

**Botanica Marina (Journal)**
Period: 2013
Susan Løvstad Holdt (Reviewer)
National Food Institute
Research Group for Bioactives – Analysis and Application

**Description**
Peer-reviewer
Degree of recognition: International
**Related journal**

*Botanica Marina*

Local database

Activity: Research › Peer review of manuscripts

**European Journal of Nutrition (Journal)**

Period: 2013 → …

Gitte Ravn-Haren (Reviewer)

National Food Institute

Research Group for Risk-Benefit

Degree of recognition: International

**Related journal**

European Journal of Nutrition

1436-6207


Central database

Activity: Research › Journal editor

**European Research Council, Swiss National Science Foundation (SNSF), (External organisation)**

Period: 2013

Susan Løvstad Holdt (Chairman)

National Food Institute

Research Group for Bioactives – Analysis and Application

**Description**

External reviewer of European Research Council, Swiss National Science Foundation (SNSF), Bern, Switzerland

Degree of recognition: International

**Related external organisation**

European Research Council, Swiss National Science Foundation (SNSF),

Activity: Membership › Membership in review committee

**Human Nutrition: Antioxidants in Nutrition and Health**

Period: 2013

Gitte Ravn-Haren (Lecturer)

Division of Toxicology and Risk Assessment

National Food Institute

**Related external organisation**

Applied Nutrition and Food Chemistry, Lund University

Lund, Sweden

Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

**Innovations in public health nutrition: meeting behavioral nutrition**

Period: 2013 → …

Barbara Vad Andersen (Participant)

National Food Institute

Division of Industrial Food Research

**Related event**
Innovations in public health nutrition: meeting behavioral nutrition
04/11/2013 → 06/11/2013
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Journal of Aquatic Food Product Technology (Journal)
Period: 2013
Susan Løvstad Holdt (Reviewer)
National Food Institute
Research Group for Bioactives – Analysis and Application

Description
Peer-reviewer
Degree of recognition: International

Related journal
Journal of Aquatic Food Product Technology
1049-8850
Central database
Activity: Research › Peer review of manuscripts

Nutrition Research (Journal)
Period: 2013 → …
Gitte Ravn-Haren (Reviewer)
National Food Institute
Research Group for Risk-Benefit
Degree of recognition: International

Related journal
Nutrition Research
0271-5317
Central database
Activity: Research › Journal editor

Prizes:

Best Oral Presentation
Ana Sofia Ribeiro Duarte (Recipient)
National Food Institute, Research Group for Genomic Epidemiology

Details
Awarded date: 2010
event: Food Denmark Congress 2010
Prize: Prizes, scholarships, distinctions

Best Poster Award at ISAP 2017
Urd Grandorf Bak (Recipient)
National Food Institute

Details
Awarded date: 23 Jun 2017
Degree of recognition: International
event: 6th congress of international society for applied phycology
Best presentation award at the symposium NanoSafety Forum for Young Scientists
Manuel Correia (Recipient)
National Food Institute, Research Group for Nano-Bio Science

Details
Awarded date: 8 Oct 2014
Granting Organisations: NanoSafety Forum for Young Scientists 2014
Prize: Prizes, scholarships, distinctions

Cover Illustration (Genome Research): SFB Single-Cell Genomics
Sünje Johanna Pamp (Recipient)
National Food Institute, Division of Epidemiology and Microbial Genomics

Details
Awarded date: Jun 2012
Prize: Prizes, scholarships, distinctions

Danisco Award, 2003 (250.000 DKK)
Charlotte Jacobsen (Recipient)
National Food Institute, Research Group for Bioactives – Analysis and Application

Details
Awarded date: 2003
Prize: Prizes, scholarships, distinctions

Danish 3R-Center 3R-prize 2016
Eva Bay Wedebye (Recipient) & Nikolai Georgiev Nikolov (Recipient)
National Food Institute, Research Group for Molecular and Reproductive Toxicology

Details
Awarded date: 15 Sep 2016
Degree of recognition: National
Prize: Prizes, scholarships, distinctions

DTU’s Young Researcher Award 2011
Camilla Taxvig (Recipient)
National Food Institute, Research Group for Molecular and Reproductive Toxicology

Details
Awarded date: 2011
Degree of recognition: National
Granting Organisations: Technical University of Denmark
Prize: Prizes, scholarships, distinctions

Edwin Frankel Best Paper Award (The American Oil Chemist Society), 2010
Charlotte Jacobsen (Recipient)
National Food Institute, Research Group for Bioactives – Analysis and Application

Details
Awarded date: 2010
Prize: Prizes, scholarships, distinctions

Edwin Frankel Best Paper Award (The American Oil Chemist Society), 2011
Charlotte Jacobsen (Recipient)
National Food Institute, Research Group for Bioactives – Analysis and Application

Details
Awarded date: 2011
Prize: Prizes, scholarships, distinctions
F1000 - Exceptional: Development of Spatial Distribution Patterns by Biofilm Cells (AEM Vol. 81(18)).
Sünje Johanna Pamp (Recipient)
National Food Institute, Research Group for Genomic Epidemiology

Description
Article: Development of Spatial Distribution Patterns by Biofilm Cells, Applied and Environmental Microbiology, 2015 (DOI: 10.3410/f.725596154.793509444), has been recommended in F1000Prime as being of special significance in its field by F1000 Faculty Member Robert Palmer.

Details
Awarded date: 8 Sep 2015
Granting Organisations: Faculty of 1000 Ltd
Prize: Prizes, scholarships, distinctions

F1000Prime - Tolerance to the antimicrobial peptide colistin in Pseudomonas aeruginosa biofilms is linked to metabolically active cells (Mol.Microbiol. Vol. 68(1)).
Sünje Johanna Pamp (Recipient)
National Food Institute, Research Group for Genomic Epidemiology

Description
This study demonstrates that difficulties in treating infections caused by biofilm-forming bacteria may be due to differential sensitivities of metabolically distinct subpopulations of bacterial cells in the biofilm. The authors show that combination therapy, with antibiotics targeting each distinct subpopulation, may be a successful treatment strategy for infections of biofilm-forming bacteria [...].

Synergistic effects of antibiotics are well known, and this paper presents one interesting explanation: distinct subpopulations of cells in a biofilm that are susceptible to different classes of drugs [...].

This paper highlights the importance of studying distinct and well-defined sub-populations of cells in a physiologically relevant context.

Details
Awarded date: 15 May 2008
Prize: Prizes, scholarships, distinctions

Fellow of Royal Society for Public Health, United Kingdom
Johanne Ellis-Iversen (Recipient)
National Food Institute, Division of Risk Assessment and Nutrition

Details
Awarded date: 2012
Degree of recognition: National
Prize: Prizes, scholarships, distinctions

FEMS Young Scientists Meeting Grant
Henrik Munch Roager (Recipient)
National Food Institute, Research Group for Gut Microbiology and Immunology

Details
Awarded date: 20 Jun 2016
Prize: Prizes, scholarships, distinctions

G.A. Hagemanns Mindefond
Henrik Munch Roager (Recipient)
National Food Institute, Division of Food Microbiology

Description
Travel grant

Details
Awarded date: 1 Mar 2014
Prize: Prizes, scholarships, distinctions
La Médaille Chevreul 2010, Association Francaise pour l'étude des Corps Gras
Charlotte Jacobsen (Recipient)
National Food Institute, Research Group for Bioactives – Analysis and Application

Details
Awarded date: 2010
Prize: Prizes, scholarships, distinctions

Lundbeckfonden: Travel grant
Henrik Munch Roager (Recipient)
National Food Institute, Division of Food Microbiology

Details
Awarded date: 10 Sep 2014
Granting Organisations: Lundbeckfonden
Prize: Prizes, scholarships, distinctions

Marcuse Lecturer grant (Lipidforum), 1999
Charlotte Jacobsen (Recipient)
National Food Institute, Research Group for Bioactives – Analysis and Application

Details
Awarded date: 1999
Prize: Prizes, scholarships, distinctions

Outstanding paper presentation award (The American Oil Chemist Society), 1999
Charlotte Jacobsen (Recipient)
National Food Institute, Research Group for Bioactives – Analysis and Application

Details
Awarded date: 1999
Prize: Prizes, scholarships, distinctions

Ph.D. student conference grant (Lipidforum) 1998
Charlotte Jacobsen (Recipient)
National Food Institute, Research Group for Bioactives – Analysis and Application

Details
Awarded date: 1998
Prize: Prizes, scholarships, distinctions

Poster award
Henrik Munch Roager (Recipient)
National Food Institute, Division of Food Microbiology

Description
Best poster at 8th Danish Conference on Biotechnology and Molecular Biology

Details
Awarded date: 31 May 2013
Prize: Prizes, scholarships, distinctions

Presentation Award: Prize for an excellent presentation at Novo Scholarship Symposium 2013
Henrik Munch Roager (Recipient)
National Food Institute, Division of Food Microbiology

Details
Awarded date: 22 Jan 2013
Prize: Prizes, scholarships, distinctions
Sünje Johanna Pamp (Recipient)
National Food Institute, Research Group for Genomic Epidemiology

Description
The principles and mechanisms that govern multicellular community assembly are incompletely understood. Haagensen et al. (p. 6120 – 6128 [doi: 10.1128/AEM.01614-15]) integrated high-resolution time-lapse microscopy with ecological spatial pattern analysis to characterize microbial community assembly and spatial organization. Their work revealed that small multicellular clusters can move, interact with each other, and fuse to form symmetric patterns of larger multicellular assemblages. Knowledge about microbial spatial ecology is central to our understanding of the structure and function of environmental, host-associated, and synthetic microbial communities. Moreover, the observed formation of primordial cell groups and their aggregation to higher-level structures may be a model for studying the emergence of multicellular life.

Details
Awarded date: Sep 2015
Granting Organisations: ASM - Applied Environmental Microbiology
Prize: Prizes, scholarships, distinctions

Ioanna Nissen (Recipient)
National Food Institute, Research Group for Risk-Benefit

Description
“Common genetic variation in CYP2R1 and GC predicts vitamin D status in late summer, after food-fortification and after UVB irradiation in the Danish population”

Details
Awarded date: 2015
Granting Organisations: SFE
Prize: Prizes, scholarships, distinctions

Charlotte Jacobsen (Recipient)
National Food Institute, Division of Industrial Food Research

Winner of Agro Business Park's Innovation competition 2014

Details
Awarded date: Nov 2014
Granting Organisations: AgroPark, Denmark
Prize: Prizes, scholarships, distinctions

Charlotte Jacobsen (Recipient)
National Food Institute, Research Group for Bioactives – Analysis and Application

Winner of Copenhagen Congress and Event Award 2017

Details
Awarded date: Jun 2016
Granting Organisations: International Seaweed Symposium
Prize: Prizes, scholarships, distinctions

Ioanna Nissen (Recipient)
National Food Institute, Research Group for Risk-Benefit

Winner of The Young Investigator Award at the 2014 Vitamin D and Human Health meeting –from the gamete to the grave

Details
"Real-life use of Vitamin D3-fortified bread and milk during winter season: The effect of CYP2R1 and GC genes on 25-Hydroxyvitamin D concentrations in Danish families"
Winner of Trainee Travel Award for the 18th Workshop on Vitamin D
Ioanna Nissen (Recipient)
National Food Institute, Research Group for Risk-Benefit

Description
"Common CYP2R1 and GC gene variants are determinants of 25-hydroxyvitamin D concentration after ultraviolet-B irradiation and after vitamin D3-fortification".

Press clippings:

Maths can make food ‘tastier and healthier’
Paw Dalgaard
05/06/2018

Description
National Food Institute

Media contribution (1)

Maths can make food ‘tastier and healthier’
05/06/2018
FOOD NAVIGATOR.COM (International), Denmark, Web
Katy Askew
National Food Institute

Matematik brugt til at skabe sundere fiskeprodukter
Paw Dalgaard
14/05/2018

Description
National Food Institute

Media contribution (1)

Matematik brugt til at skabe sundere fiskeprodukter
14/05/2018
Nyhed for DTU Fødevareinstituttet, Denmark
Meriam Meister
http://www.food.dtu.dk/nyheder/Nyhed?id={A27B59F7-C0B4-45EE-AF37-1FEE4A9644FF}
National Food Institute
Det sker der med din baby hvis du drikker meget kaffe
Lea Bredsdorff
07/05/2018
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

07/05/2018
Denmark
Lea Bredsdorff
Press / Media

Ny software kan forudsige listeria I oste
Paw Dalgaard & Veronica Martinez Rios
24/01/2018

Description
National Food Institute

Media contribution (1)

Ny software kan forudsige listeria I oste.
24/01/2018
mejeri.dk (National), Denmark, Web
Paw Dalgaard & Veronica Martinez Rios
National Food Institute
Press / Media

Nytårsmad
Sisse Fagt
11/12/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Hvad spiser danskerne nytårssaften?
11/12/2017
Energidrikke
Anja Pia Biltoft-Jensen
09/12/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Sundhedseffekter af at drikke energidrikke
09/12/2017
Samvirke (National), Denmark, Web
Thomas Schenning
Anja Pia Biltoft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Proteinbarer
Tue Christensen
05/12/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Næringsindhold i proteinbarer
05/12/2017
TV2.dk, Denmark
Christian Sejer Rasmussen
Tue Christensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Brug af kosttilskud
Anja Pia Biltoft-Jensen
28/11/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

En sund kost kan ikke erstattes af kosttilskud uden sundhedsmæssige konsekvenser
28/11/2017
Women (National), Denmark, Print
Maria Denise Christoffersen
Anja Pia Biltoft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Effekten af kaloriemærkning af retter i restauranter
Anne Dahl Lassen
27/11/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Effekten af kaloriemærkning af retter i restauranter
27/11/2017
Videnskab.dk (National), Denmark, Web
Mads Molten
Anne Dahl Lassen
**Glyphosat**
Annette Petersen
27/11/2017
National Food Institute, Division of Risk Assessment and Nutrition

**Media coverage (1)**

**Glyphosat**
27/11/2017
DR2 Deadline (National), Denmark, Television
Annette Petersen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

**Helårsrapport for pesticidrester i fødevarer**
Bodil Hamborg Jensen
23/11/2017
National Food Institute, Division of Risk Assessment and Nutrition

**Media coverage (1)**

**Helårsrapport for pesticidrester i fødevarer**
23/11/2017
BT, Metroxpress, Denmark
Simone Lundt
Bodil Hamborg Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

**Risikovurdering af tilsætningsstoffer**
Lea Bredsdorff
16/11/2017
National Food Institute, Division of Risk Assessment and Nutrition

**Media coverage (1)**

**Risikovurdering af tilsætningsstoffer**
16/11/2017
www.emulsifiersforgood.com, Denmark, Web
Pha Khem
Lea Bredsdorff
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

**Faldende sædkvalitet og stigende forekomst af kryptorkisme i hunde**
Anne Marie Vinggaard
16/11/2017
National Food Institute, Copenhagen Center for Health Technology, Research Group for Molecular and Reproductive Toxicology

**Media coverage (1)**

**Faldende sædkvalitet og stigende forekomst af kryptorkisme i hunde**
16/11/2017
Videnskab.dk (National), Denmark, Web
Mads Molten
Anne Marie Vinggaard
Copenhagen Center for Health Technology, National Food Institute, Research Group for Molecular and Reproductive Toxicology
Press / Media
Effekterne af en fuldkornskost på sundhed og tarmbakterier
Henrik Munch Roager
10/11/2017
National Food Institute, Research Group for Gut Microbiology and Immunology

Media coverage (1)

Effekterne af en fuldkornskost på sundhed og tarmbakterier
Tine Rask Licht
08/11/2017
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

Media coverage (1)

Effekterne af en fuldkornskost på sundhed og tarmbakterier
Tine Rask Licht
03/11/2017
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

Media coverage (1)

Græsprotein som fødevarer
Daniel Stender Nørgaard
01/11/2017
National Food Institute, Research Group for Microbial Biotechnology and Biorefining

Media coverage (1)
Udvikling af standard for brug af alger i kosmetik
Susan Løvstad Holdt
01/11/2017
National Food Institute, Research Group for Bioactives – Analysis and Application

Media coverage (1)

Effekterne af en fuldkornskost på sundhed og tarmbakterier
Tine Rask Licht
01/11/2017
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

Media coverage (1)

Danskernes forbrug af convenience food
Sisse Fagt
26/10/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)
Økologisk vs. konventionelt dyrkede fødevarer
Bodil Hamborg Jensen
26/10/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Miljø- og sundsmæssige forskelle ved økologisk vs. konventionelt dyrkede fødevarer
26/10/2017
Mandag Morgen (National), Denmark, Web
Mads Due Hansen
Bodil Hamborg Jensen
National Food Institute, Division of Risk Assessment and Nutrition

Superfood
Sisse Fagt
25/10/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Alternativer til superfoods
25/10/2017
DR Madmagasinet (National), Denmark, Television
Mikael Ladegaard Laursen
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

Overfølsomhed over for laktose og gluten
Charlotte Bernhard Madsen
24/10/2017
National Food Institute, Research Group for Gut Microbiology and Immunology

Media coverage (1)

Overfølsomhed over for laktose og gluten
24/10/2017
TV2 Nyhederne (National), Denmark, Television
Annemette Tofte
Charlotte Bernhard Madsen
National Food Institute, Research Group for Gut Microbiology and Immunology

Udviklingen i antibiotikaforbrug over tid
Flemming Bager
23/10/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Udviklingen i antibiotikaforbrug over tid
23/10/2017
DR Detektor (National), Denmark, Television
Jakob Bang Schmidt
Flemming Bager
National Food Institute, Division of Risk Assessment and Nutrition
Mikroplastik
Kit Granby
23/10/2017
National Food Institute, Research Group for Analytical Food Chemistry

Media coverage (1)

Mikroplast i havmiljøet
23/10/2017
Videnskab.dk (National), Denmark, Web
May Bach Madsen
Kit Granby
National Food Institute, Research Group for Analytical Food Chemistry
Press / Media

Den perfekte morgenmad
Sisse Fagt
23/10/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Den perfekte morgenmad
23/10/2017
Radio Nova (Regional), Denmark, Radio
Casper Hjorth
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Naturlighed
Pelle Thonning Olesen
20/10/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Naturlige vs. syntetiske stoffer
20/10/2017
Videnskab.dk (National), Denmark, Web
Malene Sommer Christiansen
Pelle Thonning Olesen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Konventionelle vs. økologiske fødevarer
Annette Petersen
20/10/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Er det sundere at spise økologiske end konventionelle fødevarer?
20/10/2017
Videnskab.dk (National), Denmark, Web
Malene Sommer
Annette Petersen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Energidrikke
Jeppe Matthiessen
20/10/2017
Media coverage (1)

Energidrik og sportsudøvelse
20/10/2017
Tonsser, Denmark, Web
Alfred Winther Groth
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Kostråd og vægttab
Sisse Fagt
20/10/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Kostråd og vægttab
20/10/2017
Videnskab.dk (National), Denmark, Web
Thomas Hofmann
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Æg
Jeppe Matthiessen
18/10/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Om bekymringer for kolesterol ved indtag af æg
18/10/2017
Politiken (National), Denmark, Print
Anna Mucha Økjær
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Risikovurdering af bog (frugt fra bøgetræer)
Kirsten Pilegaard
16/10/2017
National Food Institute, Research Group for Risk-Benefit

Media coverage (1)

Risikovurdering af bog (frugt fra bøgetræer)
16/10/2017
Ritzau (National), Denmark, Other
Christina Råbæk
Kirsten Pilegaard
National Food Institute, Research Group for Risk-Benefit
Press / Media

Antibiotikaforbruget i tal
Birgitte Borck Høj
13/10/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)
Charlotte Branner
Bodil Hamborg Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Brug af nyheder fra food.dtu.dk
Heidi Kornholt
06/10/2017
National Food Institute

Media coverage (1)

Brug af nyheder fra www.food.dtu.dk
06/10/2017
Denmark
Heidi Kornholt
National Food Institute
Press / Media

Brug af nyheder fra food.dtu.dk
Heidi Kornholt
06/10/2017
National Food Institute

Media coverage (1)

Brug af nyheder fra food.dtu.dk
06/10/2017
Danish Food Cluster (National), Denmark
Line Kohsel
Heidi Kornholt
National Food Institute
Press / Media

Antibiotikaforbrug til svin
Flemming Bager
05/10/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Antibiotikaforbrug til svin
05/10/2017
P1 Orientering (National), Denmark, Radio
Karin Hjulmand
Flemming Bager
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Spiselige blomster
Kirsten Pilegaard
04/10/2017
National Food Institute, Research Group for Risk-Benefit

Media coverage (1)

Spiselige blomster
04/10/2017
Freelancer, Denmark
Marianne Steffensen
Kirsten Pilegaard
National Food Institute, Research Group for Risk-Benefit
Press / Media
DANMAP
Flemming Bager
04/10/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Udvikling antibiotikaforbrug forbrug
04/10/2017
DR P1 (National), Denmark, Radio
Flemming Bager
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Pesticidrester i fødevarer
Bodil Hamborg Jensen
04/10/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Pesticidrester i fødevarer
04/10/2017
Radio 24/7 (National), Denmark, Radio
Tinne Hjersing Knudsen
Bodil Hamborg Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Pesticidrester i fødevarer
Bodil Hamborg Jensen
03/10/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Artikel i Samvirke om pesticidrester i fødevarer
03/10/2017
Radio 24/7 (National), Denmark, Radio
Oliver Bærentsen
Bodil Hamborg Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Pesticider i fødevarer
Bodil Hamborg Jensen
02/10/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Hvordan man kan reducere indholdet af pesticider i sine fødevarer?
02/10/2017
Radius Kommunikation, Denmark, Other
Katrine Lerche
Bodil Hamborg Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Smoothies til børn
Sisse Fagt
28/09/2017
National Food Institute, Division of Risk Assessment and Nutrition

**Media coverage (1)**

**Sundheden af smoothies til børn**
28/09/2017
Ritzau Folkus (National), Denmark, Other
Mathias Sinius Mølgaard
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

**Tangs uudnyttede potentiale**
Susan Løvstad Holdt
27/09/2017
National Food Institute, Research Group for Bioactives – Analysis and Application

**Media coverage (1)**

**Kemiske stoffer i fødevarekontaktmateriale af pap og papir**
Gitte Alsing Pedersen
19/09/2017
National Food Institute, Division of Risk Assessment and Nutrition

**Media coverage (1)**

**Kilder til forureninger i returbaseret pap og papir**
19/09/2017
Ingeniøren (National), Denmark, Web
Henrik Winther
Gitte Alsing Pedersen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

**Sundhedsskadelige stoffer i fødevarekontaktmateriale**
Anne Marie Vinggaard
19/09/2017
National Food Institute, Copenhagen Center for Health Technology, Research Group for Molecular and Reproductive Toxicology

**Media coverage (1)**

**Strategi til at teste for sundhedsskadelige stoffer i fødevarekontaktmateriale**
19/09/2017
Ingeniøren (National), Denmark, Web
Henrik Winther
Anne Marie Vinggaard
Copenhagen Center for Health Technology, National Food Institute, Research Group for Molecular and Reproductive Toxicology
Press / Media

**Mikroplastik i drikkevand**
Annette Petersen
19/09/2017
**Er mikroplastik i drikkevand farligt for mennesker?**
19/09/2017
Videnskab.dk (National), Denmark, Web
Eskild Heinemeier
Annette Petersen
National Food Institute, Division of Risk Assessment and Nutrition

**Tarmbakterier og vægttab**
Tine Rask Licht
12/09/2017
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

**Fedt i kosten**
Heddie Mejborn
11/09/2017
National Food Institute, Division of Risk Assessment and Nutrition

**Sundhedsskadelige stoffer i fødevarekontaktmateriale**
Anne Marie Vinggaard
07/09/2017
National Food Institute, Copenhagen Center for Health Technology, Research Group for Molecular and Reproductive Toxicology

**Insekter som fødevarer og allergi**
Charlotte Bernhard Madsen
Media coverage (1)

Insekter som fødevare og allergi
06/09/2017
Astma Allergi bladet (National), Denmark, Print
Henriette Baun Gautier
Charlotte Bernhard Madsen
National Food Institute, Research Group for Gut Microbiology and Immunology

Tarmbakterier
Tine Rask Licht
06/09/2017
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

Media coverage (1)

Pesticider i fødevarer
Jens Hinge Andersen
30/08/2017
National Food Institute

Intestinal transit time, digestion and health
Henrik Munch Roager
24/08/2017
Tal for danskernes kødforbrug
22/08/2017
TV2 (National), Denmark, Other
Gitte Petersen
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Danskernes interesse for croissanter og hindbærsnitter
Sisse Fagt
21/08/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Måltidssalaters næringsindhold
Sisse Fagt
21/08/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Pesticider i fødevarer
Bodil Hamborg Jensen
18/08/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Superfoods
Anja Pia Blitoff-Jensen
17/08/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Superfoods - er de pengene værd?
17/08/2017
Ritzau Fokus (National), Denmark, Other
Mulige hormonforstyrrende effekter af fipronil i æggeprodukter
Max Hansen
16/08/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Mulige hormonforstyrrende effekter af fipronil i æggeprodukter
16/08/2017
Berlingske (National), Denmark, Print
Flemming Steen Pedersen
Max Hansen
National Food Institute, Division of Risk Assessment and Nutrition

Tarmbakterier og hjertesundhed
Tine Rask Licht
15/08/2017
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

Media coverage (1)

Tarmbakterier og hjertesundhed
15/08/2017
Videnskab.dk, Denmark, Other
Sussi Boberg Bæch
Tine Rask Licht
Copenhagen Center for Health Technology, National Food Institute, Research Group for Gut Microbiology and Immunology

Pesticider i fødevarer
Bodil Hamborg Jensen
14/08/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Pesticider i fødevarer
14/08/2017
Ritzau Fokus (National), Denmark, Other
Grith Larsen
Bodil Hamborg Jensen
National Food Institute, Division of Risk Assessment and Nutrition

Superfoods
Sisse Fagt
14/08/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Superfoods
14/08/2017
DR P3 (National), Denmark, Radio
Sine Pam
Hvilken kost der er god for hår og negle?
Sisse Fagt
11/08/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Hvilken kost der er god for hår og negle
11/08/2017
Ritzau Fokus (National), Denmark, Other
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

Fipronil i æggeprodukter
Max Hansen
10/08/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Fipronil i æggeprodukter
10/08/2017
DR (National), Denmark, Radio
Alexander Hecklen
Max Hansen
National Food Institute, Division of Risk Assessment and Nutrition

Fipronil i æggeprodukter
Max Hansen
10/08/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Fipronil i æggeprodukter
10/08/2017
TV2 Nyhederne (National), Denmark, Television
Max Hansen
National Food Institute, Division of Risk Assessment and Nutrition

Fipronil i æggeprodukter
Max Hansen
10/08/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Fipronil i æggeprodukter
10/08/2017
Politiken (National), Denmark, Print
Max Hansen
National Food Institute, Division of Risk Assessment and Nutrition

Press / Media
Media coverage (1)

Danskernes forbrug af kosttilskud
10/07/2017
JP FINANS (National), Denmark, Print
Benjamin Werner Christensen
Anja Pia Biloft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Handlingsplan for antibiotikaforbrug
Birgitte Borck Høg
06/07/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Handlingsplan for antibiotikaforbrug
06/07/2017
Ingeniøren (National), Denmark, Web
Magnus Bredsdorff
Birgitte Borck Høg
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Handlingsplan for antibiotikaforbrug
Birgitte Borck Høg
05/07/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Handlingsplan for Antibiotika forbrug
05/07/2017
Jyllands Posten (National), Denmark, Print
Tea Krogh Sørensen
Birgitte Borck Høg
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Spis varieret
Sisse Fagt
04/07/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Danskernes forståelse af kostrådet om at spise varieret
04/07/2017
BT (National), Denmark, Print
Line Felholt
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Vilde planter
Kirsten Pilegaard
04/07/2017
National Food Institute, Research Group for Risk-Benefit

Media coverage (1)

Risikovurdering af vilde planter
04/07/2017
Grill og madlavning ved bål.
Anoop Kumar Sharma
03/07/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Forbehold man skal tage, når man griller/laver mad over bål
03/07/2017
dr.dk/viden (National), Denmark, Web
Morten Greve
Anoop Kumar Sharma
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Møbelgenbrug
Heidi Kornholt
29/06/2017
National Food Institute

Media coverage (1)

Genbrug af møbler i forbindelse med flytning fra Mørkhøj
29/06/2017
Politiken (National), Denmark, Print
Thomas Flensburg
Heidi Kornholt
National Food Institute
Press / Media

Campylobacter
Birgitte Borck Høg
28/06/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Annual Report on Zoonoses 2016 om campylobacter
28/06/2017
Ritzau (National), Denmark, Other
Anders A. Jepsen
Birgitte Borck Høg
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Campylobacter i Danmark
Birgitte Borck Høg
28/06/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Om Annual Report on Zoonoses 2016 og campylobacter
28/06/2017
DR Radioavisen (National), Denmark, Radio
Elle Kindt
Birgitte Borck Høg
**Vilde planter**
Kirsten Pilegaard
22/06/2017
National Food Institute, Research Group for Risk-Benefit

**Media coverage (1)**

**Processen for risikovurdering af vilde planter**
22/06/2017
Ingeniører, Denmark
Hanne Kokkegaard
Kirsten Pilegaard
National Food Institute, Research Group for Risk-Benefit


**Sikkerhedsvurdering af tilsætningsstoffer**
Pelle Thonning Olesen
22/06/2017
National Food Institute, Division of Risk Assessment and Nutrition

**Media coverage (1)**

**Sikkerhedsvurdering af tilsætningsstoffer**
22/06/2017
Samvirke (National), Denmark, Print
Inger Houman Abildgaard
Pelle Thonning Olesen
National Food Institute, Division of Risk Assessment and Nutrition


**Energidrikke**
Marta Axelstad Petersen
20/06/2017
National Food Institute, Research Group for Molecular and Reproductive Toxicology

**Media coverage (1)**

**Risici ved indtag af energidrikke**
20/06/2017
Zetland.dk (National), Denmark, Web
Marie Carsten Petersen
Marta Axelstad Petersen
National Food Institute, Research Group for Molecular and Reproductive Toxicology


**GMO**
Jan W. Pedersen
15/06/2017
National Food Institute, Division of Risk Assessment and Nutrition

**Media coverage (1)**

** Hvad kan GMO bruges til og hvordan sikkerhedsvurderes det?**
15/06/2017
DR Syd (Regional), Denmark, Radio
Jan W. Pedersen
National Food Institute, Division of Risk Assessment and Nutrition


Forskningsprojektet ALLEVIATE
Katrine Lindholm Bøgh
13/06/2017
National Food Institute, Research Group for Gut Microbiology and Immunology

Media coverage (1)

Uddybning af og status på forskningsprojektet Alleviate
13/06/2017
Allergia.se, Denmark, Web
Susanne Rosén
Katrine Lindholm Bøgh
National Food Institute, Research Group for Gut Microbiology and Immunology
Press / Media

Tang
Susan Løvstad Holdt
08/06/2017
National Food Institute, Research Group for Bioactives – Analysis and Application

Media contribution (1)

Tang
08/06/2017
Dansk Kemi, Web
Katrine Meyn
Susan Løvstad Holdt
National Food Institute, Research Group for Bioactives – Analysis and Application
Press / Media

Reproduktionsskadelige effekter af plastblødgøreren DINP
Julie Boberg
07/06/2017
National Food Institute, Research Group for Molecular and Reproductive Toxicology

Media coverage (1)

Reproduktionsskadelige effekter af plastblødgøreren DINP
07/06/2017
Chemical Watch (International), Denmark, Web
Emma Davies
Julie Boberg
National Food Institute, Research Group for Molecular and Reproductive Toxicology
Press / Media

Børns og ufødte børns udsættelse for (hormonforstyrrende) kemiske stoffer
Julie Boberg
02/06/2017
National Food Institute, Research Group for Molecular and Reproductive Toxicology

Media coverage (1)

Projektet for Miljøstyrelsen om børns udsættelse for hormonforstyrrende stoffer
02/06/2017
Altinget (National), Denmark, Web
Daniel Bue Lauritzen
Julie Boberg
National Food Institute, Research Group for Molecular and Reproductive Toxicology
Press / Media

Er animalsk gelatine usundt?
Heddie Mejborn
01/06/2017
Media contribution (1)

Er animalsk gelatine usundt?
01/06/2017
BT, Denmark
Heddie Mejborn
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Resistensovervågning
Rene S. Hendriksen
30/05/2017
National Food Institute, Research Group for Genomic Epidemiology

Media coverage (1)

Resistensovervågning i Danmark
30/05/2017
Politikens Forlag, Denmark, Other
Andreas Lindqvist
Rene S. Hendriksen
National Food Institute, Research Group for Genomic Epidemiology
Press / Media

Danskernes forbrug af usunde fødevarer
Sisse Fagt
24/05/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Forbrug af usunde fødevarer og faktorer, der spiller ind på vores valg
24/05/2017
Politiken (National), Denmark, Print
Rasmus Straka
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Er der forskel på mærkevarer og private labels?
Sisse Fagt
23/05/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Forskel i næringsindhold på mærkevarer vs private labels
23/05/2017
DR Pengemagasinet (National), Denmark, Television
Dorte Fals
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Pesticidrester i fødevarer
Bodil Hamborg Jensen
22/05/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Kan man vaske/koge/bage sig til mindre gift i maden?
Pesticider i frugt og grønt
Bodil Hamborg Jensen
22/05/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Kan man skylle pesticidrester af frugt og grønt
22/05/2017
Magasinet Økologisk (National), Denmark, Print
Mette Truelsen
Bodil Hamborg Jensen
National Food Institute, Division of Risk Assessment and Nutrition

ENGAGE project
Rene S. Hendriksen
19/05/2017
National Food Institute, Research Group for Genomic Epidemiology

Media coverage (1)

Idéen bag ENGAGE
19/05/2017
EFSA (International), Denmark, Other
Christian Dominic
Rene S. Hendriksen
National Food Institute, Research Group for Genomic Epidemiology

Børn, fuldkorn og sundhed
Anja Pia Biltoft-Jensen
16/05/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Fulkorn - hvorfor er det godt for os?
16/05/2017
Ritzau Fokus (National), Denmark, Other
Anna Raabæk
Anja Pia Biltoft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition

Gourmet fast food
Sisse Fagt
16/05/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Kalorieindhold i gourmet- vs standardburgere
16/05/2017
DR Madmagasinet (National), Denmark, Television
Lotte Jahnsen
LC-ESI-MS paper
Eelco Nicolaas Pieke
15/05/2017
National Food Institute, Research Group for Analytical Food Chemistry

Media contribution (1)

Use of novel methods in safety assessments
15/05/2017
Chemical Watch (International), Denmark, Web
Emma Davies
Eelco Nicolaas Pieke
National Food Institute, Research Group for Analytical Food Chemistry

Melamin
Pelle Thonning Olesen
12/05/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Er melamin skadeligt i de doser, der kan migrere fra melaminplastprodukter?
12/05/2017
Ingeniøren (National), Denmark, Print
Rebecca Fauling
Pelle Thonning Olesen
National Food Institute, Division of Risk Assessment and Nutrition

Energidrikke
Jeppe Matthiessen
11/05/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Udviklingen i salg af engerdidrike
11/05/2017
TV2 MIDTVEST, Denmark
Alexandra Lysgaard
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition

Danskernes forbrug af grøntsager gennem tiderne
Sisse Fagt
09/05/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Danskernes forbrug af grøntsager gennem tiderne
09/05/2017
DR (National), Denmark, Television
Sara Kring
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Fremtidige kompetencebehov for laboranter
Jørn Smedsgaard
05/05/2017
National Food Institute, Research Group for Analytical Food Chemistry

Media coverage (1)

Fremtidens kompetencebehov for laboranter
05/05/2017
Laboranten, Denmark, Print
Gunnar Lomborg
Jørn Smedsgaard
National Food Institute, Research Group for Analytical Food Chemistry
Press / Media

Er det ok at spise pasta?
Heddie Mejborn
04/05/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Sundsproff af hvid vs fuldkornspasta
04/05/2017
Ritzau Fokus (National), Denmark, Other
Cecilie Lyngberg
Heddie Mejborn
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Kostvaner, sundhedsadfærd og vægtstatus hos 56-64-årige og 65-75-årige danskere
Agnes N. Pedersen
02/05/2017
National Food Institute

Media coverage (1)

Ældre danskeres kostvaner, sundhedsadfærd og vægtstatus
02/05/2017
Ritzau (National), Denmark, Other
Christian Rantorp
Agnes N. Pedersen
National Food Institute
Press / Media

Biodynamiske fødevarer og sundhed
Heddie Mejborn
27/04/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Er biodynamisk dyrkede fødevarer sundere end konventionelle?
27/04/2017
GELB Kommunikation ApS, Denmark, Other
Marie Vestergaard Magni
Heddie Mejborn
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media
Børn og unges indtag af slik og chokolade
Sisse Fagt
26/04/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Status og uviklingen i børn og unges indtag af slik og chokolade
26/04/2017
BT (National), Denmark, Print
Jonas Melander Hammer
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Børn og unges slik og chokoladeindtag i weekenden
Jeppe Matthiessen
26/04/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Hvorfor er det godt at spise brød?
Heddie Mejborn
24/04/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Grunde til at spise brød og dermed få kostfibre
24/04/2017
Ritzau Fokus (National), Denmark, Other
Cecilie Lyngberg
Heddie Mejborn
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Genbrug af vandflasker af plast
Gitte Alsing Pedersen
21/04/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Æg
Sisse Fagt
18/04/2017
National Food Institute, Division of Risk Assessment and Nutrition
Æg - hvor mange må vi spise?
18/04/2017
DR Madmagasinet (National), Denmark, Television
Lotte Jahnson
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

Børn og unges kost
Sisse Fagt
18/04/2017
National Food Institute, Division of Risk Assessment and Nutrition

Kostens betydning for børn og unges sundhed og overvægt
18/04/2017
Science Report (National), Denmark, Web
Kristoffer Frøkjær
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

Æg
Jeppe Matthiessen
07/04/2017
National Food Institute, Division of Risk Assessment and Nutrition

Et sundt indtag af æg
07/04/2017
Ritzau Fokus (National), Denmark, Other
Nanna Frank
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition

Fødevareallergi
Charlotte Bernhard Madsen
06/04/2017
National Food Institute, Research Group for Gut Microbiology and Immunology

Hyppigheden af fødevareallergi hos børn
06/04/2017
DR Videnskab (National), Denmark, Radio
Maja Hald
Charlotte Bernhard Madsen
National Food Institute, Research Group for Gut Microbiology and Immunology

Morgenmadsanbefalinger
Sisse Fagt
05/04/2017
National Food Institute, Division of Risk Assessment and Nutrition

Howdan spiser man sig til en god start på dagen?
05/04/2017
Vær overvægt hos danske voksne
Jeppe Matthiessen
05/04/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Status og udvikling i forekomsten af svær overvægt blandt voksne danskere
05/04/2017
TV2 News (National), Denmark, Television
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Kaffe og koffein
Jeppe Matthiessen
31/03/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Hvornår er et kaffeindtag for stort?
31/03/2017
Ritzau Fokus (National), Denmark, Other
Nanna Frank
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Is - og sundere alternativer
Sisse Fagt
31/03/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Is - og sundere alternativer
31/03/2017
Ritzau Focus (National), Denmark, Other
Sabrina Melina Andersen
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Børn og unges fiskeindtag
Jeppe Matthiessen
29/03/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Børn og unges fiskeindtag i forhold til andre nordiske børn
29/03/2017
Publicity, Denmark, Other
http://Mette Kirstine Goddiksen
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Afhængighed af bestemte fødevarer  
Sisse Fagt  
29/03/2017  
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Bliver mennesker mere afhængige af visse fødevarer end andre?  
29/03/2017  
Ritzau Focus (National), Denmark, Other  
Anna Raabæk  
Sisse Fagt  
National Food Institute, Division of Risk Assessment and Nutrition

MikroRNA fra fødevarer kan ikke overføres til mennesker  
Claus Heiner Bang-Berthelsen  
29/03/2017  
National Food Institute, Research Group for Microbial Biotechnology and Biorefining

Media coverage (1)

GMO-fri mælk  
Jan W. Pedersen  
28/03/2017  
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Børn og unges kostvaner  
Jeppe Matthiessen  
23/03/2017  
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)
Børn og unges kostvaner
Jeppe Matthiessen
22/03/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Status og udvikling i børn og unges kostvaner
22/03/2017
Ritzau (National), Denmark, Other
Anne Katrine Hasse
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Næringsindholdet i almindelige vs gourmet burgere
Sisse Fagt
21/03/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Næringsindholdet i almindelige vs gourmet burgere
21/03/2017
DR Madmagasinet (National), Denmark, Television
Mette Frisk
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Sundhedsmæssige bekymringer ved mineralolie i læbepomade
Pelle Thonning Olesen
15/03/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Sundhedsmæssig bekymring over mineralolie i læbepomade
15/03/2017
Ritzau (National), Denmark, Other
Kristine Dam Johansen
Pelle Thonning Olesen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Kosttilskud
Anja Pia Biltoft-Jensen
13/03/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media coverage (1)

Er kosttilskud nødvendige?
13/03/2017
Radio Nova (Regional), Denmark, Radio
Anja Pia Biltoft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Zink i leverpostej
Flemming Bager
10/03/2017
**Media coverage (1)**

**Zink i leverpostej**
10/03/2017
TV2 News (National), Denmark, Television
Mikkel Fyhn Christensen
Flemming Bager
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

**Danskeres brug af kosttilskud**
09/03/2017
National Food Institute, Division of Risk Assessment and Nutrition

**Media contribution (1)**

**Danskeres brug af kosttilskud**
09/03/2017
Ritzau Fokus (National), Denmark, Web
Kristine Dam Johansen
https://www.mx.dk/ritzau/nyheder/story/13618118
Anja Pia Biltoft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

**Fakta bag 6 om dagen**
08/03/2017
National Food Institute, Division of Risk Assessment and Nutrition

**Media coverage (1)**

**Fakta bag 6 om dagen**
08/03/2017
Aktiv Træning (National), Denmark, Print
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

**Unges brødvaner**
08/03/2017
National Food Institute, Division of Risk Assessment and Nutrition

**Media coverage (1)**

**Unges brødvaner**
08/03/2017
Kristeligt Dagblad (National), Denmark, Web
Signe Kaalund Jensen
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

**Sødemidlet Stevia**
07/03/2017
National Food Institute, Research Group for Risk-Benefit

**Media coverage (1)**
Sødemidlet Stevia
07/03/2017
Fit Living (National), Denmark, Print
Lene Roe Rasmussen
Kirsten Pilegaard
National Food Institute, Research Group for Risk-Benefit
Press / Media

Indberetning af MRSA data til EFSA
Frank Møller Aarestrup
06/03/2017
National Food Institute, Research Group for Genomic Epidemiology

Media coverage (1)

Indberetning af MRSA data til EFSA
06/03/2017
Information (National), Denmark, Print
Frank Møller Aarestrup
National Food Institute, Research Group for Genomic Epidemiology
Press / Media

Holdbarhed af fødevarer
Jens Kirk Andersen
28/02/2017
National Food Institute, Research Group for Microbial Food Safety

Media coverage (1)

Holdbarhed af fødevarer
28/02/2017
Radio Nova (Regional), Denmark, Radio
Jens Kirk Andersen
National Food Institute, Research Group for Microbial Food Safety
Press / Media

Holdbarhedsdatoer
Jens Kirk Andersen
28/02/2017
National Food Institute, Research Group for Microbial Food Safety

Media coverage (1)

Holdbarhed af fødevarer.
28/02/2017
Ritzau (National), Denmark, Other
Ritzau
Jens Kirk Andersen
National Food Institute, Research Group for Microbial Food Safety
Press / Media

WHO's prioriteringsliste for R&D
Frank Møller Aarestrup
28/02/2017
National Food Institute, Research Group for Genomic Epidemiology

Media coverage (1)

WHO's prioriteringsliste for R&D
28/02/2017
Videnskab.dk (National), Denmark, Web
Frank Møller Aarestrup
MRSA ekspertgruppe
Frank Møller Aarestrup
28/02/2017
National Food Institute, Research Group for Genomic Epidemiology

Media coverage (1)

MRSA ekspertgruppe
28/02/2017
BT (National), Denmark, Print
Frank Møller Aarestrup
National Food Institute, Research Group for Genomic Epidemiology
Press / Media

MRSA
Frank Møller Aarestrup
24/02/2017
National Food Institute, Research Group for Genomic Epidemiology

Media coverage (1)

MRSA
24/02/2017
Forskerforum (National), Denmark, Web
Mads Ølgaard
Frank Møller Aarestrup
National Food Institute, Research Group for Genomic Epidemiology
Press / Media

Validiteten af Roundup forsøg på rotter
Jan W. Pedersen
23/02/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Effekter af Roundup forsøg på rotter.
23/02/2017
Ingeniøren (National), Denmark, Web
Rebekka Falsing
Jan W. Pedersen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Måltidssalater - er de bedre end traditionel fastfood
Sisse Fagt
22/02/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Måltidssalater - er de bedre end traditionel fastfood
22/02/2017
Ritzau, Web
Cecilie Lyngberg
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media
MikroRNA fra fødevarer kan ikke overføres til mennesker
Claus Heiner Bang-Berthelsen
22/02/2017
National Food Institute, Research Group for Microbial Biotechnology and Biorefining

Media contribution (1)

MikroRNA fra fødevarer kan ikke overføres til mennesker
22/02/2017
Videnskab.dk, Web
Kristian Peter Sjøgren
http://videnskab.dk/krop-sundhed/kan-mikrona-i-maden-skade-os-nej-siger-forskere
Claus Heiner Bang-Berthelsen
National Food Institute, Research Group for Microbial Biotechnology and Biorefining
Press / Media

Mellemmåltiders bidrag til danskernes energiindtag
Sisse Fagt
22/02/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Mellemmåltiders bidrag til danskernes energiindtag
22/02/2017
Samvirke, Print
Inger Abildgaard
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

MikroRNA fra fødevarer kan ikke overføres til mennesker
Claus Heiner Bang-Berthelsen
22/02/2017
National Food Institute, Research Group for Microbial Biotechnology and Biorefining

Media contribution (1)

MikroRNA fra fødevarer kan ikke overføres til mennesker
22/02/2017
bj-news@ga-net.dk, Web
Bjørn Jensen
Claus Heiner Bang-Berthelsen
National Food Institute, Research Group for Microbial Biotechnology and Biorefining
Press / Media

Antibiotika vægtning
Frank Møller Aarestrup
17/02/2017
National Food Institute, Research Group for Genomic Epidemiology

Media contribution (1)

Antibiotika vægtning
17/02/2017
Landbrugsmedierne, Web
Mette Boas
Frank Møller Aarestrup
National Food Institute, Research Group for Genomic Epidemiology
Press / Media

DANMAP opgørelse af zink forbrug – hvordan undgåes fejl fremover?
Flemming Bager
Zinkforbrug i svin
National Food Institute, Division of Risk Assessment and Nutrition

DANMAP opgørelse af zink forbrug – hvordan undgåes fejl fremover?
14/02/2017
Ingeniøren, Web
Magnus Bredsdorf
Flemming Bager
National Food Institute, Division of Risk Assessment and Nutrition

Udvinding af naturlige antioxidanter fra tang
Ditte Baun Hermund
14/02/2017
National Food Institute, Research Group for Bioactives – Analysis and Application

Risiko ved at erstatte hvede med ris i en glutenfri kost
Max Hansen
14/02/2017
National Food Institute, Division of Risk Assessment and Nutrition

Nordisk Monitorering – svær overvægt i Danmark
Jeppe Matthiessen
08/02/2017
National Food Institute, Division of Risk Assessment and Nutrition

Danskeres indtag af sodavand
Sisse Fagt
07/02/2017
Subject
En udsendelse af Langt fra Borgen, hvor to politikere skal diskutere sunde og usunde fødevarer, og om vi i højere grad end i dag skal bruge afgifter for at regulere folks madvaner.
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Danskeres indtag af sodavand
07/02/2017
DR Langt fra Borgen, Radio
Sidsel Miller Hansen
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Zinkforbrug i svin
Flemming Bager
07/02/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Zinkforbrug i svin
07/02/2017
Ingeniøren, Web
Magnus Bredsdorf
Flemming Bager
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Data om kost fra den nordiske monitorering med fokus på status og udvikling i Danmark
Jeppe Matthiessen
07/02/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Data om kost fra den nordiske monitorering med fokus på status og udvikling i Danmark
07/02/2017
Radio Køge, Radio
Roxanne Tirkov
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Nordiske Monitorering - data for svær overvægt i Danmark
Jeppe Matthiessen
07/02/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Nordiske Monitorering - data for svær overvægt i Danmark
07/02/2017
TV2 Nyhederne, Television
Mia Bahl Jensen
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Danskeres alkoholvaner og forskel på lovgivning og priser i de nordiske lande
Sisse Fagt
06/02/2017
Danskernes alkoholvænder og forskel på lovgivning og priser i de nordiske lande
06/02/2017
P1 Orientering, Radio
Christian Brandt
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

Zinkforbrug i svin
Frank Møller Aarestrup
05/02/2017
National Food Institute, Research Group for Genomic Epidemiology

Danskernes alkohol og rygevaner - data fra den nordiske monitorering
Sisse Fagt
02/02/2017
National Food Institute, Division of Risk Assessment and Nutrition

Fuldkorn og havregryn til unge
Sisse Fagt
01/02/2017

Subjækt
Havregryn er sundt, billigt, 100 % fuldkorn og hurtigt at lave. Det passer fint til en travl morgenmad blandt unge. En stor skål havregryn på 75 g dækker behovet for fuldkorn. Havregryn kan spises rå, udblødt over natten eller som grød – det er fortsat fuldkorn – og de unge skal bare finde den måde at spise havregryn der passer dem bedst.
National Food Institute, Division of Risk Assessment and Nutrition

Fuldkorn og havregryn til unge
01/02/2017
DR, Web
Lotte Reindahl Jansen
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Danskernes alkohol og rygevaner - data fra den nordiske monitorering
Sisse Fagt
01/02/2017

Subject
Nyhed og radioindslag om resultaterne fra Det nordiske monitoreringsystem vedr. alkohol og rygning
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Danskernes alkohol og rygevaner - data fra den nordiske monitorering
01/02/2017
Ritzau, Print
Susanne Andersen
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Fuldkorn og havregryn til unge
Sisse Fagt
01/02/2017

Subject
Fuldkornspartnerskabet har startet kampagne for at få unge til at spise morgenmad med havregryn.
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Fuldkorn og havregryn til unge
01/02/2017
DR, Web
Lotte Reindahl Jansen
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Æg og kolesterol
Heddie Mejborn
30/01/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Æg og kolesterol
30/01/2017
DR Madmagasinet, Television
Elna Bruun
Heddie Mejborn
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Udvikling i zinkforbrug til svin
Flemming Bager
27/01/2017

Subject
Udvikling i zinkforbrug til svin
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Udvikling i zinkforbrug til svin
27/01/2017
Ingeniøren, Print
Magnus Bredsdorff
Vitamintab i frugt og grønt ved opbevaring
Sisse Fagt
25/01/2017

Subject
Vitamintab i frugt og grønt ved opbevaring
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Vitamintab i frugt og grønt ved opbevaring
25/01/2017
Ritzau Fokus, Print
Majbritt Schultz
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Nordisk Monitorering – overvægt og fysisk aktivitet med fokus på status og udvikling i Danmark
Jeppe Matthiessen
25/01/2017

Subject
Nordisk Monitorering – overvægt og fysisk aktivitet med fokus på status og udvikling i Danmark
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Nordisk Monitorering – overvægt og fysisk aktivitet med fokus på status og udvikling i Danmark
25/01/2017
TV Avisen, Television
Katrine Overgaard
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Nordisk Monitorering – overvægt og fysisk aktivitet med fokus på status og udvikling i Danmark
Jeppe Matthiessen
25/01/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Nordisk Monitorering – overvægt og fysisk aktivitet med fokus på status og udvikling i Danmark
25/01/2017
Nova FM - Bauer Media, Radio
Nordisk Monitorering – overvægt og fysisk aktivitet med fokus på status og udvikling i Danmark
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Nordisk Monitorering – overvægt og fysisk aktivitet med fokus på status og udvikling i Danmark
Jeppe Matthiessen
25/01/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Nordisk Monitorering – overvægt og fysisk aktivitet med fokus på status og udvikling i Danmark
25/01/2017
Radio VLR, Jysk Fynske Medier, Radio
Ole B. Bernstrup
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Nordisk Monitorering – overvægt og fysisk aktivitet med fokus på status og udvikling i Danmark
Jeppe Matthiessen
25/01/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Nordisk Monitorering – overvægt og fysisk aktivitet med fokus på status og udvikling i Danmark
Berlingske Tidende, Print
Eva M. E. Østergaard Jensen
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Nordisk Monitorering – overvægt og fysisk aktivitet med fokus på status og udvikling i Danmark
Jeppe Matthiessen
25/01/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Nordisk Monitorering – overvægt og fysisk aktivitet med fokus på status og udvikling i Danmark og Norden
Jeppe Matthiessen
24/01/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Nordisk Monitorering – overvægt og fysisk aktivitet med fokus på status og udvikling i Danmark og Norden
TV2 News / TV2 Nyhederne, Television
Brian Lindhoff
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Nordisk Monitorering – overvægt og fysisk aktivitet med fokus på status og udvikling i Danmark og Norden
Jeppe Matthiessen
24/01/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Nordisk Monitorering – overvægt og fysisk aktivitet med fokus på status og udvikling i Danmark og Norden
DR Lev Nu, Web
Thomas Helsborg
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Nordisk Monitorering – overvægt og fysisk aktivitet med fokus på status og udvikling i Danmark og Norden
Jeppe Matthiessen
24/01/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Nordisk Monitorering – overvægt og fysisk aktivitet med fokus på status og udvikling i Danmark og Norden
DR P1 Morgen, Radio
Jesper Christiansen
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Hvordan bruger man light produkter fornuftigt?
Heddie Mejborn
24/01/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Hvordan bruger man light produkter fornuftigt?
24/01/2017
Ritzau Fokus, Print
Anne Lavendt
Heddie Mejborn
National Food Institute, Division of Risk Assessment and Nutrition

Nordisk Monitorering – overvægt og fysisk aktivitet med fokus på status og udvikling i Danmark
Jeppe Matthiessen
24/01/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Nordisk Monitorering – overvægt og fysisk aktivitet med fokus på status og udvikling i Danmark
24/01/2017
Ritzau, Print
Susanne Andersen
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition

Fremtidens fødevarer
Heidi Kornholt
24/01/2017

Subject
Givet kontaktinformation på medarbejdere, som kan udtale sig om fremtidens fødevarer
National Food Institute

Media contribution (1)

Fremtidens fødevarer
24/01/2017
TV2 (Nordisk Film TV), Television
Jesper Danielsen
Heidi Kornholt
National Food Institute

DTU's ingredienssektorudviklingsrapport
Egon Bech Hansen
20/01/2017
National Food Institute, Research Group for Gut Microbiology and Immunology

Media contribution (1)

DTU's ingredienssektorudviklingsrapport
20/01/2017
Food Navigator, Web
Niamh Michail
Egon Bech Hansen
National Food Institute, Research Group for Gut Microbiology and Immunology

Press / Media
Subject
Lead is a highly toxic metal that can accumulate in the human body, causing serious adverse effects. Food is a major source of lead exposure, for example from the ingestion of contaminated water or cereals. Some game meat may contain high levels of lead fragments, as a result of being shot with lead bullets. A recently published study was able to detect lead nanoparticles in game meat using mass spectrometry technology. SelectScience® spoke to Senior Researcher, Katrin Löschner, to find out more.
National Food Institute, Research Group for Nano-Bio Science

Media contribution (1)

Nordisk Monitorering - med fokus på kosten
Sisse Fagt
18/01/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Nordisk Monitorering - med fokus på kosten
18/01/2017
DR Radioavisen, Radio
Sissel Vestergaard Hoe
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Nordisk Monitorering - med fokus på kosten
Sisse Fagt
18/01/2017
National Food Institute, Division of Risk Assessment and Nutrition
Tarmbakterier og kostomsætning
Tine Rask Licht
11/01/2017
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

Media contribution (1)

Kommenteret irsk studie om stress og bifidobakterier
Tine Rask Licht
11/01/2017
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

Media contribution (1)

Undersøgelse af skolers forsøg med at inkorporere mere frugt, grønt og fuldkorn i skolemad
Lene Møller Christensen
11/01/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Kageindtag på arbejde
Jeppe Matthiessen
05/01/2017
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)
Berlingske, Print
Jens Rebenstorf
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Cephalosporiner og differentieret gult kort
Rene S. Hendriksen
04/01/2017
National Food Institute, Research Group for Genomic Epidemiology
Media contribution (1)

Cephalosporiner og differentieret gult kort
04/01/2017
DR Nyhederne, Radio
Kristian Sloth
Rene S. Hendriksen
National Food Institute, Research Group for Genomic Epidemiology
Press / Media

Danskernes svinekødsforbrug
Sisse Fagt
22/12/2016
National Food Institute, Division of Risk Assessment and Nutrition
Media contribution (1)

Danskernes svinekødsforbrug
22/12/2016
Salling Avis, Print
Ture Damholt
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Myter om mad: Kan visse fødevarer, som hvidløg og ingefær, modvirke forkølelser?
Sisse Fagt
22/12/2016
National Food Institute, Division of Risk Assessment and Nutrition
Media contribution (1)

Myter om mad: Kan visse fødevarer, som hvidløg og ingefær, modvirke forkølelser?
22/12/2016
Videnskab.dk, Web
Asbjørn
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Danskernes indtag af salt
Sisse Fagt
22/12/2016
National Food Institute, Division of Risk Assessment and Nutrition
Media contribution (1)

Danskernes indtag af salt
22/12/2016
Politiken, Print
Emilie Rasmussen
Sisse Fagt
Danskernes indtag af salt - og risikoen ved for højt indtag
Anne Dahl Lassen
22/12/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Danskernes indtag af salt - og risikoen ved for højt indtag
22/12/2016
Politiken, Print
Emilie Rasmussen
Anne Dahl Lassen
National Food Institute, Division of Risk Assessment and Nutrition

Danskernes svinekødsforbrug
Sisse Fagt
22/12/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Danskernes svinekødsforbrug
22/12/2016
Salling Avis, Print
Ture Damholt
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

Kan visse madvarer modvirke forkølelse?
Sisse Fagt
22/12/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Kan visse madvarer modvirke forkølelse?
22/12/2016
Videnskab.dk, Web
Asbjørn
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

Danskernes saltindtag
Sisse Fagt
22/12/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Danskernes saltindtag
22/12/2016
Politiken, Print
Emilie Rasmussen
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

Press / Media
Inorganic arsenic, arsenolipids, iodine – tracking future feed controls
Jens Jørgen Sloth
19/12/2016
National Food Institute, Research Group for Nano-Bio Science

Media contribution (1)

Inorganic arsenic, arsenolipids, iodine – tracking future feed controls
19/12/2016
feednavigator.com, Web
Jane Byrne
http://www.feednavigator.com/Regulation/Arsenic-iodine-tracking-future-feed-controls
Jens Jørgen Sloth
National Food Institute, Research Group for Nano-Bio Science

CEN standard for arsenik
Jens Jørgen Sloth
19/12/2016
National Food Institute, Research Group for Nano-Bio Science

Media contribution (1)

CEN standard for arsenik
19/12/2016
FeedNavigator.com, Print
Jane Byrne
Jens Jørgen Sloth
National Food Institute, Research Group for Nano-Bio Science

Danskernes brug af færdigretter
Sisse Fagt
16/12/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Danskernes brug af færdigretter
16/12/2016
Jysk fynske Medier/avisen Danmark, Print
Bruno Ingemann
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

Tarmbakterier, fedme, mus
Tine Rask Licht
15/12/2016
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

Media contribution (1)

Tarmbakterier, fedme, mus
15/12/2016
DR P1 Videnskabens Verden, Radio
Stine Blegvad
Tine Rask Licht
Copenhagen Center for Health Technology, National Food Institute, Research Group for Gut Microbiology and Immunology
Kalorieindholdet i burgere
Jeppe Matthiessen
13/12/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Kalorieindholdet i burgere
13/12/2016
Fagbladet 3F, Print
Ia Kowalski Samuelsen
http://fagbladet3f.dk/artikel/kaempe-kalorieforskel-paa-fastfoodburgere
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

DTUs Sektorudviklingsrapport "Viden er den vigtigste ingrediens"
Egon Bech Hansen
12/12/2016
National Food Institute, Research Group for Gut Microbiology and Immunology

Media contribution (1)

DTUs Sektorudviklingsrapport "Viden er den vigtigste ingrediens"
12/12/2016
DR2 Dagen, Television
Mads Færch
Egon Bech Hansen
National Food Institute, Research Group for Gut Microbiology and Immunology
Press / Media

Bisphenol A, BPF og BADGE i dåsesodavand
Sofie Christiansen
12/12/2016
National Food Institute, Research Group for Reproductive Toxicology

Media contribution (1)

Bisphenol A, BPF og BADGE i dåsesodavand
12/12/2016
Søndagsavisen, Print
Niels Philip Kjeldsen
Sofie Christiansen
National Food Institute, Research Group for Reproductive Toxicology
Press / Media

Hvordan påvirker koffeinpiller kroppen?
Marta Axelstad Petersen
09/12/2016
National Food Institute, Research Group for Reproductive Toxicology

Media contribution (1)

Hvordan påvirker koffeinpiller kroppen?
09/12/2016
Samvirke, Print
Morten Thorsboe
Marta Axelstad Petersen
National Food Institute, Research Group for Reproductive Toxicology
Press / Media
**Mælk og laktose intolerans**
Inge Tetens  
08/12/2016  
National Food Institute, Research Group for Risk-Benefit

**Media contribution (1)**

**Mælk og laktose intolerans**  
08/12/2016  
Kulør, Print  
Elisabeth Hamerik Schwarz  
Inge Tetens  
National Food Institute, Research Group for Risk-Benefit

**Drikker danske skolebørn for lidt vand**  
Sisse Fagt  
08/12/2016

**Subject**  
Danske skolebørns indtag af vand  
National Food Institute, Division of Risk Assessment and Nutrition

**Media contribution (1)**

**Drikker danske skolebørn for lidt vand**  
08/12/2016  
DR Sjælland, Radio  
Per Gade Gyldenkærne  
Sisse Fagt  
National Food Institute, Division of Risk Assessment and Nutrition

**Tarmbakterier, fedme, mus**  
Tine Rask Licht  
07/12/2016  
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

**Media contribution (1)**

**Tarmbakterier, fedme, mus**  
07/12/2016  
EatingWell magazine, Print  
Marissa Donovan  
Tine Rask Licht  
Copenhagen Center for Health Technology, National Food Institute, Research Group for Gut Microbiology and Immunology

**Sukker i ingrediensliste og næringsdeklaration**  
Heddie Mejborn  
07/12/2016

**Subject**  
Hvordan forskellige typer sukker skal skrives på ingredienslisten på fødevarer.  
National Food Institute, Division of Risk Assessment and Nutrition

**Media contribution (1)**

**Sukker i ingrediensliste og næringsdeklaration**  
07/12/2016  
DR Kontant, Television
Danskernes indtag af rugbrød
Sisse Fagt
06/12/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Danskernes indtag af rugbrød
06/12/2016
Søndagsavisen, Print
Louise A Poulsen
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

Danskernes indtag af rugbrød
06/12/2016
National Food Institute, Division of Risk Assessment and Nutrition

Er High Fructose Corn Sirup (HFCS) skadeligt?
Heddie Mejborn
05/12/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Er High Fructose Corn Sirup (HFCS) skadeligt?
05/12/2016
DR Kontant, Television
Thomas Lemke
Heddie Mejborn
National Food Institute, Division of Risk Assessment and Nutrition

Danskernes indtag af frugt og grønt og kosttilskud
Sisse Fagt
05/12/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Danskernes indtag af frugt og grønt og kosttilskud
05/12/2016
Samvirke, Print
Inger Abildgaard
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

Danskernes indtag af frugt og grønt og kosttilskud
05/12/2016
National Food Institute, Division of Risk Assessment and Nutrition

2015 tal for forekomsten af zoonoser
Birgitte Helwigh
01/12/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

2015 tal for forekomsten af zoonoser
01/12/2016
P1 morgen nyhederne (National), Denmark, Radio
Birgitte Helwigh

Press / Media
2015 tal for forekomsten af zoonoser
Birgitte Helwigh
01/12/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

2015 tal for forekomsten af zoonoser
01/12/2016
DR Nyhederne, Television
Anders Rasmussen
Birgitte Helwigh
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Fakta om danskernes sukkerforbrug
Jeppe Matthiessen
01/12/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Fakta om danskernes sukkerforbrug
01/12/2016
DR Kontakt, Television
Kristine Sølling Møller
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

2015 tal for forekomsten af zoonoser
Birgitte Helwigh
30/11/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

2015 tal for forekomsten af zoonoser
30/11/2016
Ritzau, Print
Ida Meyer
Birgitte Helwigh
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Tarmbakteriers påvirkning af forbrændingen
Tine Rask Licht
30/11/2016
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

Media contribution (1)

Tarmbakteriers påvirkning af forbrændingen
30/11/2016
Weekendavisen, Print
Jane Bennaroch
Tine Rask Licht
Copenhagen Center for Health Technology, National Food Institute, Research Group for Gut Microbiology and Immunology
Press / Media
Danskernes brug af vitamin/mineralpiller
Anja Pia Biltoft-Jensen
29/11/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Danskernes brug af vitamin/mineralpiller
29/11/2016
Samvirke, Print
Inger Houman Abildgaard
Anja Pia Biltoft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition

Er nogle typer juleslik værre end andre?
Anja Pia Biltoft-Jensen
29/11/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Er nogle typer juleslik værre end andre?
29/11/2016
TV2 online, Web
Camilla Carlson
Anja Pia Biltoft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition

Press / Media

Tarmbakteriers påvirkning af forbrændingen
Tine Rask Licht
28/11/2016
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

Media contribution (1)

Tarmbakteriers påvirkning af forbrændingen
28/11/2016
P4 Sjælland, Radio
Maja Normann
Tine Rask Licht
Copenhagen Center for Health Technology, National Food Institute, Research Group for Gut Microbiology and Immunology

Press / Media

Årsrapport for 2015 for den danske pesticidovervågning
Bodil Hamborg Jensen
24/11/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Årsrapport for 2015 for den danske pesticidovervågning
24/11/2016
Sune Sørensen, Print
Ritzau Fokus
Bodil Hamborg Jensen
National Food Institute, Division of Risk Assessment and Nutrition

Press / Media
Saltindholdet i brød fra danske supermarkeder
Ellen Trolle
24/11/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Saltindholdet i brød fra danske supermarkeder
Ellen Trolle
24/11/2016
BT, Print
Andreas Hovgård
Ellen Trolle
National Food Institute, Division of Risk Assessment and Nutrition

Press / Media

Saltindholdet i brød fra danske supermarkeder
Ellen Trolle
24/11/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Saltindholdet i brød fra danske supermarkeder
Ellen Trolle
24/11/2016
DR Lev Nu, Web
Dorthe Kyhn
http://www.dr.dk/levnu/mad/mindre-salt-i-broedet-fra-supermarkedet
Ellen Trolle
National Food Institute, Division of Risk Assessment and Nutrition

Press / Media

Saltindholdet i brød fra danske supermarkeder
Ellen Trolle
23/11/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Saltindholdet i brød fra danske supermarkeder
Ellen Trolle
23/11/2016
DR, Web
Matthias Valsgaard
Ellen Trolle
National Food Institute, Division of Risk Assessment and Nutrition

Press / Media

Kommentar på Nature studie af tarmbakteriers 'hukommelse'
Henrik Munch Roager
22/11/2016
National Food Institute, Research Group for Gut Microbiology and Immunology

Media contribution (1)

Kommentar på Nature studie af tarmbakteriers 'hukommelse'
Henrik Munch Roager
22/11/2016
Videnskab.dk, Web
Rasmus Kragh Jakobsen
http://videnskab.dk/krop-sundhed/noeglen-til-varigt-vaegttab-kan-ligge-i-dine-tarme
Henrik Munch Roager
National Food Institute, Research Group for Gut Microbiology and Immunology

Press / Media
DTU Fødevareinstituttets rådgivning af Fødevarestyrelsen om MRSA
Frank Møller Aarestrup
17/11/2016
National Food Institute, Research Group for Genomic Epidemiology

Media contribution (1)

Udviklingen i det veterinære forbrug af antibiotika
Flemming Bager
15/11/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Etisk råd flertal siger OK for GMO – hvad mener DTU?
Jan W. Pedersen
14/11/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Danskernes fiskeindtag
Sisse Fagt
07/11/2016
National Food Institute, Division of Risk Assessment and Nutrition
Danskernes fiskeindtag
07/11/2016
Ritzau, Print
Anne Råbæk
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

EFSA's opdaterede referenceværdi for D-vitamin
Inge Tetens
28/10/2016
National Food Institute, Research Group for Risk-Benefit

Primære aromatiske aminer (PAA) i fødevarekontaktmaterialer
Gitte Alsing Pedersen
27/10/2016

Pesticidrester i friskpresset juice
Jens Hinge Andersen
24/10/2016

Fakta om GMO
Egon Bech Hansen
19/10/2016
Fakta om GMO
19/10/2016
Samvirke, Print
Kristian Laulund
Egon Bech Hansen
National Food Institute, Research Group for Gut Microbiology and Immunology
Press / Media

Pesticidrester (glyphosat) i fødevarer
Bodil Hamborg Jensen
14/10/2016
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Den fødevarebårne sygdomsbyrde
Sara Monteiro Pires
13/10/2016
Subject
Den fødevarebårne sygdomsbyrde
National Food Institute, Research Group for Risk-Benefit
Press / Media

Den fødevarebårne sygdomsbyrde
Sara Monteiro Pires
12/10/2016
Subject
Den fødevarebårne sygdomsbyrde
National Food Institute, Research Group for Risk-Benefit
Press / Media
Den fødevarebårne sygdomsbyrde
Sara Monteiro Pires
12/10/2016

Subject
Den fødevarebårne sygdomsbyrde
National Food Institute, Research Group for Risk-Benefit

Media contribution (1)

Den fødevarebårne sygdomsbyrde
12/10/2016
Radio TSF, Radio
Isabel Meira
Sara Monteiro Pires
National Food Institute, Research Group for Risk-Benefit
Press / Media

Danskernes fiskeindtag
Sisse Fagt
12/10/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Danskernes fiskeindtag
12/10/2016
P1 Orientering, Radio
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Stigning i forbrug af antibiotika i kyllingeproduktionen
Lars Bogø Jensen
12/10/2016

Subject
Stigning i forbrug af antibiotika i kyllingeproduktionen
National Food Institute, Research Group for Microbial Food Safety and Quality

Media contribution (1)

Stigning i forbrug af antibiotika i kyllingeproduktionen
12/10/2016
P4 SYD, Radio
Henrik Kellberg
Lars Bogø Jensen
National Food Institute, Research Group for Microbial Food Safety and Quality
Press / Media

Debatindlæg om MRSA og andre former for resistens
Frank Møller Aarestrup
09/10/2016
National Food Institute, Research Group for Genomic Epidemiology

Media contribution (1)

Debatindlæg om MRSA og andre former for resistens
09/10/2016
Politiken, Print
Frank Møller Aarestrup
National Food Institute, Research Group for Genomic Epidemiology
Press / Media
Information om brug af fluorstoffer og deres toksicitet
Anne Marie Vinggaard
05/10/2016
National Food Institute, Research Group for Molecular Toxicology, Copenhagen Center for Health Technology

Media contribution (1)

Information om brug af fluorstoffer og deres toksicitet
05/10/2016
Samvirke, Print
Kristian Herlufsen
Anne Marie Vinggaard
Copenhagen Center for Health Technology, National Food Institute, Research Group for Molecular Toxicology
Press / Media

Er landbrugets brug af prosulfocarb farlig?
Bodil Hamborg Jensen
04/10/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Er landbrugets brug af prosulfocarb farlig?
04/10/2016
Landbrugsavisen, Print
Pia Lykke
http://landbrugsavisen.dk/skal-vi-frygte-prosulfocarb-i-dansk-landbrug
Bodil Hamborg Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Prosulfocarb i æbler og pesticidrester generelt i frugt og grønt
Bodil Hamborg Jensen
03/10/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Prosulfocarb i æbler og pesticidrester generelt i frugt og grønt
03/10/2016
Dansk Planteværn, Print
Jakob Tilma
Bodil Hamborg Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Sundhedsfarerne ved at drikke energidrikke
Marta Axelstad Petersen
03/10/2016
National Food Institute, Research Group for Reproductive Toxicology

Media contribution (1)

Sundhedsfarerne ved at drikke energidrikke
03/10/2016
Søndagsavisen, Print
Christina Ledertoug
Marta Axelstad Petersen
National Food Institute, Research Group for Reproductive Toxicology
Press / Media
Findes der superfoods?
Heddie Mejborn
30/09/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Findes der superfoods?
30/09/2016
DR Lev Nu, Web
Dorthe Kyhn
http://www.dr.dk/levnu/mad/ekspert-om-superfood-der-findes-ikke-mirakel-mad
Heddie Mejborn
National Food Institute, Division of Risk Assessment and Nutrition

Brug af emballage til fødevarer: Hvordan bruger man emballage til fødevarer korrekt?
Gitte Alsing Pedersen
29/09/2016

Subject
Brug af emballage til fødevarer
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Proteiners mæthed
Inge Tetens
27/09/2016

Subject
Proteiners mæthed
National Food Institute, Research Group for Risk-Benefit

Media contribution (1)

Om mikrobølgeovne og hvad der sker med mad, der opvarmes i en mikrobølgeovn
Morten Poulsen
27/09/2016

Subject
Mikrobølgeovne
National Food Institute, Research Group for Risk-Benefit

Media contribution (1)
Steget forbrug af antibiotika i kyllingeproduktionen
Lars Bøge Jensen
27/09/2016

Subject
Steget forbrug af antibiotika i kyllingeproduktionen
National Food Institute, Research Group for Microbial Food Safety

Media contribution (1)
Steget forbrug af antibiotika i kyllingeproduktionen
27/09/2016
DR Nyhederne, Television
Jens Norra
Lars Bøge Jensen
National Food Institute, Research Group for Microbial Food Safety
Press / Media

Definition af en kage
Sisse Fagt
26/09/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)
Definition af en kage
26/09/2016
Videnskab.dk, Print
Charlotte Price Persson
http://videnskab.dk/kultur-samfund/hvad-er-en-kage
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Danskernes indtag af kosttilskud
Anja Pia Biltoft-Jensen
26/09/2016

Subject
Danskernes indtag af kosttilskud
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Danskernes indtag af kosttilskud
26/09/2016
DR1, Television
Asger Mow
Anja Pia Bilton-Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Gravides udsættelse for kemiske stoffer
Julie Boberg
23/09/2016

Subject
Gravides udsættelse for kemiske stoffer
National Food Institute, Research Group for Reproductive Toxicology

Media contribution (1)

Gravides udsættelse for kemiske stoffer
23/09/2016
Tidsskrift for Jordemødre, Print
Maria Stove
Julie Boberg
National Food Institute, Research Group for Reproductive Toxicology
Press / Media

Hvordan bevares mikronæringsstoffer bedst ved opvarmning af grøntsager?
Jette Jakobsen
22/09/2016
National Food Institute, Research Group for Bioactives – Analysis and Application

Media contribution (1)

Hvordan bevares mikronæringsstoffer bedst ved opvarmning af grøntsager?
22/09/2016
Forbrugerrådet Tænk, Print
Tage Majland
Jette Jakobsen
National Food Institute, Research Group for Bioactives – Analysis and Application
Press / Media

Børneovervægt
Jeppe Matthiessen
21/09/2016

Subject
Børneovervægt
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Børneovervægt
21/09/2016
Vores Børn og Gravid, Print
Kristina Svith Villadsen
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media
Nanosilver
Katrin Löschner
20/09/2016

Subject
Nanosilver
National Food Institute, Research Group for Nano-Bio Science

Media contribution (1)

Nanosilver
20/09/2016
DR1 Kontant, Television
Katrin Löschner
National Food Institute, Research Group for Nano-Bio Science
Press / Media

Fluorindholdet i danskvand
Miriam Meister
20/09/2016

Subject
Fluorindholdet i danskvand
National Food Institute

Media contribution (1)

Fluorindholdet i danskvand
20/09/2016
Web
Miriam Meister
National Food Institute
Press / Media

MRSA bekæmpelse
Frank Møller Aarestrup
19/09/2016

Subject
MRSA bekæmpelse
National Food Institute, Research Group for Genomic Epidemiology

Media contribution (1)

MRSA bekæmpelse
19/09/2016
Maskinbladet, Print
Erik
Frank Møller Aarestrup
National Food Institute, Research Group for Genomic Epidemiology
Press / Media

MRSA styregruppe
Flemming Bager
16/09/2016

Subject
MRSA styregruppe
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

MRSA styregruppe
16/09/2016
DR1, Television
Kasper Flemming Bager
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

**Danskernes indtag af kosttilskud**
Anja Pia Biltoft-Jensen
15/09/2016

**Subject**
Danskernes indtag af kosttilskud
National Food Institute, Division of Risk Assessment and Nutrition

**Media contribution (1)**

**Danskernes indtag af kosttilskud**
15/09/2016
DR1, Television
Asger Mow og Peter qutrup Giesling
Anja Pia Biltoft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

**MRSA**
Frank Møller Aarestrup
14/09/2016

**Subject**
MRSA
National Food Institute, Research Group for Genomic Epidemiology

**Media contribution (1)**

**MRSA**
14/09/2016
Politiken, Print
Maj Bak Madsen
Frank Møller Aarestrup
National Food Institute, Research Group for Genomic Epidemiology
Press / Media

**Vil vi bakke op om Jørgen Schlundts udtalelser til Politiken?**
Christine Nellemann
14/09/2016

**Subject**
Vil vi bakke op om Jørgen Schlundts udtalelser til Politiken?
National Food Institute

**Media contribution (1)**

**Vil vi bakke op om Jørgen Schlundts udtalelser til Politiken?**
14/09/2016
Politiken, Web
Maj Bak Madsen
Christine Nellemann
National Food Institute
Press / Media

**Ifm MRSA-dokumentar**
Frank Møller Aarestrup
14/09/2016

**Subject**
Er der blevet lagt pres på mig?
National Food Institute, Research Group for Genomic Epidemiology

Media contribution (1)

Ifm MRSA-dokumentar
14/09/2016
Politiken, Web
Maj Bak Madsen
Frank Møller Aarestrup
National Food Institute, Research Group for Genomic Epidemiology
Press / Media

Hvad synes jeg om at DTU-foods anbefalinger om MRSA ikke er blevet fulgt
Frank Møller Aarestrup
14/09/2016

Subject
Hvad synes jeg om at DTU-foods anbefalinger om MRSA ikke er blevet fulgt
National Food Institute, Research Group for Genomic Epidemiology

Media contribution (1)

Hvad synes jeg om at DTU-foods anbefalinger om MRSA ikke er blevet fulgt
14/09/2016
TV2, Television
Frank Møller Aarestrup
National Food Institute, Research Group for Genomic Epidemiology
Press / Media

FN's topmøde om resistens; hvad er situationen globalt og mine forhåbninger.
Frank Møller Aarestrup
14/09/2016

Subject
FN's topmøde om resistens; hvad er situationen globalt og mine forhåbninger.
National Food Institute, Research Group for Genomic Epidemiology

Media contribution (1)

FN's topmøde om resistens; hvad er situationen globalt og mine forhåbninger.
14/09/2016
Jyllandsposten, Print
Klaus Dohn
Frank Møller Aarestrup
National Food Institute, Research Group for Genomic Epidemiology
Press / Media

MRSA og DRs dokumentar
Frank Møller Aarestrup
13/09/2016

Subject
MRSA og DRs dokumentar
National Food Institute, Research Group for Genomic Epidemiology

Media contribution (1)

MRSA og DRs dokumentar
13/09/2016
TV2, Television
Frank Møller Aarestrup
National Food Institute, Research Group for Genomic Epidemiology
Press / Media
Fluorstoffer i Fødevarekontakttmaterialer (FKM)
Gitte Aisling Pedersen
13/09/2016

Subject
Fluorstoffer i Fødevarekontakttmaterialer (FKM)
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Fluorstoffer i Fødevarekontakttmaterialer (FKM)
13/09/2016
Politiken, Print
Mette Guldgøger
Gitte Aisling Pedersen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Indholdet af vitaminer og mineraler i vores fødevarer er lavere end tidligere
Jette Jakobsen
13/09/2016

Subject
Indholdet af vitaminer og mineraler i vores fødevarer er lavere end tidligere
National Food Institute, Research Group for Bioactives – Analysis and Application

Media contribution (1)

Indholdet af vitaminer og mineraler i vores fødevarer er lavere end tidligere
13/09/2016
DRs Sundhedsmagasin, Web
Asger Mow/Lillian Gjerulf
Jette Jakobsen
National Food Institute, Research Group for Bioactives – Analysis and Application
Press / Media

Mikroplastik
Kit Granby
13/09/2016

Subject
Mikroplastik
National Food Institute, Research Group for Analytical Food Chemistry

Media contribution (1)

Mikroplastik
13/09/2016
Koncern TV og..., Television
Søs Noiesen
Kit Granby
National Food Institute, Research Group for Analytical Food Chemistry
Press / Media

Koffeinindtag
Marta Axelstad Petersen
12/09/2016

Subject
Koffeinindtag
National Food Institute, Research Group for Reproductive Toxicology

Media contribution (1)
Koffeinindtag
12/09/2016
TV2, Television
Camilla Carlson
Marta Axelstad Petersen
National Food Institute, Research Group for Reproductive Toxicology
Press / Media

Tarmbakterier
Tine Rask Licht
12/09/2016

Subject
Tarmbakterier
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

Media contribution (1)

Er GMO farligt, nyttigt, overreguleret i EU ?
Jan W. Pedersen
08/09/2016

Subject
Er GMO farligt, nyttigt, overreguleret i EU ?
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

D-vitamin
Inge Tetens
07/09/2016

Subject
D-vitamin
National Food Institute, Research Group for Risk-Benefit

Media contribution (1)
Pesticidrester i fødevarer
Bodil Hamborg Jensen
06/09/2016

Subject
Pesticidrester i fødevarer
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Pesticidrester i fødevarer
06/09/2016
Dansk Planteværn, Web
Jakob Tilma
Bodil Hamborg Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Vitaminer og mineraler fra kosten og kosttilskud
Anja Pia Biltoft-Jensen
05/09/2016

Subject
Vitaminer og mineraler fra kosten og kosttilskud
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Vitaminer og mineraler fra kosten og kosttilskud
05/09/2016
Ritzau Fokus, Web
Mathias Sinius Mølgaard
Anja Pia Biltoft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Næringsværdi af 'kernen' fra en ananas
Miriam Meister
05/09/2016

Subject
Næringsværdi af 'kernen' fra en ananas
National Food Institute

Media contribution (1)

Næringsværdi af 'kernen' fra en ananas
05/09/2016
Metroexpress, Print
Julie Schoen
Miriam Meister
National Food Institute
Press / Media

Teenageres indtag af grøntsager
Sisse Fagt
02/09/2016

Subject
Teenageres indtag af grøntsager
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Teenageres indtag af grøntsager
Plantebaseret kosttilskud
Sisse Fagt
02/09/2016

Subject
Plantebaseret kosttilskud
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Plantebaseret kosttilskud
02/09/2016
NutraIngredients , Print
Anne-Rose Dunn
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

24 spørgsmål til professoren
Tine Rask Licht
02/09/2016

Subject
24 spørgsmål til professoren
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

Media contribution (1)

24 spørgsmål til professoren
02/09/2016
Radio 24Syv, Radio
Lone Frank
Tine Rask Licht
Copenhagen Center for Health Technology, National Food Institute, Research Group for Gut Microbiology and Immunology
Press / Media

Plantebaserede kosttilskud
Sisse Fagt
02/09/2016

Subject
Plantebaserede kosttilskud
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Plantebaserede kosttilskud
02/09/2016
BT, Web
Heidi Petersen
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media
I relation til DTU presse-meddelse: Mapping foods’ DNA can reveal fraud
Rene S. Hendriksen
30/08/2016

Subject
I relation til DTU presse-meddelse: Mapping foods' DNA can reveal fraud
National Food Institute, Research Group for Genomic Epidemiology

Media contribution (1)

I relation til DTU presse-meddelse: Mapping foods’ DNA can reveal fraud
30/08/2016
FoodQualityNews.com, Web
Joseph James Whitworth
Rene S. Hendriksen
National Food Institute, Research Group for Genomic Epidemiology
Press / Media

WGS capable of revealing food fraud but limitations identified
Rene S. Hendriksen
30/08/2016
National Food Institute, Research Group for Genomic Epidemiology

Media contribution (1)

WGS capable of revealing food fraud but limitations identified
30/08/2016
FoodQualityNews.com, Web
Rene S. Hendriksen
National Food Institute, Research Group for Genomic Epidemiology
Press / Media

Pesticidrester i fødevarer, er det farligt
Bodil Hamborg Jensen
30/08/2016

Subject
Pesticidrester i fødevarer, er det farligt
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Pesticidrester i fødevarer, er det farligt
30/08/2016
BT, Web
Andreas Hovgaard
Bodil Hamborg Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Listeria vækst i vakuumpakkede fødevarer
Miriam Meister
30/08/2016

Subject
Listeria vækst i vakuumpakkede fødevarer
National Food Institute

Media contribution (1)

Listeria vækst i vakuumpakkede fødevarer
30/08/2016
NTV Broadcasting Company, Television
Producer Daria Lyubina
Cocktail effekter og fødevarekontaktmaterialer
Anne Marie Vinggaard
29/08/2016

Subject
Cocktail effekter og fødevarekontaktmaterialer
National Food Institute, Research Group for Molecular Toxicology, Copenhagen Center for Health Technology

Media contribution (1)

Cocktail effekter og fødevarekontaktmaterialer
29/08/2016
Ritzau, Web
Kristine Dam
Anne Marie Vinggaard
Copenhagen Center for Health Technology, National Food Institute, Research Group for Molecular Toxicology

Danskernes indtag af salt
Anne Dahl Lassen
26/08/2016

Subject
Danskernes indtag af salt
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Danskernes indtag af salt
26/08/2016
Søndagsavisen, Print
Christina Ledertoug
Anne Dahl Lassen
National Food Institute, Division of Risk Assessment and Nutrition

Virker kampagner?
Sisse Fagt
24/08/2016

Subject
Virker kampagner?
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Virker kampagner?
24/08/2016
DR P1 Morgen, Radio
Mia Ulfgaard
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

Virker kampagner?
Sisse Fagt
24/08/2016

Subject
Virker kampagner?
**Virker kampagner?**
24/08/2016
Radioavisen P1/P4, Radio
Anne Ølgaard
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

**Transittidsstudiet**
Tine Rask Licht
24/08/2016

**Subject**
Interview (ca. 1 time, klippes ned) i forbindelse med vores studie af sammenhængen mellem tarmens transittid, mikrobiota, og bakterielle metabolitter (Nature Microbiology, Juni 2016)
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

**Streetfood**
Sisse Fagt
24/08/2016

**Subject**
Streetfood
National Food Institute, Division of Risk Assessment and Nutrition
bromerede flammehæmmere
Eva Bay Wedebye
23/08/2016

Subject
Projektet for MST om gruppering og kategori-tilgang af bromerede flammehæmmere, MST projektrapport nr. 1872 2016.
National Food Institute, Research Group for Molecular Toxicology

Media contribution (1)

bromerede flammehæmmere
23/08/2016
Chemical Watch, Web
Andrew Turley
Eva Bay Wedebye
National Food Institute, Research Group for Molecular Toxicology

Artikel i Søndagsavisen
Heddie Mejborn
18/08/2016

Subject
Artikel i Søndagsavisen
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Artikel i Søndagsavisen
18/08/2016
Søndagsavisen, Print
Christina Ledertoug
Heddie Mejborn
National Food Institute, Division of Risk Assessment and Nutrition

kogebog med 'god mad til tarmens bakterier'
Tine Rask Licht
18/08/2016

Subject
Der skal udkomme en ny kogebog med 'god mad til tarmens bakterier' eller noget i den retning.
Den vil de skrive om, og kombinere det med lidt viden om området
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

Media contribution (1)

kogebog med 'god mad til tarmens bakterier'
18/08/2016
Metroexpress, Print
Maria Cuculiza
Tine Rask Licht
Copenhagen Center for Health Technology, National Food Institute, Research Group for Gut Microbiology and Immunology

Indtaget af kød
Sisse Fagt
17/08/2016

Subject
Indtaget af kød
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Indtaget af kød
17/08/2016
DR Madmagasinet, Television
Maria Morten Brink Iwersen
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Hygiejne, mikrobiologi, forbrugeradfærd
Lisbeth Truelstrup Hansen
17/08/2016

Subject
Hygiejne, mikrobiologi, forbrugeradfærd
National Food Institute, Research Group for Analytical and Predictive Microbiology

Media contribution (1)

Hygiejne, mikrobiologi, forbrugeradfærd
17/08/2016
TV2 Digital, Web
Camilla Carlson
Lisbeth Truelstrup Hansen
National Food Institute, Research Group for Analytical and Predictive Microbiology
Press / Media

Testmetode af virus på overflader
Anna Charlotte Schultz
16/08/2016

Subject
Testmetode af virus på overflader
National Food Institute, Research Group for Microbial Food Safety

Media contribution (1)

Testmetode af virus på overflader
16/08/2016
TV2, Television
Jon Mikkelsen
Anna Charlotte Schultz
National Food Institute, Research Group for Microbial Food Safety
Press / Media

Hygiejne af dirkkevandsfalsker
Lars Bogø Jensen
13/08/2016

Subject
Hygiejne af dirkkevandsfalsker
National Food Institute, Research Group for Microbial Food Safety

Media contribution (1)

Hygiejne af dirkkevandsfalsker
13/08/2016
Ekstra bladet, Print
Ronja Ryde
Lars Bogø Jensen
National Food Institute, Research Group for Microbial Food Safety
indholdsstoffer i kosttilskud
Kirsten Pilegaard
12/08/2016

Subject
Analyse af indholdsstoffer i kosttilskud (svar på e-mail), samt efterfølgende telefonsamtale om bivirkningsindberetninger af kosttilskud, kinesiske urter m.m.
National Food Institute, Research Group for Risk-Benefit

Media contribution (1)

indholdsstoffer i kosttilskud
12/08/2016
DR, Sundhedsmagasinet, Television
Asger Mow
Kirsten Pilegaard
National Food Institute, Research Group for Risk-Benefit
Press / Media

Veterinaer antibiotikaforbrug
Flemming Bager
09/08/2016

Subject
Veterinaer antibiotikaforbrug
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Veterinaer antibiotikaforbrug
09/08/2016
Landbrugsavisen, Print
Pia Lykke
Flemming Bager
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Indtag af kosttilskud
Anja Pia Biltoft-Jensen
09/08/2016

Subject
Indtag af kosttilskud
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Indtag af kosttilskud
09/08/2016
DR1, Television
Asger Mow
Anja Pia Biltoft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Hygiejne, mikrobiologi, forbrugeradfaerd, antimikrobielt
Lisbeth Truelstrup Hansen
08/08/2016

Subject
Hygiejne, mikrobiologi, forbrugeradfaerd, antimikrobielt
National Food Institute, Research Group for Analytical and Predictive Microbiology
**Media contribution (1)**

*Hygiejne, mikrobiologi, forbrugerafærd, antimikrobielt*
08/08/2016
DR Kontant, Television
Helle Slejborg
Lisbeth Truelstrup Hansen
National Food Institute, Research Group for Analytical and Predictive Microbiology
Press / Media

*maelkesyrebakterier*
Tine Rask Licht
04/08/2016

**Subject**
maelkesyrebakterier
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

**Media contribution (1)**

*maelkesyrebakterier*
04/08/2016
Bonnier Publications, Web
Karen Lyager Horve
Tine Rask Licht
Copenhagen Center for Health Technology, National Food Institute, Research Group for Gut Microbiology and Immunology
Press / Media

**Danskernes kødforbrug**
Anja Pia Biltoft-Jensen
02/08/2016

**Subject**
Danskernes kødforbrug
National Food Institute, Division of Risk Assessment and Nutrition

**Media contribution (1)**

*Danskernes kødforbrug*
02/08/2016
Information, Print
Jørgen Steen Nielsen
Anja Pia Biltoft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

**Opdrætsfisk, specielt norske laks**
Heddie Mejborn
01/08/2016

**Subject**
Opdrætsfisk, specielt norske laks
National Food Institute, Division of Risk Assessment and Nutrition

**Media contribution (1)**

*Opdrætsfisk, specielt norske laks*
01/08/2016
P4, Radio
Henrik
Heddie Mejborn
National Food Institute, Division of Risk Assessment and Nutrition
Fødevarer risici, sommer, spise ude, grill etc.
Dorte Lau Baggesen
29/07/2016

Subject
Fødevarer risici, sommer, spise ude, grill etc.
National Food Institute

Media contribution (1)
Fødevarer risici, sommer, spise ude, grill etc.
29/07/2016
TV2 Vejret, Television
Ellen Nybo
Dorte Lau Baggesen
National Food Institute
Press / Media

Indtaget af kød
Sisse Fagt
19/07/2016

Subject
Indtaget af kød
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)
Indtaget af kød
19/07/2016
DR P1, Radio
Maria Præstholm
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Om at spise sundt til frokost i kantinen eller med madpakken
Sisse Fagt
12/07/2016

Subject
Om at spise sundt til frokost i kantinen eller med madpakken
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)
Om at spise sundt til frokost i kantinen eller med madpakken
12/07/2016
Magasinet Sundhed, Print
Maria Præst
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Om at spise sundt til frokost i kantinen eller med madpakken
Anne Dahl Lassen
12/07/2016

Subject
Om at spise sundt til frokost i kantinen eller med madpakken
National Food Institute, Division of Risk Assessment and Nutrition
Media contribution (1)

**Om at spise sundt til frokost i kantinen eller med madpakken**
12/07/2016
Magasinet Sundhed, Print
Maria Praest
Anne Dahl Lassen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

**Indtaget af kød**
Sisse Fagt
11/07/2016

**Subject**
Indtaget af kød
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

**Indtaget af kød**
11/07/2016
Dagbladenes Bureau, Web
Lene Terkelsen
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

**Økologiske fødevare, stigende forbrug, forbrugernes motivation**
Dorte Lau Baggesen
11/07/2016

**Subject**
Økologiske fødevare, stigende forbrug, forbrugernes motivation
National Food Institute

Media contribution (1)

**Økologiske fødevare, stigende forbrug, forbrugernes motivation**
11/07/2016
TV2 Go’ morgen Danmark, Television
Søren Øhlers
Dorte Lau Baggesen
National Food Institute
Press / Media

**Færdigretter/hurtigmad – udvikling gennem tiden**
Sisse Fagt
05/07/2016

**Subject**
Færdigretter/hurtigmad – udvikling gennem tiden
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

**Færdigretter/hurtigmad – udvikling gennem tiden**
05/07/2016
DI Business, Web
Niels Brandt Petersen
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media
DTU's rapport om kød og kræft.
Max Hansen
04/07/2016

Subject
DTU's rapport om kød og kræft.
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

DTU's rapport om kød og kræft.
04/07/2016
Food Navigator, Web
Natalie Morrison
Max Hansen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Børn i køkkenet
Sisse Fagt
30/06/2016

Subject
Børn i køkkenet
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Døden kom med nødhjælpen
Rene S. Hendriksen
30/06/2016

Description
no 18/2016

Subject
Cholera in Haiti
Døden kom med nødhjælpen
30/06/2016
Illustreret Videnskab, Web
Rene S. Hendriksen
National Food Institute, Research Group for Genomic Epidemiology
Press / Media

The Haiti /Nepal Cholera connection
Rene S. Hendriksen
30/06/2016
Subject
The Haiti /Nepal Cholera connection
National Food Institute, Research Group for Genomic Epidemiology
Media contribution (1)

The Haiti /Nepal Cholera connection
30/06/2016
Illustreret Videnskab, Print
Antje Poulsen
Rene S. Hendriksen
National Food Institute, Research Group for Genomic Epidemiology
Press / Media

Transittid
Henrik Munch Roager
28/06/2016
Subject
Transittid
National Food Institute, Research Group for Gut Microbiology and Immunology
Media contribution (1)

Transittid
28/06/2016
Gut Microbiota for Health, Web
Kristina Campbell
Henrik Munch Roager
National Food Institute, Research Group for Gut Microbiology and Immunology
Press / Media

Transittid
Henrik Munch Roager
28/06/2016
Subject
Transittid
National Food Institute, Research Group for Gut Microbiology and Immunology
Media contribution (1)

Transittid
28/06/2016
Berlingske, Print
Sine Bach Jakobsen
Henrik Munch Roager
National Food Institute, Research Group for Gut Microbiology and Immunology
Press / Media
Færdigretter
Sisse Fagt
28/06/2016

Subject
Færdigretter
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Færdigretter
28/06/2016
Forbrugerbladet Tænk, Print
Regner Hansen
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

Transittid
Tine Rask Licht
28/06/2016

Subject
Transittid
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

Media contribution (1)

Transittid
28/06/2016
NutraIngredients | FoodNavigator, Web
Will Chu, Science editor
Tine Rask Licht
Copenhagen Center for Health Technology, National Food Institute, Research Group for Gut Microbiology and Immunology

Transittid
Tine Rask Licht
27/06/2016

Subject
Transittid
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

Media contribution (1)

Transittid
27/06/2016
videnskab.dk, Web
Malene Sommer Christiansen
Tine Rask Licht
Copenhagen Center for Health Technology, National Food Institute, Research Group for Gut Microbiology and Immunology

Transittid
Tine Rask Licht
27/06/2016

Subject
Transittid
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

Media contribution (1)

Transittid
27/06/2016
DR Lev Nu, Web
Susanne Vigsø Gren
Tine Rask Licht
Copenhagen Center for Health Technology, National Food Institute, Research Group for Gut Microbiology and Immunology

Transittid
Tine Rask Licht
27/06/2016

Subject
Transittid
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

Media contribution (1)

Transittid
27/06/2016
Ritzau, Web
Jan Bjerre Lauridsen
Tine Rask Licht
Copenhagen Center for Health Technology, National Food Institute, Research Group for Gut Microbiology and Immunology

Pesticidrester i urinen – hvad kan forbrugerne gøre
Heidi Kornholt
22/06/2016

Subject
Pesticidrester i urinen – hvad kan forbrugerne gøre
National Food Institute

Media contribution (1)

Pesticidrester i urinen – hvad kan forbrugerne gøre
22/06/2016
Geelmuyden Kiese for Dansk Gartneri, Web
Christian Kehler
Heidi Kornholt
National Food Institute

Bisphenol a’s indvirkning på brystudvikling
Julie Boberg
20/06/2016

Subject
Bisphenol a’s indvirkning på brystudvikling
National Food Institute, Research Group for Reproductive Toxicology

Media contribution (1)

Bisphenol a’s indvirkning på brystudvikling
20/06/2016
citronsyrebehandling af nye kartofler
Kirsten Pilegaard
16/06/2016

Subject
Et EU-Kommissionsforslag om citronsyrebehandling af nye kartofler for at undgå at de bliver grønne.
National Food Institute, Research Group for Risk-Benefit

Media contribution (1)

Gourmetpizza og sundhed
Sisse Fagt
15/06/2016

Subject
Gourmetpizza og sundhed
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Dioxin og store laks fra Østersøen
Tommy Licht Cederberg
08/06/2016
National Food Institute, Research Group for Analytical Food Chemistry

Media contribution (1)

Kamelmælk
Egon Bech Hansen
07/06/2016
National Food Institute, Research Group for Gut Microbiology and Immunology

Media contribution (1)
Kamelmælk
07/06/2016
BT Søndag, Web
Charlotte Nielsen
Egon Bech Hansen
National Food Institute, Research Group for Gut Microbiology and Immunology
Press / Media

Om koldskål er sundt
Sisse Fagt
07/06/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Om koldskål er sundt
07/06/2016
Ritzau, Web
Amalie Kraaer
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Kamelmælk
Egon Bech Hansen
06/06/2016
National Food Institute, Research Group for Gut Microbiology and Immunology

Media contribution (1)

Kamelmælk
06/06/2016
TV2, Television
Christian Sejer Rasmussen
Egon Bech Hansen
National Food Institute, Research Group for Gut Microbiology and Immunology
Press / Media

EU kriterier for hormonforstyrrende stoffer
Ulla Hass
03/06/2016
National Food Institute, Research Group for Reproductive Toxicology

Media contribution (1)

EU kriterier for hormonforstyrrende stoffer
03/06/2016
Information, Print
Jørgen Steen Nielsen
Ulla Hass
National Food Institute, Research Group for Reproductive Toxicology
Press / Media

Forureninger i fisk
Max Hansen
01/06/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Forureninger i fisk
01/06/2016
Magasinet Handelsinvest, Print
Elisabeth Hamerik Schwarz
Max Hansen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

hormonforstyrrende stoffers indvirkning på hunlig reproduktion
Julie Boberg
31/05/2016
National Food Institute, Research Group for Reproductive Toxicology

Media contribution (1)

hormonforstyrrende stoffers indvirkning på hunlig reproduktion
31/05/2016
Ritzau, Web
Susanne Andersen
Julie Boberg
National Food Institute, Research Group for Reproductive Toxicology
Press / Media

Koralrev i Grønland
31/05/2016
National Food Institute, National Institute of Aquatic Resources, Arctic Section

Media contribution (1)

Koralrev i Grønland
31/05/2016
Videnskab.dk, Web
Sedsel Brøndum
National Institute of Aquatic Resources, Arctic Section, National Food Institute
Press / Media

Hormonforstyrrende stoffer og kvinders fertilitet
Julie Boberg
31/05/2016
National Food Institute, Research Group for Reproductive Toxicology

Media contribution (1)

Hormonforstyrrende stoffer og kvinders fertilitet
31/05/2016
DR, Web
Rikke Bondesen
Julie Boberg
National Food Institute, Research Group for Reproductive Toxicology
Press / Media

Sølv
Max Hansen
30/05/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Sølv
30/05/2016
Ingeniøren, Web
Mia Stage
Max Hansen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media
4. International Vitamin Conference
Jette Jakobsen
30/05/2016
National Food Institute, Research Group for Bioactives – Analysis and Application

Media contribution (1)

4. International Vitamin Conference
30/05/2016
Videnskab.dk, Web
Anne Ringgård
Jette Jakobsen
National Food Institute, Research Group for Bioactives – Analysis and Application
Press / Media

Danskernes forbrug af kød
Anja Pia Biltoft-Jensen
30/05/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Danskernes forbrug af kød
30/05/2016
DR Nyheder, Web
Merian Garde Grås
Anja Pia Biltoft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Hygiejne, mikrobiologi, og genbrug af vandflasker
Lisbeth Truelstrup Hansen
26/05/2016
National Food Institute, Research Group for Diagnostic Engineering

Media contribution (1)

Hygiejne, mikrobiologi, og genbrug af vandflasker
26/05/2016
MetroXpress, Print
Julie Schoon
Lisbeth Truelstrup Hansen
National Food Institute, Research Group for Diagnostic Engineering
Press / Media

Fødevarers vitaminindhold
Miriam Meister
24/05/2016
National Food Institute

Media contribution (1)

Fødevarers vitaminindhold
24/05/2016
DR's Lev Nu redaktion, Web
Susanne Vigsø Gрен
Miriam Meister
National Food Institute
Press / Media
Forbrug af surmælksprodukter, skyr m.m.
Sisse Fagt
19/05/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Forbrug af surmælksprodukter, skyr m.m.
19/05/2016
Politiken, Web
Line Felholt
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

rapport om organophosphater
Bodil Hamborg Jensen
19/05/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

rapport om organophosphater
19/05/2016
Ingeniøren, Web
Magnus Bredtoft
Bodil Hamborg Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Kokosolie's fortræffelige egenskaber
Heddie Mejborn
18/05/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Kokosolie's fortræffelige egenskaber
18/05/2016
TV 2 Digital, Web
CHRISTIAN SEJER RASMUSSEN
Heddie Mejborn
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

En ny rapport fra MST om organophosphater: Oragnophosphate metabolites in urine samples from Danish children and women.
Bodil Hamborg Jensen
18/05/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

En ny rapport fra MST om organophosphater: Oragnophosphate metabolites in urine samples from Danish children and women.
18/05/2016
DR, Television
Anne Sofie Ellesøe
Bodil Hamborg Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media
Køds rolle i kosten m.m.
Sisse Fagt
17/05/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Køds rolle i kosten m.m.
17/05/2016
Danmarks Medie- og journalisthøjskole, Web
Liselotte Skjoldan
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

Food Hacking - sensorik
Grethe Hyldig
13/05/2016
National Food Institute, Research Group for Bioactives – Analysis and Application

Media contribution (1)

Food Hacking - sensorik
13/05/2016
Politiken, Print
Maj Bach Madsen
Grethe Hyldig
National Food Institute, Research Group for Bioactives – Analysis and Application

Press / Media

Hvilke konsekvenser de kemikalier og giftstoffer, man kommer i nærheden af i sin hverdag, kan have for gravid og deres fostre.
Sofie Christiansen
13/05/2016
National Food Institute, Research Group for Reproductive Toxicology

Media contribution (1)

Hvilke konsekvenser de kemikalier og giftstoffer, man kommer i nærheden af i sin hverdag, kan have for gravid og deres fostre.
13/05/2016
TV 2 Lorry, Television
Diana Bengtsen, Journaliststuderende
Sofie Christiansen
National Food Institute, Research Group for Reproductive Toxicology

Press / Media

Veganisme m.m.
Sisse Fagt
12/05/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Veganisme m.m.
12/05/2016
TV2 Lorry/RUC, Television
Linne Brade
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

Press / Media
Sundhedseffekter af rødvin og fiskeolie
Charlotte Jacobsen
12/05/2016
National Food Institute, Research Group for Bioactives – Analysis and Application

Media contribution (1)

Sundhedseffekter af rødvin og fiskeolie
12/05/2016
Jyllandsposten JP Premium net, Web
Majbritt Schultzze
Charlotte Jacobsen
National Food Institute, Research Group for Bioactives – Analysis and Application

Grøntsager og børn
Sisse Fagt
11/05/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Grøntsager og børn
11/05/2016
Ritzau, Web
Kristine Dam
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

Når sundhed bliver religion – om orthorexi m.m.
Sisse Fagt
11/05/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Når sundhed bliver religion – om orthorexi m.m.
11/05/2016
I Form, Print
Simone Okkels
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

Sukkerpolitik i daginstitutioner
Lene Møller Christensen
11/05/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Sukkerpolitik i daginstitutioner
11/05/2016
Zetland, Web
Sara Alfort
Lene Møller Christensen
National Food Institute, Division of Risk Assessment and Nutrition

Press / Media

Kødfri tendens
Sisse Fagt
10/05/2016
Kødfri tendens
10/05/2016
Søndagsavisen, Web
Louise Poulsen
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

Feedback on nano-survey
Katrin Löschner
10/05/2016
National Food Institute, Research Group for Nano-Bio Science

Tarmbakterier/probiotika
Martin Iain Bahl
09/05/2016
National Food Institute, Research Group for Gut Microbiology and Immunology

Kødvaner
Sisse Fagt
05/05/2016
National Food Institute, Division of Risk Assessment and Nutrition

Kødvaner
Sisse Fagt
05/05/2016
National Food Institute, Division of Risk Assessment and Nutrition
Energidrikke
Jeppe Matthiessen
27/04/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Energidrikke
27/04/2016
TV2 MIDTVEST, Television
Kåre Rolf Hansen
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Børn og overvægt
Jeppe Matthiessen
27/04/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Børn og overvægt
27/04/2016
Vores Børn, Web
Eline Holm
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

yogurth sød starterkultur
Jens Kirk Andersen
26/04/2016
National Food Institute, Research Group for Microbial Food Safety and Quality

Media contribution (1)

yogurth sød starterkultur
26/04/2016
videnskab.dk, Web
Sedsel Brøndum Lange
Jens Kirk Andersen
National Food Institute, Research Group for Microbial Food Safety and Quality
Press / Media

Kødvaner
Sisse Fagt
26/04/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Kødvaner
26/04/2016
Politiken, Web
Mette Guldagger
Er mælk farligt
Sisse Fagt
25/04/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Er mælk farligt
25/04/2016
Radio 24 syv, Radio
Andreas Østergård
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

Ramsløg, hvordan kender man forskel på ramsløgblade m.m. Hvad sker der hvis man tager fejl?
Kirsten Pilegaard
20/04/2016
National Food Institute, Research Group for Risk-Benefit

Media contribution (1)

Ramsløg, hvordan kender man forskel på ramsløgblade m.m. Hvad sker der hvis man tager fejl?
20/04/2016
Netavisen, Web
Michelle Lavstrup
Kirsten Pilegaard
National Food Institute, Research Group for Risk-Benefit

Stalddørsalg
Flemming Bager
20/04/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Stalddørsalg
20/04/2016
JydskeVestkysten, Print
Daniel Jørgensen
Flemming Bager
National Food Institute, Division of Risk Assessment and Nutrition

Stalddørsalg
Flemming Bager
19/04/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Stalddørsalg
19/04/2016
JydskeVestkysten, Print
Daniel Jørgensen
Flemming Bager
National Food Institute, Division of Risk Assessment and Nutrition

Press / Media
Mikroplastik
Kit Granby
18/04/2016
National Food Institute, Research Group for Analytical Food Chemistry

Media contribution (1)

Mikroplastik
18/04/2016
Politikken, Web
Maj Bach Madsen
Kit Granby
National Food Institute, Research Group for Analytical Food Chemistry

Danskernes indtag af kød
Anja Pia Biltoft-Jensen
15/04/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Danskernes indtag af kød
15/04/2016
Dyrenes Beskyttelse, Web
Lars Madsen
Anja Pia Biltoft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition

Mikroøg
Miriam Meister
15/04/2016
National Food Institute

Media contribution (1)

mikrobølgeovn
15/04/2016
TV2 digital, Web
Maria Thuesen Bleeg
Miriam Meister
National Food Institute

PAA vask af kyllinger
Louise Boysen
15/04/2016
National Food Institute, Division of Risk Assessment and Nutrition, Research Group for Risk-Benefit

Media contribution (1)
Sødestoffer, bivirkninger hos mennesker
Lea Bredsdorff
15/04/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Sødestoffer, bivirkninger hos mennesker
15/04/2016
Ritzau Finans, Web
Dan Petersen
Lea Bredsdorff
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Energitæthed i måltider
Jeppe Matthiessen
14/04/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Energitæthed i måltider
14/04/2016
Politiken, Web
Line Felholt
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Stegeolier, oxidation og dannelse af transfedtsyrer ved opvarmning
Heddie Mejborn
14/04/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Stegeolier, oxidation og dannelse af transfedtsyrer ved opvarmning
14/04/2016
TV 2 Digital, Web
CHRISTIAN SEJER RASMUSSEN
Heddie Mejborn
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Akrylamid fra hvilke fødevarer
Heidi Kornholt
13/04/2016
National Food Institute

Media contribution (1)

Akrylamid fra hvilke fødevarer
13/04/2016
Magasinet Danske Kartofler, Print
Redaktør Helge Lyngaard
Heidi Kornholt
National Food Institute
Press / Media

Europæisk standard metode (CEN) Uorganisk arsen i fødevarer
Jens Jørgen Sloth
12/04/2016
Mediapartner (1)

EUropæisk standard metode (CEN) Uorganisk arsen i fødevarer
12/04/2016
FoodNavigator.com, Web
Niamh Michail
Jens Jørgen Sloth
National Food Institute, Research Group for Nano-Bio Science
Press / Media

Indtag af Oksekød
Anja Pia Biltoft-Jensen
11/04/2016
National Food Institute, Division of Risk Assessment and Nutrition

Mediapartner (1)

Indtag af Oksekød
11/04/2016
DR, Web
Emma Toft
Anja Pia Biltoft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Indtag af Oksekød
Anja Pia Biltoft-Jensen
11/04/2016
National Food Institute, Division of Risk Assessment and Nutrition

Mediapartner (1)

Indtag af Oksekød
11/04/2016
TV2, Television
Katja Brandt Andersen
Anja Pia Biltoft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Spørgsmål om Stevia-planten og ADI for sødestoffer
Kirsten Pilegaard
11/04/2016
National Food Institute, Research Group for Risk-Benefit

Mediapartner (1)

Spørgsmål om Stevia-planten og ADI for sødestoffer
11/04/2016
Print
Kirsten Pilegaard
National Food Institute, Research Group for Risk-Benefit
Press / Media

Tid til tang
Susan Løvstad Holdt
10/04/2016
National Food Institute, Research Group for Bioactives – Analysis and Application

Mediapartner (1)

Tid til tang
spildmålinger i forbindelse med økologiomlægninger
Anne Vibeke Thorsen
06/04/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

spildmålinger i forbindelse med økologiomlægninger
Anne Vibeke Thorsen
06/04/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

spildmålinger i forbindelse med økologiomlægninger
Anne Vibeke Thorsen
06/04/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Klimaorienterede kostråd
Anne Vibeke Thorsen
05/04/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Klimaorienterede kostråd
Anne Vibeke Thorsen
05/04/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)
Anne Vibeke Thorsen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

fungicider i bananer
Ulla Hass
01/04/2016
National Food Institute, Research Group for Reproductive Toxicology

Media contribution (1)

fungicider i bananer
01/04/2016
Madmagasinet - DR1, Television
Kathrine Lenschau
Ulla Hass
National Food Institute, Research Group for Reproductive Toxicology
Press / Media

bakteriesamfund
Tine Rask Licht
30/03/2016

Subject
Det korte svar er nej. Har elaboreret omkring bakteriesamfund, resistensspredning, konkurrence mellem bakterier i forskellige miljøer.
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

Media contribution (1)

bakteriesamfund
30/03/2016
DR, P1, Videnskabens Verden, Radio
Anne Mette Simonsen
Tine Rask Licht
Copenhagen Center for Health Technology, National Food Institute, Research Group for Gut Microbiology and Immunology
Press / Media

Insekter i mad
Heidi Kornholt
22/03/2016
National Food Institute

Media contribution (1)

Insekter i mad
22/03/2016
Illustreret Videnskab, Print
Mikkel Skovbo
Heidi Kornholt
National Food Institute
Press / Media

Ingefær
Inge Tetens
17/03/2016
National Food Institute, Research Group for Risk-Benefit

Media contribution (1)

Ingefær
17/03/2016
Zoonoser og resistens – forskelle mellem konventionel og økologisk kødproduktion
Dorte Lau Baggesen
17/03/2016
National Food Institute

Media contribution (1)

Zoonoser og resistens – forskelle mellem konventionel og økologisk kødproduktion
17/03/2016
Politikkens forlag, Web
Andreas Linquist
Dorte Lau Baggesen
National Food Institute
Press / Media

Hvor meget usundt spiser man efter aftensmaden?
Sisse Fagt
16/03/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Hvor meget usundt spiser man efter aftensmaden?
16/03/2016
DR Fakta, Television
Jakob Stobbe
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Er chokolade sundt
Heddie Mejborn
16/03/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Er chokolade sundt
16/03/2016
BT, Web
Andreas Erbo Vestergaard
Heddie Mejborn
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

BPA og dåsemad.
Ulla Hass
16/03/2016
National Food Institute, Research Group for Reproductive Toxicology

Media contribution (1)

BPA og dåsemad.
16/03/2016
Tænk, Web
Niels Søndergaard
Ulla Hass
Hvor meget brød spiser danskerne?
Sisse Fagt
16/03/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Sisse Fagt
TV2, Television
Christian Seier Rasmussen

DANMAP
Flemming Bager
16/03/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Flemming Bager

Holdbarhed af brød
Heidi Kornholt
16/03/2016
National Food Institute

Media contribution (1)

Heidi Kornholt

Er brune bananer sundere at spise end gule bananer (overmodne kontra almindelig modningsgrad) ?
Anja Pia Biltoft-Jensen
14/03/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Anja Pia Biltoft-Jensen

Ekstra Bladet, Web
Jacob Andersen
Anja Pia Biltoft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition

Press / Media
følfod
Kirsten Pilegaard
14/03/2016
National Food Institute, Research Group for Risk-Benefit

Media contribution (1)

følfod
14/03/2016
DR 1 Morgen, Television
Helge Frandsen
Kirsten Pilegaard
National Food Institute, Research Group for Risk-Benefit
Press / Media

Generel tarmmikrobiologi
Martin Iain Bahl
14/03/2016
National Food Institute, Research Group for Gut Microbiology and Immunology

Media contribution (1)

Generel tarmmikrobiologi
14/03/2016
Sempers fagblad "Om spæd og småbørn", Print
Eline Holm, Freelancejournalist
Martin Iain Bahl
National Food Institute, Research Group for Gut Microbiology and Immunology
Press / Media

Danskernes madvaner om aftenen
Heidi Kornholt
11/03/2016
National Food Institute

Media contribution (1)

Danskernes madvaner om aftenen
11/03/2016
DR Fakta, Television
Jakob Stubbe
Heidi Kornholt
National Food Institute
Press / Media

hormonforstyrrende
Julie Boberg
10/03/2016
National Food Institute, Research Group for Reproductive Toxicology

Media contribution (1)

hormonforstyrrende
10/03/2016
Tænk, Print
Maria Stove
Julie Boberg
National Food Institute, Research Group for Reproductive Toxicology
Press / Media
hormonforstyrrende
Ulla Hass
09/03/2016
National Food Institute, Research Group for Reproductive Toxicology

Media contribution (1)

hormonforstyrrende
09/03/2016
Tænk, Print
Maria Stove
Ulla Hass
National Food Institute, Research Group for Reproductive Toxicology

Indtag af kosttilskud
Anja Pia Biltoft-Jensen
09/03/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Indtag af kosttilskud
09/03/2016
Nutraingredients.com, Web
Annie-Rose Harrison-Dunn
Anja Pia Biltoft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition

Artikel om overgangskostens betydning på tarmflora udvikling
Martin Frederik Laursen
08/03/2016
National Food Institute, Research Group for Gut Microbiology and Immunology

Media contribution (1)

Artikel om overgangskostens betydning på tarmflora udvikling
08/03/2016
Sempers fagblad om spæd og småbørn, Print
Eline Holm (Freelance)
Martin Frederik Laursen
National Food Institute, Research Group for Gut Microbiology and Immunology

Indtag af D-vitamin og kosttilskud
Anja Pia Biltoft-Jensen
08/03/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Indtag af D-vitamin og kosttilskud
08/03/2016
DR Ultra, Television
Anja Pia Biltoft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition

Indtag af kosttilskud
Anja Pia Biltoft-Jensen
08/03/2016
National Food Institute, Division of Risk Assessment and Nutrition
Indtag af kosttilskud
Anja Pia Biltoft-Jensen
08/03/2016
National Food Institute, Division of Risk Assessment and Nutrition

Avocadosten
Kirsten Pilegaard
07/03/2016

Subject
Avocadosten har været omtalt som en sundhedseksplosion og fuld af antioxidanter i Søndagsavisen og MetroXpress. FVST har en facebooknyhed skrevet på baggrund af et notat fra os, hvor vi fraråder anvendelse af stenen.
National Food Institute, Research Group for Risk-Benefit

Indtag af forarbejdet kød blandt børn
Anja Pia Biltoft-Jensen
07/03/2016
National Food Institute, Division of Risk Assessment and Nutrition
Indtag af forarbejdet kød blandt børn
07/03/2016
Food Culture.dk, Web
Maria Stove
Anja Pia Biltoft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition

Campylobacter kontrol
Louise Boysen
04/03/2016

Subject
Mail-korrespondance
Har kort beskrevet de primære danske kontroltiltag for Campylobacter i primærproduktion og på slagterier. Har henvist til GUS i FVST for mere detaljeret beskrivelse af nyeste tiltag.
National Food Institute, Division of Risk Assessment and Nutrition, Research Group for Risk-Benefit

Ny undersøgelse vedr. Round Up og hjælpestoffers effekt på aromatase aktivitet
Anne Marie Vinggaard
03/03/2016
National Food Institute, Research Group for Molecular Toxicology, Copenhagen Center for Health Technology

Avocadosten
Kirsten Pilegaard
03/03/2016

Subject
Avocadosten har været omtalt som en sundhedseksploseion og fuld af antioxidanter i Søndagsavisen og MetroXpress.
FVST har en facebooknyhed skrevet på baggrund af et notat fra os, hvor vi fraråder anvendelse af stenen.
National Food Institute, Research Group for Risk-Benefit

Avocadosten
03/03/2016
Ritzau, Web
Amalie Kraaer
Kirsten Pilegaard
National Food Institute, Research Group for Risk-Benefit
Danskernes indtag af kød samt livsstil forbundet med indtag af hhv. lidt og meget kød
Anja Pia Biltoft-Jensen
02/03/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Danskernes indtag af kød samt livsstil forbundet med indtag af hhv. lidt og meget kød
02/03/2016
BT, Web
Sine Bach Jakobsen
Anja Pia Biltoft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Akrylamid og mepiquat i kaffe
Kit Granby
29/02/2016
National Food Institute, Research Group for Analytical Food Chemistry

Media contribution (1)

Akrylamid og mepiquat i kaffe
29/02/2016
sondagsavisen, Print
Louise A. Poulsen
Kit Granby
National Food Institute, Research Group for Analytical Food Chemistry
Press / Media

Er æg sunde?
Heddie Mejborn
24/02/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Er æg sunde?
24/02/2016
Søndagsavisen, Print
Heddie Mejborn
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

QSAR database
Eva Bay Wedebye
22/02/2016

Subject
Instituttets online QSAR database som blev offentliggjort på vores hjemmeside i november 2015.
National Food Institute, Research Group for Molecular Toxicology

Media contribution (1)

QSAR database
22/02/2016
DYNAMO, Print
Karoline Lawætz (SCIENCECPH)
Eva Bay Wedebye
National Food Institute, Research Group for Molecular Toxicology
Press / Media
Kost, tarmflora, småbørn
Tine Rask Licht
18/02/2016
National Food Institute, Research Group for Gut Microbiology and Immunology, Copenhagen Center for Health Technology

Media contribution (1)

Kost, tarmflora, småbørn
18/02/2016
DR1, Sundhedsmagasinet, Television
Lasse Lindhardt Jensen
Tine Rask Licht
Copenhagen Center for Health Technology, National Food Institute, Research Group for Gut Microbiology and Immunology
Press / Media

Trenden med øget salg af laktose- og glutenfri varer
Charlotte Bernhard Madsen
17/02/2016
National Food Institute, Research Group for Gut Microbiology and Immunology

Media contribution (1)

Trenden med øget salg af laktose- og glutenfri varer
17/02/2016
TV 2 digital, Web
Camilla Carlson
Charlotte Bernhard Madsen
National Food Institute, Research Group for Gut Microbiology and Immunology
Press / Media

Danskernes mælkeforbrug gennem tiderne/officielle mælkestatistikker
Sisse Fagt
17/02/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Danskernes mælkeforbrug gennem tiderne/officielle mælkestatistikker
17/02/2016
Danmarks Radio, Radio
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Research til artikel om for lidt koordinering af hvad de forskellige kasser bevilliger penge til
Annette Nygaard Jensen
16/02/2016

Subject
Journalisten researcher på en artikel om, hvorvidt kasserne, der giver støtte til forskning, taler godt nok sammen. Han har derfor sendt to DTU-Food projektbeskrivelser som han ville have min hjælp til at vurdere om har noget (for meget!) til fælles. Han kontakter flere for at få denne hjælp.

Under den første telefonisk samtale indikerede jeg, at det umiddelbart virkede lidt for delikat at skulle vurdere kollegaers arbejde og det har jeg senere bekræftet i mail efter fremsendelse af de aktuelle forskningsprojektbeskrivelser
National Food Institute, Research Group for Microbial Food Safety and Quality

Media contribution (1)

Research til artikel om for lidt koordinering af hvad de forskellige kasser bevilliger penge til
16/02/2016
Berlingske Business, Web  
Michael Korsgaard Nielsen  
Annette Nygaard Jensen  
National Food Institute, Research Group for Microbial Food Safety and Quality  
Press / Media

**alternativer til energidrikke**  
Marta Axelstad Petersen  
16/02/2016  
National Food Institute, Research Group for Reproductive Toxicology  
Media contribution (1)

**alternativer til energidrikke**  
16/02/2016  
Ritzau Fokus, Web  
Christina E. Ledertoug  
Marta Axelstad Petersen  
National Food Institute, Research Group for Reproductive Toxicology  
Press / Media

**Skolebørns morgenmad**  
Lene Møller Christensen  
16/02/2016  
National Food Institute, Division of Risk Assessment and Nutrition  
Media contribution (1)

**Skolebørns morgenmad**  
16/02/2016  
Flensborg Avis, Print  
Lise Christoffersen  
Lene Møller Christensen  
National Food Institute, Division of Risk Assessment and Nutrition  
Press / Media

**Skolebørns morgenmad**  
Inge Tetens  
16/02/2016  
National Food Institute, Research Group for Risk-Benefit  
Media contribution (1)

**Skolebørns morgenmad**  
16/02/2016  
Flensborg Avis, Print  
Lise Christoffersen  
Inge Tetens  
National Food Institute, Research Group for Risk-Benefit  
Press / Media

**Danskernes kødindtag**  
Sisse Fagt  
15/02/2016  
National Food Institute, Division of Risk Assessment and Nutrition  
Media contribution (1)

**Danskernes kødindtag**  
15/02/2016  
Søndagsavisen, Print  
Christina Ledertoug  
Sisse Fagt
Svinekød og sundhed
Anja Pia Biltoft-Jensen
11/02/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Svinekød og sundhed
11/02/2016
videnskab.dk, Web
Sedsel Brøndum Lange
Anja Pia Biltoft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition

historie om komplementærkost og mikrobiota
Tine Rask Licht
10/02/2016

Subject
historie om komplementærkost og mikrobiota
National Food Institute, Research Group for Gut Microbiology and Immunology

Media contribution (1)

historie om komplementærkost og mikrobiota
10/02/2016
Videnskab.dk, Web
Malene Sommer Christiansen
Tine Rask Licht
National Food Institute, Research Group for Gut Microbiology and Immunology

Myter om måltider
Sisse Fagt
08/02/2016

Subject
Myter om måltider
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Myter om måltider
08/02/2016
Ritzau, Web
Amalie Kraare
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition

Resistens, MRSA, mv
Frank Møller Aarestrup
08/02/2016

Subject
Resistens, MRSA, mv
National Food Institute, Research Group for Genomic Epidemiology

Media contribution (1)
Resistens, MRSA, mv
08/02/2016
DR, Television
gorge Larsen, Poul-Erik Heilbutt
Frank Møller Aarestrup
National Food Institute, Research Group for Genomic Epidemiology

Media contribution (1)

Kødforbruget
Sisse Fagt
06/02/2016
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Vedr indtag af kød og vegetarisme
Agnes N. Pedersen
06/02/2016

Subject
Vedr indtag af kød og vegetarisme
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Kan man leve af kartofler og batater i et år?
Heddie Mejborn
04/02/2016

Subject
Kan man leve af kartofler og batater i et år?
National Food Institute, Division of Risk Assessment and Nutrition
Kan man leve af kartofler og batater i et år?
04/02/2016
Jyllands-Posten, Web
Edith Rasmussen Krabbe
Heddie Mejborn
National Food Institute, Division of Risk Assessment and Nutrition

Udviklingen i fysisk aktivitet blandt voksne danskere
Jeppe Matthiessen
04/02/2016

Artikel Kosttilskud med antioxidanter
Charlotte Jacobsen
04/02/2016

Pesticidrester i øl
Bodil Hamborg Jensen
01/02/2016

- Media contribution (1)
- Subject
- Media contribution (1)
- Subject
- Media contribution (1)
- Subject
Udviklingen i fysisk aktivitet blandt voksne danskere
Jeppe Matthiessen
29/01/2016

Subject
Udviklingen i fysisk aktivitet blandt voksne danskere
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Udviklingen i fysisk aktivitet blandt voksne danskere
Jeppe Matthiessen
29/01/2016
Ritzaus Bureau, Web
Christina Raabæk
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Udviklingen i fysisk aktivitet blandt voksne danskere
Jeppe Matthiessen
29/01/2016

Subject
Udviklingen i fysisk aktivitet blandt voksne danskere
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Udviklingen i fysisk aktivitet blandt voksne danskere
Jeppe Matthiessen
29/01/2016
DR's Lev Nu, Television
Dorthe Boss Kyhn
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Udviklingen i fysisk aktivitet blandt voksne
Jeppe Matthiessen
26/01/2016

Subject
Udviklingen i fysisk aktivitet blandt voksne
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Udviklingen i fysisk aktivitet blandt voksne
Jeppe Matthiessen
26/01/2016
P3 Nyheder, Radio
Camilla Høj Eggers
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Det store D-vitamin-paradoks
Inge Tetens
25/01/2016

Subject
Det store D-vitamin-paradoks
National Food Institute, Research Group for Risk-Benefit

Media contribution (1)
Det store D-vitamin-paradoks
25/01/2016
Videnskab.dk, Web
Dorthe Boss Kyhn
Inge Tetens
National Food Institute, Research Group for Risk-Benefit
Press / Media

Fluorerede stoffer i tekstiler
Xenia Trier
24/01/2016

Subject
Fluorerede stoffer i tekstiler
National Food Institute, Research Group for Analytical Food Chemistry

Media contribution (1)
Fluorerede stoffer i tekstiler
24/01/2016
Ekstra Bladet, Print
Xenia Trier
National Food Institute, Research Group for Analytical Food Chemistry
Press / Media

Kemiske fødevareanalyser
Heidi Kornholt
23/01/2016

Subject
Kemiske fødevareanalyser
National Food Institute

Media contribution (1)
Kemiske fødevareanalyser
23/01/2016
Søndagsavisen, Print
Louise A. Poulsen
Heidi Kornholt
National Food Institute
Press / Media

Fuldkorn og risiko for sygdom
Heddie Mejborn
22/01/2016

Subject
Fuldkorn og risiko for sygdom
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)
Fuldkorn og risiko for sygdom
22/01/2016
P3-nyheder, Radio
SISEL RAVN
Heddie Mejborn
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Energidrik
Jeppe Matthesen
22/01/2016
**Subject**
Energidrik
National Food Institute, Division of Risk Assessment and Nutrition

**Media contribution (1)**

Energidrik
22/01/2016
BT, Web
Bo Poulsen
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition

**Fuldkorn**
Heddie Mejborn
21/01/2016

**Subject**
Fuldkorn
National Food Institute, Division of Risk Assessment and Nutrition

**Media contribution (1)**

*konventionelt landbrug vs økologisk landbrug*
Helle Bisgaard Korsgaard
21/01/2016
National Food Institute, Division of Risk Assessment and Nutrition

**Media contribution (1)**

*konventionelt landbrug vs økologisk landbrug*
21/01/2016
freelancejournalist og skriver for Jyllands-Posten, Web
Maria Stove
Helle Bisgaard Korsgaard
National Food Institute, Division of Risk Assessment and Nutrition

**Fedt fra vegetabilier vs. fisk**
Nina Skall Nielsen
15/01/2016

**Subject**
Fedt fra vegetabilier vs. fisk
National Food Institute, Research Group for Bioactives – Analysis and Application

**Media contribution (1)**

Fedt fra vegetabilier vs. fisk
15/01/2016
Ing.dk/fokus, Web
Mia Stage
Nina Skall Nielsen
National Food Institute, Research Group for Bioactives – Analysis and Application
Saxocon
Eva Bay Wedebye
13/01/2016

Subject
Saxocon
National Food Institute, Research Group for Molecular Toxicology

Media contribution (1)

Saxocon
13/01/2016
DTU avisen, Print
Bertel Henning Jensen, freelance journalist
Eva Bay Wedebye
National Food Institute, Research Group for Molecular Toxicology
Press / Media

Meget høje indhold af PCB fundet i hvaler.
Jørn Smedsgaard
12/01/2016

Subject
Meget høje indhold af PCB fundet i hvaler.
National Food Institute, Research Group for Analytical Food Chemistry

Media contribution (1)

Meget høje indhold af PCB fundet i hvaler.
12/01/2016
Videnskab.dk, Web
Charlotte Price Persson
Jørn Smedsgaard
National Food Institute, Research Group for Analytical Food Chemistry
Press / Media

Slankemidler, hindbærketon, manglende risikovurdering
Lea Bredsdorff
11/01/2016

Subject
Slankemidler, hindbærketon, manglende risikovurdering
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Slankemidler, hindbærketon, manglende risikovurdering
11/01/2016
Jyllands Posten, Web
Morten Zhale
Lea Bredsdorff
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Pressekontakt-Anvendelse af nitrit til opretholdelse af mikrobiologisk sikre kødprodukter.
Susan Strange Herrmann
11/01/2016

Subject
Pressekontakt-Anvendelse af nitrit til opretholdelse af mikrobiologisk sikre kødprodukter.
National Food Institute, Research Group for Analytical Food Chemistry

Media contribution (1)
Pressekontakt-Anvendelse af nitrit til opretholdelse af mikrobiologisk sikre kødprodukter.
11/01/2016
Premieres lignes, television, Television
Sandrine Rigaud
Susan Strange Herrmann
National Food Institute, Research Group for Analytical Food Chemistry
Press / Media

Nanopartikler i fødevarer
Jens Jørgen Sloth
07/01/2016

Subject
Nanopartikler i fødevarer
National Food Institute, Research Group for Nano-Bio Science

Media contribution (1)

Nanopartikler i fødevarer
07/01/2016
Politiken, Web
Adam Hannestad
Jens Jørgen Sloth
National Food Institute, Research Group for Nano-Bio Science
Press / Media

Den nye stevia sødede coca colar
Sisse Fagt
06/01/2016

Subject
Den nye stevia sødede coca colar
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Den nye stevia sødede coca colar
06/01/2016
TV2, hjemmeside, Web
Christian Sejerø
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Kommentarer til nyt studie af paracetamols indvirkning på follikelreserve og hunlig fertilitet i rotter
Julie Boberg
22/12/2015

Subject
Kommentarer til nyt studie af paracetamols indvirkning på follikelreserve og hunlig fertilitet i rotter
National Food Institute, Research Group for Reproductive Toxicology

Media contribution (1)

Kommentarer til nyt studie af paracetamols indvirkning på follikelreserve og hunlig fertilitet i rotter
22/12/2015
videnskab.dk, Web
Sedsel Brøndum Lange
Julie Boberg
National Food Institute, Research Group for Reproductive Toxicology
Press / Media
Tarmbakterier
Tine Rask Licht
17/12/2015

Subject
Tarmbakterier
National Food Institute, Research Group for Gut Microbiology and Immunology

Media contribution (1)

Tarmbakterier
17/12/2015
DR3, Television
Sidsel Miller Hansen
Tine Rask Licht
National Food Institute, Research Group for Gut Microbiology and Immunology

Gener, D-vitamin
Ioanna Nissen
04/12/2015

Subject
Gener, D-vitamin
National Food Institute, Research Group for Risk-Benefit

Media contribution (1)

Gener, D-vitamin
04/12/2015
DR, Television
Henrik Tüchsen
Ioanna Nissen
National Food Institute, Research Group for Risk-Benefit

BPA og dåsemad. Meget kort notits.
Ulla Hass
03/12/2015

Subject
BPA og dåsemad. Meget kort notits.
National Food Institute, Research Group for Reproductive Toxicology

Media contribution (1)

BPA og dåsemad. Meget kort notits.
03/12/2015
Alt for Damerne , Print
Jo Brandt
Ulla Hass
National Food Institute, Research Group for Reproductive Toxicology

Artikel om hormonforstyrrende stoffer pba. Høring i Folketinget sidste år
Ulla Hass
03/12/2015

Subject
Artikel om hormonforstyrrende stoffer pba. Høring i Folketinget sidste år
National Food Institute, Research Group for Reproductive Toxicology

Media contribution (1)

Artikel om hormonforstyrrende stoffer pba. Høring i Folketinget sidste år
Vedr nye nature artikler om biologisk containment

Peter Ruhdal Jensen
01/12/2015
**National Food Institute, Division of Industrial Food Research, Systems Biotechnology**

**Media contribution (1)**

**Vedr nye nature artikler om biologisk containment**
01/12/2015
Ingeniøren, Print
Henrik Bendix
http://ing.dk/artikel/nye-genmodifierede-organismer-does-i-naturen-173646
Peter Ruudal Jensen
Systems Biotechnology, National Food Institute, Division of Industrial Food Research
Press / Media

**Tang og populariteten i DK- inkl Nordisk Tang by Endelaves produkter**
Susan Løvstad Holdt
27/11/2015

**Subject**
Tang og populariteten i DK- inkl Nordisk Tang by Endelaves produkter
National Food Institute, Research Group for Bioactives – Analysis and Application

**Media contribution (1)**

**Tang og populariteten i DK- inkl Nordisk Tang by Endelaves produkter**
27/11/2015
P4 Østjylland-radioen, Radio
Johannes Reimer
Susan Løvstad Holdt
National Food Institute, Research Group for Bioactives – Analysis and Application
Press / Media

**(Q)SAR database publicering**
Eva Bay Wedebye
26/11/2015

**Subject**
(Q)SAR database publicering
National Food Institute, Research Group for Molecular Toxicology

**Media contribution (1)**

**(Q)SAR database publicering**
26/11/2015
DR, Television
Jonas Andreasen
Eva Bay Wedebye
National Food Institute, Research Group for Molecular Toxicology
Press / Media

**Ny (Q)SAR database.**
Eva Bay Wedebye
25/11/2015

**Subject**
Ny (Q)SAR database.
National Food Institute, Research Group for Molecular Toxicology

**Media contribution (1)**

**Ny (Q)SAR database.**
25/11/2015
ENDS Europe Daily, Web
Eva Bay Wedebye
National Food Institute, Research Group for Molecular Toxicology
Press / Media
Ny (Q)SAR database
Eva Bay Wedebye
24/11/2015

Subject
Ny (Q)SAR database
National Food Institute, Research Group for Molecular Toxicology

Media contribution (1)

Ny (Q)SAR database
24/11/2015
ENDS Europe Daily, Web
Eva Bay Wedebye
National Food Institute, Research Group for Molecular Toxicology

Smoothies og sundhed
Pia Knuthsen
23/11/2015

Subject
Smoothies og sundhed
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

(Q)SAR database publicering
Eva Bay Wedebye
23/11/2015

Subject
(Q)SAR database publicering
National Food Institute, Research Group for Molecular Toxicology

Media contribution (1)

(Q)SAR database publicering
23/11/2015
DR2 Morgen, Television
Jacob Frische og Jytte Bergmann Moll
Eva Bay Wedebye
National Food Institute, Research Group for Molecular Toxicology

(Q)SAR database publicering
Eva Bay Wedebye
23/11/2015

Subject
(Q)SAR database publicering
National Food Institute, Research Group for Molecular Toxicology

Media contribution (1)

(Q)SAR database publicering
23/11/2015
DR P1 morgen, Radio
Louise Hededam
Eva Bay Wedebye
National Food Institute, Research Group for Molecular Toxicology
Press / Media

(Q)SAR database publicering
Eva Bay Wedebye
20/11/2015

Subject
(Q)SAR database publicering
National Food Institute, Research Group for Molecular Toxicology

Media contribution (1)

(Q)SAR database publicering
20/11/2015
DR, Web
Jonas Andreasen
Eva Bay Wedebye
National Food Institute, Research Group for Molecular Toxicology
Press / Media

Cocktail effekter
Anne Marie Vinggaard
20/11/2015

Subject
Cocktail effekter
National Food Institute, Research Group for Molecular Toxicology

Media contribution (1)

Cocktail effekter
20/11/2015
Politikken, Print
Line Selholt
Anne Marie Vinggaard
National Food Institute, Research Group for Molecular Toxicology
Press / Media

Chlorpyrifos. Anvendelsen bliver begrænset i en række afgrøder, men hvorfor ikke citrus.
Bodil Hamborg Jensen
19/11/2015

Subject
Chlorpyrifos. Anvendelsen bliver begrænset i en række afgrøder, men hvorfor ikke citrus.
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Chlorpyrifos. Anvendelsen bliver begrænset i en række afgrøder, men hvorfor ikke citrus.
19/11/2015
Madmagasinet Økologisk, Print
Peter Nordholm Andersen
Bodil Hamborg Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Fluorerede stoffer og bisphenol A i fødevareemballage
Xenia Trier
12/11/2015
Subject
Fluorerede stoffer og bisphenol A i fødevareemballage
National Food Institute, Research Group for Analytical Food Chemistry

Media contribution (1)

Fluorerede stoffer og bisphenol A i fødevareemballage
12/11/2015
Alt for Damerne, Print
Kicki Thomsen
Xenia Trier
National Food Institute, Research Group for Analytical Food Chemistry
Press / Media

Akrylamid
Pelle Thonning Olesen
11/11/2015

Subject
Akrylamid
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Akrylamid
11/11/2015
Alt for damerne, Print
Kicki Thomsen
Pelle Thonning Olesen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

MRSA
Frank Møller Aarestrup
10/11/2015

Subject
MRSA
National Food Institute, Research Group for Genomic Epidemiology

Media contribution (1)

MRSA
10/11/2015
DR, Television
Kasper Vidsmann
Frank Møller Aarestrup
National Food Institute, Research Group for Genomic Epidemiology
Press / Media

Danskernes madvaner
Sisse Fagt
10/11/2015

Subject
Danskernes madvaner
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Danskernes madvaner
10/11/2015
DR, Television
Christina Øager
Sisse Fagt
Subject
Nordiske kostvaner og sundhed
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Nordiske kostvaner og sundhed
09/11/2015
radioavisen, Radio
Bjørn Schønning
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Mineralske olier i julekalender-chokolade til børn
Gitte Alsing Pedersen
09/11/2015

Subject
Mineralske olier i julekalender-chokolade til børn
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Mineralske olier i julekalender-chokolade til børn
09/11/2015
Forbrugerådet, TÆNK, Print
Tage Majland
Gitte Alsing Pedersen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Research om abrikoskerner
Kirsten Pilegaard
06/11/2015

Subject
Research om abrikoskerner. Der er kommet chokoladeovertrukne abrikoskerner i handlen (helsebutikker). De kan også købes på Nettet fra UK. Journalisten kender til en person, der har været på skadestue med symptomer på HCN-forgiftning. Om det er med de chokoladeovertrukne eller om det er med andre abrikoskerner, der er i handlen er uvist
National Food Institute, Research Group for Risk-Benefit

Media contribution (1)

Research om abrikoskerner
06/11/2015
MetroXpress, Print
Christian Hansen
Kirsten Pilegaard
National Food Institute, Research Group for Risk-Benefit
Press / Media

Overvægtsudviklingen blandt børn og voksne i Danmark
Jeppe Matthiessen
04/11/2015

Subject
Overvægtsudviklingen blandt børn og voksne i Danmark
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Overvægtsudviklingen blandt børn og voksne i Danmark
04/11/2015
Søndagsavisen, Print
Sanne Fahnøe
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Philip Granjean nye bog "Only one chance" om kemiske stoffers effekt på hjerneudvikling.
Ulla Hass
04/11/2015

Subject
Philip Granjean nye bog "Only one chance" om kemiske stoffers effekt på hjerneudvikling.
National Food Institute, Research Group for Reproductive Toxicology

Media contribution (1)

Philip Granjean nye bog "Only one chance" om kemiske stoffers effekt på hjerneudvikling.
04/11/2015
Jyllandsposten, Print
Morten Zahle (MZ)
Ulla Hass
National Food Institute, Research Group for Reproductive Toxicology
Press / Media

Overvægtsudviklingen blandt danske kvinder
Jeppe Matthiessen
02/11/2015

Subject
Overvægtsudviklingen blandt danske kvinder
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Overvægtsudviklingen blandt danske kvinder
02/11/2015
Foodculture.dk, Web
Christian Erin Madsen
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Overvægtsudviklingen blandt danske kvinder
Jeppe Matthiessen
02/11/2015

Subject
Overvægtsudviklingen blandt danske kvinder
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Overvægtsudviklingen blandt danske kvinder
02/11/2015
Foodculture.dk, Web
Christian Erin Madsen
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Overvægtsudviklingen blandt danske kvinder
Jeppe Matthiessen
02/11/2015

Subject
Overvægtsudviklingen blandt danske kvinder
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Er økologiske fødevarer mere ernæringsrige end ikke-økologiske ? (ernæring, protein, energi osv.).
Pia Knuthsen
02/11/2015

Subject
Er økologiske fødevarer mere ernæringsrige end ikke-økologiske ? (ernæring, protein, energi osv.).
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Brugen af iRNA og lignende teknikker til bl.a insektbekæmpelse og risikoen ved denne teknik.
Jan W. Pedersen
02/11/2015

Subject
Brugen af iRNA og lignende teknikker til bl.a insektbekæmpelse og risikoen ved denne teknik.
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Information til køkkenpersonale, cocktail projektet
Xenia Trier
01/11/2015

Subject
Information til køkkenpersonale, cocktail projektet
National Food Institute, Research Group for Analytical Food Chemistry

Media contribution (1)
Information til køkkenpersonale, cocktail projektet
01/11/2015
Kost og Ernæringsbladet, Print
Jeanette Ulinit
Xenia Trier
National Food Institute, Research Group for Analytical Food Chemistry
Press / Media

Forskellige typer af slankekure
Heddie Mejborn
30/10/2015

Subject
Forskellige typer af slankekure
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Forskellige typer af slankekure
30/10/2015
Jyllandsposten og jp.dk, Web
MORTEN ZAHLE
Heddie Mejborn
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Kvartalsrapporter
Jens Hinge Andersen
30/10/2015

Subject
Kvartalsrapporter
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Kvartalsrapporter
30/10/2015
Landbrugsavisen, Print
Frederik Talbitser
Jens Hinge Andersen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Hvor mange danske børn der har medansvar for madlavning
Anja Pia Biltoft-Jensen
30/10/2015

Subject
Hvor mange danske børn der har medansvar for madlavning
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Hvor mange danske børn der har medansvar for madlavning
30/10/2015
Nyhedsmargasinet Danske Kommuner, Print
Simon Lessel
Anja Pia Biltoft-Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media
Forbrug af kebab/shawarma
Sisse Fagt
28/10/2015

Subject
Forbrug af kebab/shawarma
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Forbrug af køebab/shawarma
28/10/2015
DR Madmagasinet, Television
Kathrine Lindskau
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

DTUs sektorudviklingsrapport for Big Data der kommer den 29/10 2015
Jørn Smedsgaard
28/10/2015

Subject
DTUs sektorudviklingsrapport for Big Data der kommer den 29/10 2015
National Food Institute, Research Group for Analytical Food Chemistry

Media contribution (1)

DTUs sektorudviklingsrapport for Big Data der kommer den 29/10 2015
28/10/2015
DR2 Dagen, Television
Malte
Jørn Smedsgaard
National Food Institute, Research Group for Analytical Food Chemistry
Press / Media

COOP fjerner mikrobølgepopcorn pga fluorstoffer i emballage
Xenia Trier
27/10/2015

Subject
COOP fjerner mikrobølgepopcorn pga fluorstoffer i emballage
National Food Institute, Research Group for Analytical Food Chemistry

Media contribution (1)

COOP fjerner mikrobølgepopcorn pga fluorstoffer i emballage
27/10/2015
Environmental Health News / Scientific American, Print
Brian Bienkowski
Xenia Trier
National Food Institute, Research Group for Analytical Food Chemistry
Press / Media

Fuldkorn og tarmflora
Tine Rask Licht
26/10/2015

Subject
Fuldkorn og tarmflora
National Food Institute, Research Group for Gut Microbiology and Immunology

Media contribution (1)

Fuldkorn og tarmflora
Danskernes indtag af forarbejdet kød og kødpålæg
Sisse Fagt
26/10/2015

Subject
Danskernes indtag af forarbejdet kød og kødpålæg
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Danskernes indtag af forarbejdet kød og kødpålæg
26/10/2015
DR TVavisen, Television
Sarah Golczyk
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Unges indtag af fuldkorn
Sisse Fagt
26/10/2015

Subject
Unges indtag af fuldkorn
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Unges indtag af fuldkorn
26/10/2015
Fuldkornspartnerskabet, Web
Rikke Iben Ness
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Hvor finder du dine vitaminer og mineraler
Inge Tetens
26/10/2015

Subject
Hvor finder du dine vitaminer og mineraler
National Food Institute, Research Group for Risk-Benefit

Media contribution (1)

Hvor finder du dine vitaminer og mineraler
26/10/2015
DR, Television
Dorthe Boss Kyhn
Inge Tetens
National Food Institute, Research Group for Risk-Benefit
Press / Media

Genbrugs Papir genbrugsemballage af papir og pap, cocktail studierne, Hormonforstyrrende stoffer
Xenia Trier
24/10/2015
Subject
Genbrugsbomull og genbrugsbomull af papir og pap, cocktail studierne, Hormonforstyrrende stoffer
National Food Institute, Research Group for Analytical Food Chemistry

Media contribution (1)

Genbrugsbomull og genbrugsbomull af papir og pap, cocktail studierne, Hormonforstyrrende stoffer
24/10/2015
Radioavisen, Radio
Mikael Olesen
Xenia Trier
National Food Institute, Research Group for Analytical Food Chemistry
Press / Media

Danskernes forbrug af rodfrugter
Sisse Fagt
22/10/2015

Subject
Danskernes forbrug af rodfrugter
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Danskernes forbrug af rodfrugter
22/10/2015
Bladet Kulør, Print
Mette Stepnicka
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Sprøjtemidler i kartofler, herunder aclonifen
Bodil Hamborg Jensen
22/10/2015

Subject
Sprøjtemidler i kartofler, herunder aclonifen
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Sprøjtemidler i kartofler, herunder aclonifen
22/10/2015
DR P4 Radio Sjælland, Radio
Magnus Nortoft
Bodil Hamborg Jensen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Køds rolle i kosten
Sisse Fagt
22/10/2015

Subject
Køds rolle i kosten
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Køds rolle i kosten
22/10/2015
Ugebladet Søndag, Print
Lene Jæger Klausen
Sisse Fagt
Fluorstoffer i mademballage, mad og andre kilder, Norge, Mattilsynet
Xenia Trier
21/10/2015

Subject
Fluorstoffer i mademballage, mad og andre kilder, Norge, Mattilsynet
National Food Institute, Research Group for Analytical Food Chemistry

Danskernes brug af kosttildkud
Sisse Fagt
20/10/2015

Subject
Danskernes brug af kosttildkud
National Food Institute, Division of Risk Assessment and Nutrition

ESBL i kyllinger . Pressemeddelelse om Danmap
Lars Bogø Jensen
20/10/2015

Subject
ESBL i kyllinger . Pressemeddelelse om Danmap
National Food Institute, Research Group for Microbial Food Safety and Quality

ESBL i kyllinger . Pressemeddelelse om Danmap
Lars Bogø Jensen
20/10/2015

Subject
ESBL i kyllinger . Pressemeddelelse om Danmap
National Food Institute, Research Group for Microbial Food Safety and Quality
Media contribution (1)

**ESBL i kylinger. Pressemeddelelse om Danmap**
20/10/2015
Radioavisen, Radio
Rene
Lars Bogø Jensen
National Food Institute, Research Group for Microbial Food Safety and Quality

Subject
ESBL i kylinger
National Food Institute, Research Group for Microbial Food Safety and Quality

Media contribution (1)

**Genbrugsemballage – kemikalier og sundhed**
Anne Marie Vinggaard
19/10/2015

Subject
Genbrugsemballage – kemikalier og sundhed
National Food Institute, Research Group for Molecular Toxicology

Media contribution (1)

**Nødder**
Heddie Mejborn
19/10/2015

Subject
Nødder
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

**Tænks test af emballager, fluorstoffer, genbrugsemballage af papir og pap**
Xenia Trier
17/10/2015

Subject
Tænks test af emballager, fluorstoffer, genbrugsemballage af papir og pap
National Food Institute, Research Group for Analytical Food Chemistry

Media contribution (1)
Bisphenol A (BPA), sundhedseffekter
Ulla Hass
15/10/2015

Subject
Bisphenol A (BPA), sundhedseffekter
National Food Institute, Research Group for Reproductive Toxicology

Media contribution (1)

Bisphenol A (BPA), sundhedseffekter
15/10/2015
DR Fakta/KONTANT, Television
Mette Lund
Ulla Hass
National Food Institute, Research Group for Reproductive Toxicology

Stigning i forbrug af antibiotika i kyllingeproduktionen
Lars Bogø Jensen
12/10/2015

Subject
Stigning i forbrug af antibiotika i kyllingeproduktionen
National Food Institute, Research Group for Microbial Food Safety and Quality

Media contribution (1)

Stigning i forbrug af antibiotika i kyllingeproduktionen
12/10/2015
DR, Web
Cathrine Lakmann
Lars Bogø Jensen
National Food Institute, Research Group for Microbial Food Safety and Quality
Press / Media

Opkvikkende virkning af koffein
Marta Axelstad Petersen
09/10/2015

Subject
Opkvikkende virkning af koffein
National Food Institute, Research Group for Reproductive Toxicology

Media contribution (1)

Opkvikkende virkning af koffein
09/10/2015
Ekstrabladet, Web
Esben Skrumsager
Marta Axelstad Petersen
National Food Institute, Research Group for Reproductive Toxicology
Press / Media

Antibiotikaforbrug hos fjerkræ
Flemming Bager
08/10/2015

Subject
Antibiotikaforbrug hos fjerkræ
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)
Antibiotikaforbrug hos fjærkræ
08/10/2015
DR Syd, Television
Per Helberg
Flemming Bager
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Antibiotikaforbrug til svin; MRSA
Flemming Bager
08/10/2015

Subject
Antibiotikaforbrug til svin; MRSA
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)
Antibiotikaforbrug til svin; MRSA
08/10/2015
Berlingske Medier, Web
Ida Arendt
Flemming Bager
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Udvikling i forbrug af tetracyklin til svin
Flemming Bager
08/10/2015

Subject
Udvikling i forbrug af tetracyklin til svin
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)
Udvikling i forbrug af tetracyklin til svin
08/10/2015
DR, Web
?
Flemming Bager
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Genbrugsemballage af papir og pap, cocktaileffekter, cocktailprojektet
Xenia Trier
08/10/2015

Subject
Genbrugsemballage af papir og pap, cocktaileffekter, cocktailprojektet
National Food Institute, Research Group for Analytical Food Chemistry

Media contribution (1)
Genbrugsemballage af papir og pap, cocktaileffekter, cocktailprojektet
08/10/2015
Politiken / Forbrugerliv, Web
Mette Lütze
Xenia Trier
National Food Institute, Research Group for Analytical Food Chemistry
Press / Media
Danmap
Lars Bogø Jensen
07/10/2015

Subject
Danmap
National Food Institute, Research Group for Microbial Food Safety and Quality

Media contribution (1)

Danmap
07/10/2015
Ingeniøren, Web
Mie
Lars Bogø Jensen
National Food Institute, Research Group for Microbial Food Safety and Quality
Press / Media

Overvægtsudviklingen blandt voksne danskere
Jeppe Matthiessen
06/10/2015

Subject
Overvægtsudviklingen blandt voksne danskere
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Overvægtsudviklingen blandt voksne danskere
06/10/2015
P1 Morgen, Radio
Mette Walsted Vestergaard
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

DANMAP
Frank Møller Aarestrup
06/10/2015

Subject
DANMAP
National Food Institute, Research Group for Genomic Epidemiology

Media contribution (1)

DANMAP
06/10/2015
DR, Television
kristian Sloth Møller
Frank Møller Aarestrup
National Food Institute, Research Group for Genomic Epidemiology
Press / Media

Indsamling af planter fra naturen, hvilke muligheder er der for at komme galt afsted.
Kirsten Pilegaard
05/10/2015

Subject
Indsamling af planter fra naturen, hvilke muligheder er der for at komme galt afsted.
National Food Institute, Research Group for Risk-Benefit

Media contribution (1)

Indsamling af planter fra naturen, hvilke muligheder er der for at komme galt afsted.
Børns madpakker
Sisse Fagt
05/10/2015

Subject
Børns madpakker
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Tang-Havets grøntsag
Susan Løvstad Holdt
05/10/2015

Subject
Tang-Havets grøntsag
National Food Institute, Research Group for Bioactives – Analysis and Application

Media contribution (1)

Pesticider i kosten – 1.kvt - 2015
Jens Hinge Andersen
05/10/2015

Subject
Pesticider i kosten – 1.kvt - 2015
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Bisphenol A (BPA) i fødevarerkontaktmaterialer (FKM) og fødevarer.
Gitte Alsing Pedersen
02/10/2015
Subject
Bisphenol A (BPA) i fødevarerkontaktmaterialer (FKM) og fødevarer.
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Bisphenol A (BPA) i fødevarerkontaktmaterialer (FKM) og fødevarer.
02/10/2015
DR Fakta/KONTANT, Television
Mette Lund
Gitte Alsing Pedersen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Overvægtsudviklingen blandt voksne danskere
Jeppe Matthiessen
02/10/2015

Subject
Overvægtsudviklingen blandt voksne danskere
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Overvægtsudviklingen blandt voksne danskere
02/10/2015
P1 Morgen, Radio
Luna Sværre
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Bisphenol A (BPA) i fødevarerkontaktmaterialer (FKM) og fødevarer.
Ulla Hass
02/10/2015

Subject
Bisphenol A (BPA) i fødevarerkontaktmaterialer (FKM) og fødevarer.
National Food Institute, Research Group for Reproductive Toxicology

Media contribution (1)

Bisphenol A (BPA) i fødevarerkontaktmaterialer (FKM) og fødevarer.
02/10/2015
DR Fakta/KONTANT, Television
Mette Lund
Ulla Hass
National Food Institute, Research Group for Reproductive Toxicology
Press / Media

Overvægtsudviklingen blandt voksne danskere
Jeppe Matthiessen
01/10/2015

Subject
Overvægtsudviklingen blandt voksne danskere
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Overvægtsudviklingen blandt voksne danskere
01/10/2015
BT, Print
Charlotte Bo Qvist
Jeppe Matthiessen
Overvægtsudviklingen blandt voksne danskere
Jeppe Matthiessen
01/10/2015

Subject
Overvægtsudviklingen blandt voksne danskere
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Overvægtsudviklingen blandt voksne danskere
01/10/2015
Jyllands-Posten, Print
Morten Zahle
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Telefoninterview. Forinden havde journalisten sendt mig en kommende artikel fra Science Translational Medicine (embargo til 30. sept), som han bad om mine kommentarer til.
Tine Rask Licht
29/09/2015

Subject
Telefoninterview. Forinden havde journalisten sendt mig en kommende artikel fra Science Translational Medicine (embargo til 30. sept), som han bad om mine kommentarer til.
National Food Institute, Research Group for Gut Microbiology and Immunology

Media contribution (1)

Telefoninterview. Forinden havde journalisten sendt mig en kommende artikel fra Science Translational Medicine (embargo til 30. sept), som han bad om mine kommentarer til.
29/09/2015
Weekendavisen (Tillægget 'Idéer'), Print
Henrik Prætorius
Tine Rask Licht
National Food Institute, Research Group for Gut Microbiology and Immunology
Press / Media

Akrylamid
Pelle Thonning Olesen
29/09/2015

Subject
Akrylamid
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Akrylamid
29/09/2015
DR, Madmagasinet, Television
Frederik Wiese
Pelle Thonning Olesen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Friturestegning, akrylamid.
Pelle Thonning Olesen
29/09/2015
Subject
Friturestegning, akrylamid.
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Friturestegning, akrylamid.
29/09/2015
DR, Madmagasinet, Print
Frederik Wiese
Pelle Thonning-Olesen
National Food Institute, Division of Risk Assessment and Nutrition

Subject
Skolemad versus madpakker
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Skolemad versus madpakker
29/09/2015
Madmagasinet DR, Television
Mette Frisk
Marianne Sabinsky
National Food Institute, Division of Risk Assessment and Nutrition

Subject
Overvægtsudviklingen i Danmark
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Overvægtsudviklingen i Danmark
25/09/2015
søndagsavisen, Print
Sanne Fahneøe
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition

Subject
Skriftigt 'interview' om tarmbakterier og kostens betydning
National Food Institute, Research Group for Gut Microbiology and Immunology

Media contribution (1)

Skriftigt 'interview' om tarmbakterier og kostens betydning
24/09/2015
Kost & Ernæringsforbundets fagblad, Print
Tina Juul Rasmussen
Tine Rask Licht
Er brun (papir) emballage bedre en hvid emballage?
Xenia Trier
21/09/2015

Subject
Er brun (papir) emballage bedre en hvid emballage?
National Food Institute, Research Group for Analytical Food Chemistry

Media contribution (1)

Er brun (papir) emballage bedre en hvid emballage?
21/09/2015
Politiken, Web
Mette Lützhøft
Xenia Trier
National Food Institute, Research Group for Analytical Food Chemistry
Press / Media

Sundhed og kostråd
Sisse Fagt
21/09/2015

Subject
Sundhed og kostråd
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Sundhed og kostråd
21/09/2015
BT, Print
Line Felholt
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Kobling mellem resistens for zink og antibiotika
Lars Bogø Jensen
18/09/2015

Subject
Kobling mellem resistens for zink og antibiotika
National Food Institute, Research Group for Microbial Food Safety and Quality

Media contribution (1)

Kobling mellem resistens for zink og antibiotika
18/09/2015
DR, Web
Christian S
Lars Bogø Jensen
National Food Institute, Research Group for Microbial Food Safety and Quality
Press / Media

Akrylamid i fødevarer
Kit Granby
18/09/2015

Subject
Akrylamid i fødevarer
National Food Institute, Research Group for Food Production Engineering
**Media contribution (1)**

**Akrylamid i fødevarer**
18/09/2015
Madmagasinet DR1, Television
Anne Henderson
Kit Granby
National Food Institute, Research Group for Food Production Engineering
Press / Media

**Cocktail effekter**
Anne Marie Vinggaard
17/09/2015

**Subject**
Cocktail effekter
National Food Institute, Research Group for Molecular Toxicology

**Media contribution (1)**

**Cocktail effekter**
17/09/2015
Altinget-miljø, Web
Emma Holst
Anne Marie Vinggaard
National Food Institute, Research Group for Molecular Toxicology
Press / Media

**Hormonforstyrrende stoffers effekt på brystudviklingen**
Karen Mandrup Egebjerg
15/09/2015

**Subject**
Hormonforstyrrende stoffers effekt på brystudviklingen
National Food Institute, Research Group for Reproductive Toxicology

**Media contribution (1)**

**Hormonforstyrrende stoffers effekt på brystudviklingen**
15/09/2015
Web
Karen Mandrup Egebjerg
National Food Institute, Research Group for Reproductive Toxicology
Press / Media

**Miljøgarantisagen vedr. nitrit**
Pelle Thonning Olesen
11/09/2015

**Subject**
Miljøgarantisagen vedr. nitrit
National Food Institute, Division of Risk Assessment and Nutrition

**Media contribution (1)**

**Miljøgarantisagen vedr. nitrit**
11/09/2015
Premieres Lignes, Web
Sandrine Rigaud
Pelle Thonning Olesen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media
Interview om tarmbakterier og kostens betydning til brug for en eller flere populærvidekskabelige artikler
Tine Rask Licht
08/09/2015

Subject
Interview om tarmbakterier og kostens betydning til brug for en eller flere populærvidekskabelige artikler
National Food Institute, Research Group for Gut Microbiology and Immunology

Media contribution (1)

Interview om tarmbakterier og kostens betydning til brug for en eller flere populærvidekskabelige artikler
08/09/2015
TV2 digital, Web
CHRISTIAN SEJER RASMUSSEN
Tine Rask Licht
National Food Institute, Research Group for Gut Microbiology and Immunology
Press / Media

Sundhedsdebatten
Sisse Fagt
01/09/2015

Subject
Sundhedsdebatten
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Sundhedsdebatten
01/09/2015
Information, Print
Maja Mackintosh
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Økologiske versus konventionelle fødevarer i sundhedsmæssigt perspektiv.
Pia Knuthsen
28/08/2015

Subject
Økologiske versus konventionelle fødevarer i sundhedsmæssigt perspektiv.
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Økologiske versus konventionelle fødevarer i sundhedsmæssigt perspektiv.
28/08/2015
Sygeforsikringen "danmarks" e-nyhedsbrev, Web
Kenneth Toulstrup
Pia Knuthsen
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Tarmbakterier – især i relation til psyke/humør
Tine Rask Licht
27/08/2015

Subject
Tarmbakterier – især i relation til psyke/humør
National Food Institute, Research Group for Gut Microbiology and Immunology

Media contribution (1)

Tarmbakterier – især i relation til psyke/humør
Tarmbakterier – især i relation til psyke/humør
Tine Rask Licht
27/08/2015

Subject
Tarmbakterier – især i relation til psyke/humør
National Food Institute, Research Group for Gut Microbiology and Immunology

Media contribution (1)
Tarmbakterier – især i relation til psyke/humør
27/08/2015
Samvirke, Print
Emma Libner
Tine Rask Licht
National Food Institute, Research Group for Gut Microbiology and Immunology
Press / Media

Fluorerede stoffer grundvand under forurende grunde (lufthavne, tekstil virksomheder mm)
Xenia Trier
27/08/2015

Subject
Fluorerede stoffer grundvand under forurende grunde (lufthavne, tekstil virksomheder mm)
National Food Institute, Research Group for Analytical Food Chemistry

Media contribution (1)
Fluorerede stoffer grundvand under forurende grunde (lufthavne, tekstil virksomheder mm)
27/08/2015
ingeniøren, Web
Magnus Bredsdorff
Xenia Trier
National Food Institute, Research Group for Analytical Food Chemistry
Press / Media

Cocktail effekter
Anne Marie Vinggaard
26/08/2015

Subject
Cocktail effekter
National Food Institute, Research Group for Molecular Toxicology

Media contribution (1)
Cocktail effekter
26/08/2015
BT, Web
Dorthe Kristensen
Anne Marie Vinggaard
National Food Institute, Research Group for Molecular Toxicology
Press / Media

Tilsatningsstoffer i flødeboller – bekymrende?
Lea Bredsdorff
25/08/2015
Tilsætningsstoffer i flødeboller – bekymrende?

National Food Institute, Division of Risk Assessment and Nutrition

Politiken, Print
Mette Guldagger
Lea Bredsdorff

Zoonoserapporten, salmonellasmittekilderegnskabet, svinekød, kyllingekød, udlandsrejse

Birgitte Helwigh

Kvartalsrapporten for 2014 for pesticidrester i fødevarer. Multiple fund i prøver

Bodil Hamborg Jensen

Kvartalsrapporten for 2014 for pesticidrester i fødevarer. Multiple fund i prøver

Netavisen Landbrugsavisen, Web
Stine Lauridsen
Bodil Hamborg Jensen
Zoonoserapporten, Listeria
Birgitte Helwigh
25/08/2015

Subject
Zoonoserapporten, Listeria
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Zoonoserapporten, Listeria
25/08/2015
Jyllandsposten, Print
Simone Skyum
Birgitte Helwigh
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Zoonoserapporten, Listeria
Birgitte Helwigh
24/08/2015

Subject
Zoonoserapporten, Listeria
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Zoonoserapporten, Listeria
24/08/2015
Ritzau, Web
Simone Etwil-Mayland
Birgitte Helwigh
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Interview i forbindelse med udnævnelse som afdelingschef
Anette Schnipper
24/08/2015

Subject
Interview i forbindelse med udnævnelse som afdelingschef
National Food Institute

Media contribution (1)

Interview i forbindelse med udnævnelse som afdelingschef
24/08/2015
Food Culture, Web
Christian Erin-Madsen
Anette Schnipper
National Food Institute
Press / Media

Fluorkemikalier. Grandjean & Co har publiceret en artikel om fluorkemikalier i nyfødt
Anne Marie Vinggaard
19/08/2015

Subject
Fluorkemikalier. Grandjean & Co har publiceret en artikel om fluorkemikalier i nyfødt
National Food Institute, Research Group for Molecular Toxicology
Fluorkemikalier. Grandjean & Co har publiceret en artikel om fluorkemikalier i nyfødte
19/08/2015
Politikken, Print
Lars igum Rasmussen
Anne Marie Vinggaard
National Food Institute, Research Group for Molecular Toxicology
Press / Media

Skolemad - herunder madpakker og madordninger
Lene Møller Christensen
17/08/2015

Subject
Skolemad - herunder madpakker og madordninger
National Food Institute, Division of Risk Assessment and Nutrition

Reduktion i forbrug
Frank Møller Aarestrup
04/08/2015

Subject
Reduktion i forbrug
National Food Institute, Research Group for Genomic Epidemiology

Madpakker – og emballage
Gitte Alsing Pedersen
04/08/2015

Subject
Madpakker – og emballage
National Food Institute, Division of Risk Assessment and Nutrition
Salmonella, fjerkræ, Danmark, EU, USA,
Birgitte Helwigh
03/08/2015

Subject
Salmonella, fjerkræ, Danmark, EU, USA,
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)
Salmonella, fjerkræ, Danmark, EU, USA,
03/08/2015
The Takeaway | Reveal + Center for Investigative Reporting, Web
Jillian Weinberger
Birgitte Helwigh
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Vand til småbørn
Heidi Kornholt
30/07/2015

Subject
Vand til småbørn
National Food Institute

Media contribution (1)
Vand til småbørn
30/07/2015
Katharina Clemens, Web
Phoenix digital
Heidi Kornholt
National Food Institute
Press / Media

Danskernes top tyve retter
Sisse Fagt
28/07/2015

Subject
Danskernes top tyve retter
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)
Danskernes top tyve retter
28/07/2015
Søndagsavisen, Print
Niels Philip Kjeldsen
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Danskernes top tyve retter
Sisse Fagt
28/07/2015

Subject
Danskernes top tyve retter
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)
Danskernes top tyve retter
28/07/2015
DR web, Web
Dorthe Kyhn
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Antallet af Vegetarer
Sisse Fagt
28/07/2015

Subject
Antallet af Vegetarer
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)
Antallet af Vegetarer
28/07/2015
Ritzau, Web
Rasmus Dalgaard
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Danskernes top tyve retter
Sisse Fagt
28/07/2015

Subject
Danskernes top tyve retter
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)
Danskernes top tyve retter
28/07/2015
Food Culture, Web
Nanna Birk
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Danskernes fedtindtag
Sisse Fagt
28/07/2015

Subject
Danskernes fedtindtag
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)
Danskernes fedtindtag
28/07/2015
Food Culture, Web
Maria Stove
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media
Energidrikke
Jeppe Matthiessen
09/07/2015

Subject
Energidrikke
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Energidrikke
09/07/2015
Berlingske Media, Web
Anne Lavendt
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition

Sundhedsværdien af at drikke eller spise en frugt eller grøntsag
Inge Tetens
09/07/2015

Subject
Sundhedsværdien af at drikke eller spise en frugt eller grøntsag
National Food Institute, Research Group for Risk-Benefit

Media contribution (1)

Sundhedsværdien af at drikke eller spise en frugt eller grøntsag
09/07/2015
Netdoktor, Web
Sille Rasmussen
Inge Tetens
National Food Institute, Research Group for Risk-Benefit

Energidrikke
Jeppe Matthiessen
08/07/2015

Subject
Energidrikke
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Energidrikke
08/07/2015
Jyllandsposten, Print
Morten Zahle
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition

Unges forhold til protein og kulhydrat
Sisse Fagt
06/07/2015

Subject
Unges forhold til protein og kulhydrat
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Unges forhold til protein og kulhydrat
Uddannelsens betydning for kostindtag
Sisse Fagt
02/07/2015

Subject
Uddannelsens betydning for kostindtag
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Uddannelsens betydning for kostindtag
02/07/2015
Berlingske, Print
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Uddannelsens betydning for kostindtag
Sisse Fagt
02/07/2015

Subject
Uddannelsens betydning for kostindtag
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Uddannelsens betydning for kostindtag
02/07/2015
Berlingske radio, Radio
Thomas Sand
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Uddannelsens betydning for kostindtag
Sisse Fagt
02/07/2015

Subject
Uddannelsens betydning for kostindtag
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Uddannelsens betydning for kostindtag
02/07/2015
DR Radioavisen, Radio
Nanna
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Alger kan blive big business for Danmark
Susan Løvstad Holdt
02/07/2015
Alger kan blive big business for Danmark
02/07/2015
Foodculture.dk, Web
Susan Løvstad Holdt
National Food Institute, Research Group for Bioactives – Analysis and Application

Alger er fremtidens biofabrikker
01/07/2015
ingenioren.dk, Web
Thomas Møller Larsen
Susan Løvstad Holdt
National Food Institute, Research Group for Bioactives – Analysis and Application

Koffein og energidrikke
26/06/2015
Ingeniøren, Web
Mie Stage
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition

Koffein
25/06/2015
Ingeniøren, Web
Mie Stage
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition
Et forstudie med Manchego
Grethe Hyldig
24/06/2015

Subject
Et forstudie med Manchego til vores Innovationsansøgning – “When words taste” sammen med CDS og Dansk Sprognævn.
National Food Institute, Research Group for Bioactives – Analysis and Application

Media contribution (1)

Et forstudie med Manchego
24/06/2015
Politikken, Print
Emma Oehlenschläger
Grethe Hyldig
National Food Institute, Research Group for Bioactives – Analysis and Application

Grillstegning og dannelse af PAH. Kul kontra gas.
Lene Duedahl-Olesen
23/06/2015

Subject
Grillstegning og dannelse af PAH. Kul kontra gas.
National Food Institute, Research Group for Food Production Engineering

Media contribution (1)

Grillstegning og dannelse af PAH. Kul kontra gas.
23/06/2015
Politikken, Print
Helle Sindal
Lene Duedahl-Olesen
National Food Institute, Research Group for Food Production Engineering

Sukker og fedme
Jeppe Matthiessen
23/06/2015

Subject
Sukker og fedme
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Sukker og fedme
23/06/2015
Kost og Ernæringsforbundet, Web
Signe Kierkegaard Cain
Jeppe Matthiessen
National Food Institute, Division of Risk Assessment and Nutrition

Sukker og børn
Jeppe Matthiessen
23/06/2015

Subject
Sukker og børn
National Food Institute, Division of Risk Assessment and Nutrition
**Media contribution (1)**

**Sukker og børn**  
23/06/2015  
Vores Brøn, Print  
Mads Orlrik  
Jeppe Matthiessen  
National Food Institute, Division of Risk Assessment and Nutrition  
Press / Media

**Kombinationseffekter af hormonforstyrrende stoffer**  
Julie Boberg  
18/06/2015  

**Subject**  
Kombinationseffekter af hormonforstyrrende stoffer, resultater fra vores undersøgelser af brystvæv i rotestudier  
National Food Institute, Research Group for Reproductive Toxicology

**Media contribution (1)**

**Kombinationseffekter af hormonforstyrrende stoffer**  
18/06/2015  
Chemical Watch, Web  
Emma Davies  
Julie Boberg  
National Food Institute, Research Group for Reproductive Toxicology  
Press / Media

**MRSA i svinekød**  
Miriam Meister  
18/06/2015  

**Subject**  
MRSA i svinekød  
National Food Institute

**Media contribution (1)**

**MRSA i svinekød**  
18/06/2015  
Ingeniøren, Web  
Magnus Bredtoft  
Miriam Meister  
National Food Institute  
Press / Media

**Cocktailprojektet**  
Anne Marie Vinggaard  
09/06/2015  

**Subject**  
Cocktailprojektet  
National Food Institute, Research Group for Molecular Toxicology

**Media contribution (1)**

**Cocktailprojektet**  
09/06/2015  
DR P1, Radio  
Johanne Friis Mariager  
Anne Marie Vinggaard  
National Food Institute, Research Group for Molecular Toxicology  
Press / Media
Akrylamid
Kit Granby
08/06/2015

Subject
Akrylamid
National Food Institute, Research Group for Food Production Engineering

Media contribution (1)

Akrylamid
08/06/2015
BT, Web
Laurids Lyck
Kit Granby
National Food Institute, Research Group for Food Production Engineering
Press / Media

self.com
Anne Marie Vinggaard
27/05/2015
National Food Institute, Research Group for Molecular Toxicology

Media contribution (1)

self.com
27/05/2015
Margaret Hargrove, Web
self.com
Anne Marie Vinggaard
National Food Institute, Research Group for Molecular Toxicology
Press / Media

Tænk i en temaartikel om uønsket kemi i fødevarer
Ulla Hass
27/05/2015

Subject
Artikle i Tænk
temaartikel om uønsket kemi i fødevarer
National Food Institute, Research Group for Reproductive Toxicology

Media contribution (1)

Tænk i en temaartikel om uønsket kemi i fødevarer
27/05/2015
Altinget, Print
Anne-Helene Merkelsen
Ulla Hass
National Food Institute, Research Group for Reproductive Toxicology
Press / Media

Interview relateret til indlæg ved Mejeriforskningens Dag
Paw Dalgaard
26/05/2015

Subject
Interview relateret til indlæg ved Mejeriforskningens Dag 2015 vedr. Listeria monocytogenes og mejeriprodukter.
National Food Institute

Media contribution (1)

Interview relateret til indlæg ved Mejeriforskningens Dag
Forskningsprojekt skal give mejerierne et nyt værktøj til at forudse vækst af listeria og andre uønskede bakterier i mejeriprodukter
Paw Dalgaard
26/05/2015
National Food Institute, Research Group for Microbial Food Safety and Quality

**Media contribution (1)**

Cocktail effekter
Anne Marie Vinggaard
22/05/2015

**Subject**
Cocktail effekter
National Food Institute, Research Group for Molecular Toxicology

**Media contribution (1)**

Den sundhedsmæssige effekt af nødder
Heddie Mejborn
20/05/2015

**Subject**
Den sundhedsmæssige effekt af nødder
National Food Institute, Division of Risk Assessment and Nutrition

**Media contribution (1)**

Vedr. toksicitet af PFC i emballager
Anne Marie Vinggaard
18/05/2015

**Subject**
Vedr. toksicitet af PFC i emballager
National Food Institute, Research Group for Molecular Toxicology

Media contribution (1)

Vedr. toksicitet af PFC i emballager
18/05/2015
Søndagsavisen, Print
Stine Daugaard
Anne Marie Vinggaard
National Food Institute, Research Group for Molecular Toxicology
Press / Media

Farlige slankekosttilskud
Kirsten Pilegaard
15/05/2015

Subject
Farlige slankekosttilskud
National Food Institute, Research Group for Risk-Benefit

Media contribution (1)

Farlige slankekosttilskud
15/05/2015
Ekstra Baldet, Web
Peter Jeppesen
Kirsten Pilegaard
National Food Institute, Research Group for Risk-Benefit
Press / Media

Pressekontakt - Mikrobiel production af protein
Peter Ruhdal Jensen
13/05/2015

Subject
Pressekontakt - Mikrobiel production af protein
National Food Institute, Systems Biotechnology, Research Group for Microbial Biotechnology and Biorefining

Media contribution (1)

Pressekontakt - Mikrobiel production af protein
13/05/2015
Radio24syv, Radio
Peter Ruhdal Jensen
Systems Biotechnology, National Food Institute, Research Group for Microbial Biotechnology and Biorefining
Press / Media

Børnefamilier og indtag af frugt og grønt
Sisse Fagt
11/05/2015

Subject
Børnefamilier og indtag af frugt og grønt
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

Børnefamilier og indtag af frugt og grønt
11/05/2015
Berlingske, Print
Christian Erin-Madsen
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media
Artikler omkring vancomycin og husdyrproduktion
Lars Bogø Jensen
11/05/2015

Subject
Artikler omkring vancomycin og husdyrproduktion
National Food Institute, Research Group for Microbial Food Safety and Quality

Media contribution (1)

Artikler omkring vancomycin og husdyrproduktion
11/05/2015
BT, Print
Charlotte Quist
Lars Bogø Jensen
National Food Institute, Research Group for Microbial Food Safety and Quality

"Forsvundet nyhed" om danske erfaringer med at nedbringe antibiotikaforbruget
Heidi Kornholt
08/05/2015

Subject
"Forsvundet nyhed" om danske erfaringer med at nedbringe antibiotikaforbruget
National Food Institute

Media contribution (1)

"Forsvundet nyhed" om danske erfaringer med at nedbringe antibiotikaforbruget
08/05/2015
baeredygtighed.dk, Web
Kjeld Hansen
Heidi Kornholt
National Food Institute

"Problemet ved at bruge bregner som mad
Kirsten Pilegaard
06/05/2015

Subject
Problemet ved at bruge bregner som mad
National Food Institute, Research Group for Risk-Benefit

Media contribution (1)

Problemet ved at bruge bregner som mad
06/05/2015
Kristeligt Dagblad, Print
Simon Muff Enevoldsen
Kirsten Pilegaard
National Food Institute, Research Group for Risk-Benefit

Media contribution (1)

McDonalds i DK åbner tre nye restauranter
Sisse Fagt
06/05/2015

Subject
McDonalds i DK åbner tre nye restauranter
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)
Listeria typning
Dorte Lau Baggesen
04/05/2015

Subject
Listeria typning
National Food Institute

Media contribution (1)

Listeria typning
04/05/2015
DR Nyhederne, Television
Lars Munch
Dorte Lau Baggesen
National Food Institute
Press / Media

En ny undersøgelse fra Gartneriernes afsætningsudvalg viser at danskerne synes det er svært at spise frugt og grønt til alle måltider
Sisse Fagt
04/05/2015

Subject
En ny undersøgelse fra Gartneriernes afsætningsudvalg viser at danskerne synes det er svært at spise frugt og grønt til alle måltider
National Food Institute, Division of Risk Assessment and Nutrition

Media contribution (1)

En ny undersøgelse fra Gartneriernes afsætningsudvalg viser at danskerne synes det er svært at spise frugt og grønt til alle måltider
04/05/2015
Food Culture, Web
Christian Erin-Madsen
Sisse Fagt
National Food Institute, Division of Risk Assessment and Nutrition
Press / Media

Fluorstoffer i emballage
Xenia Trier
29/04/2015

Subject
Fluorstoffer i emballage
National Food Institute, Research Group for Analytical Food Chemistry

Media contribution (1)

Fluorstoffer i emballage
29/04/2015
Radio 24-7, Radio
Xenia Trier
National Food Institute, Research Group for Analytical Food Chemistry
Press / Media

Mysli og sundhed
Sisse Fagt
27/04/2015

Subject
Mysli og sundhed
National Food Institute, Division of Nutrition

Media contribution (1)
Ny undersøgelse vedr. sammenhæng ml. abortrisiko og perfluorerede kemikalier  
Anne Marie Vinggaard  
24/04/2015  

Subject  
Ny undersøgelse vedr. sammenhæng ml. abortrisiko og perfluorerede kemikalier  
National Food Institute, Division of Toxicology and Risk Assessment  

Media contribution (1)  

Ny undersøgelse vedr. sammenhæng ml. abortrisiko og perfluorerede kemikalier  
24/04/2015  
Fyns Stifttidende, Print  
Cecilie Lyngby  
Anne Marie Vinggaard  
National Food Institute, Division of Toxicology and Risk Assessment  

Institutdirektør på DTU Fødevareinstituttet  
Heidi Kornholt  
20/04/2015  

Subject  
Institutdirektør på DTU Fødevareinstituttet  
National Food Institute, Communications and Management Secretariat  

Media contribution (1)  

Pizzabakker, popcornsposer (herunder fluorstoffer), Cocktail effekter, Genbrugspapir, Cirkulær økonomi  
Xenia Trier  
20/04/2015  

Subject  
Pizzabakker, popcornsposer (herunder fluorstoffer), Cocktail effekter, Genbrugspapir, Cirkulær økonomi  
National Food Institute, Division of Food Chemistry  

Media contribution (1)  

Pizzabakker, popcornsposer (herunder fluorstoffer), Cocktail effekter, Genbrugspapir, Cirkulær økonomi  
20/04/2015  
DocEye, laver programmer for TV2, Television  
Niklas Flagstad  
Xenia Trier  
National Food Institute, Division of Food Chemistry  

Press / Media
Fluorstoffer i emballage / COOP holder op med at sælge mikrobølgeovnspopcorn - opfølgning
Xenia Trier
19/04/2015

Subject
Fluorstoffer i emballage / COOP holder op med at sælge mikrobølgeovnspopcorn - opfølgning
National Food Institute, Research Group for Analytical Food Chemistry

Media contribution (1)

Fluorstoffer i emballage / COOP holder op med at sælge mikrobølgeovnspopcorn - opfølgning
19/04/2015
TV2, Television
Natali Braagaard
Xenia Trier
National Food Institute, Research Group for Analytical Food Chemistry
Press / Media

Fluorstoffer / PFAS generelt
Xenia Trier
19/04/2015

Subject
Fluorstoffer / PFAS generelt
National Food Institute, Research Group for Analytical Food Chemistry

Media contribution (1)

Fluorstoffer / PFAS generelt
19/04/2015
Politiken, Print
Helle Sindahl
Xenia Trier
National Food Institute, Research Group for Analytical Food Chemistry
Press / Media

Fluorstoffer i emballage / COOP holder op med at sælge mikrobølgeovnspopcorn - opfølgning
Xenia Trier
18/04/2015

Subject
Fluorstoffer i emballage / COOP holder op med at sælge mikrobølgeovnspopcorn - opfølgning
National Food Institute, Research Group for Analytical Food Chemistry

Media contribution (1)
Energidrikke
Jeppe Matthiessen
16/04/2015

Subject
Energidrikke
National Food Institute, Division of Nutrition

Media contribution (1)

Energidrikke
16/04/2015
Politiken, Print
Lasse Foghsgaard
Jeppe Matthiessen
National Food Institute, Division of Nutrition
Press / Media

Pesticider i te
Annette Petersen
16/04/2015

Subject
Pesticider i te
National Food Institute, Division of Food Chemistry

Media contribution (1)

Pesticider i te
16/04/2015
Jyllands Posten, Print
Maria
Annette Petersen
National Food Institute, Division of Food Chemistry
Press / Media

En times interview – populærvædanskabelig formidling om tarmbakterier
Tine Rask Licht
16/04/2015

Subject
En times interview – populærvædanskabelig formidling om tarmbakterier
National Food Institute, Division of Food Microbiology

Media contribution (1)

En times interview – populærvædanskabelig formidling om tarmbakterier
16/04/2015
Politiken, Print
Line Felholt
Tine Rask Licht
National Food Institute, Division of Food Microbiology
Press / Media

Sikker brug af planter i fødevarer
Heidi Kornholt
14/04/2015
Subject
Sikker brug af planter i fødevarer
National Food Institute, Communications and Management Secretariat

Media contribution (1)

Sikker brug af planter i fødevarer
14/04/2015
Food Processing & Wellness Foods Magazines, Print
Dave Fusaro – Editor in Chief
Heidi Kornholt
National Food Institute, Communications and Management Secretariat

Cocktail effekter
Anne Marie Vinggaard
14/04/2015

Subject
Cocktail effekter
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Cocktail effekter
14/04/2015
Radio Køge, Radio
Martin Andersen
Anne Marie Vinggaard
National Food Institute, Division of Toxicology and Risk Assessment

Fluorstoffer i emballage / COOP holder op med at sælge mikrobølgeovnspopcorn
Xenia Trier
14/04/2015

Subject
Fluorstoffer i emballage / COOP holder op med at sælge mikrobølgeovnspopcorn
National Food Institute, Research Group for Analytical Food Chemistry

Media contribution (1)

Fluorstoffer i emballage / COOP holder op med at sælge mikrobølgeovnspopcorn
14/04/2015
Politiken (i samarbejde med COOP), Print
COOP ansvarlig (Malene Teller Blume)
Xenia Trier
National Food Institute, Research Group for Analytical Food Chemistry

Analyse af kemikalier fra prøver fra Vietnam
Heidi Kornholt
12/04/2015

Subject
Analyse af kemikalier fra prøver fra Vietnam
National Food Institute, Communications and Management Secretariat

Media contribution (1)

Analyse af kemikalier fra prøver fra Vietnam
12/04/2015
Bergergs Film & Tv – DR2 tv-dokumentar, Television
Rikke Dyrberg
Heidi Kornholt
Hvad er sundest/mindst usundt: smør, Nutella, marmelade, honning, pålægschokolade?
Karin Hess Ygil
08/04/2015

Subject
Hvad er sundest/mindst usundt: smør, Nutella, marmelade, honning, pålægschokolade?
National Food Institute, Division of Nutrition

Media contribution (1)

Hvad er sundest/mindst usundt: smør, Nutella, marmelade, honning, pålægschokolade?
08/04/2015
videnskab.dk, Web
Marie Barse
Karin Hess Ygil
National Food Institute, Division of Nutrition
Press / Media

Rapporten, Pesticidrester i fødevarer 2013
Bodil Hamborg Jensen
08/04/2015

Subject
Rapporten, Pesticidrester i fødevarer 2013
National Food Institute, Division of Food Chemistry

Media contribution (1)

Rapporten, Pesticidrester i fødevarer 2013
08/04/2015
Geelmuyden Kiese, Print
Christinal Lildholdt Jensen (CLJ)
Bodil Hamborg Jensen
National Food Institute, Division of Food Chemistry
Press / Media

Cocktail effekter
Anne Marie Vinggaard
31/03/2015

Subject
Cocktail effekter
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Cocktail effekter
31/03/2015
Institute for Global Food Security, UK, Web
Simon Haughey
Anne Marie Vinggaard
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Mættet fedt og ost
Agnes N. Pedersen
30/03/2015

Subject
Mættet fedt og ost
National Food Institute, Division of Nutrition
Media contribution (1)

Mættet fedt og ost
30/03/2015
Politiken, Print
Lars Dahlager
Agnes N. Pedersen
National Food Institute, Division of Nutrition
Press / Media

Bisphenol A (BPA) og alternative bisphenoler i fødevarerkontakmaterialer (FKM).
Gitte Alsing Pedersen
26/03/2015

Subject
Bisphenol A (BPA) og alternative bisphenoler i fødevarerkontakmaterialer (FKM).
National Food Institute, Division of Food Chemistry

Media contribution (1)

Bisphenol A (BPA) og alternative bisphenoler i fødevarerkontakmaterialer (FKM).
26/03/2015
DR Fakta/KONTANT, Television
Mette Lund
Gitte Alsing Pedersen
National Food Institute, Division of Food Chemistry
Press / Media

Spiser du det rigtige fedt
Agnes N. Pedersen
26/03/2015

Subject
Spiser du det rigtige fedt
National Food Institute, Division of Nutrition

Media contribution (1)

Spiser du det rigtige fedt
26/03/2015
BT on line, Web
Gitte Holm
Agnes N. Pedersen
National Food Institute, Division of Nutrition
Press / Media

Hensigtsmæssig opbevaring af smør
Per Sand Rosshaug
25/03/2015

Subject
Hensigtsmæssig opbevaring af smør
National Food Institute, Division of Industrial Food Research

Media contribution (1)

Hensigtsmæssig opbevaring af smør
25/03/2015
Ingeniøren, Web
Mie Stage
Per Sand Rosshaug
National Food Institute, Division of Industrial Food Research
Press / Media
**Cocktail effekter**
Anne Marie Vinggaard
24/03/2015

**Subject**
Cocktail effekter
National Food Institute, Division of Toxicology and Risk Assessment

**Media contribution (1)**

**Cocktail effekter**
24/03/2015
Food Navigator, Web
Caroline Scott-Thomas
Anne Marie Vinggaard
National Food Institute, Division of Toxicology and Risk Assessment

**Kumarin og kanel**
Kirsten Pilegaard
23/03/2015

**Subject**
Kumarin og kanel
National Food Institute, Division of Toxicology and Risk Assessment

**Media contribution (1)**

**Kumarin og kanel**
23/03/2015
Godafæt Danmark, Television
Mette ?
Kirsten Pilegaard
National Food Institute, Division of Toxicology and Risk Assessment

**Mikroplast i fødevarer**
Heidi Kornholt
23/03/2015

**Subject**
Mikroplast i fødevarer
National Food Institute, Communications and Management Secretariat

**Media contribution (1)**

**Mikroplast i fødevarer**
23/03/2015
DR Nyheder, Television
Sine Pam
Heidi Kornholt
National Food Institute, Communications and Management Secretariat

**En snak i Eigtveds Pakhus d. 19/3 2015 og en telefonopringning - Bisphenol A**
Sofie Christiansen
23/03/2015

**Subject**
En snak i Eigtveds Pakhus d. 19/3 2015 og en telefonopringning - Bisphenol A
National Food Institute, Division of Toxicology and Risk Assessment

**Media contribution (1)**
En snak i Eigtveds Pakhus d. 19/3 2015 og en telefonopringning - Bisphenol A
23/03/2015
Television
Sofie Christiansen
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Danskernes indtag af slik og chokolade
Anja Pia Bítolf-Jensen
23/03/2015
Subject
Danskernes indtag af slik og chokolade
National Food Institute, Division of Nutrition

Media contribution (1)

Danskernes indtag af slik og chokolade
23/03/2015
Go'Åften Danmark, Television
Allan Bjerreskov
Anja Pia Bítolf-Jensen
National Food Institute, Division of Nutrition
Press / Media

Akrylamid
Pelle Thonning Olesen
23/03/2015
Subject
Akrylamid
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Akrylamid
23/03/2015
RASK Magasinet, Print
Nanna Bisbjerg
Pelle Thonning Olesen
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Cocktail effekter
Anne Marie Vinggaard
19/03/2015
Subject
Cocktail effekter
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Cocktail effekter
19/03/2015
Dansk landbrug og Fødevarer – Food Culture, Web
Mads Pedersen
Anne Marie Vinggaard
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Cocktail effekter
Anne Marie Vinggaard
19/03/2015
Subject
Cocktail effekter
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Cocktail effekter
19/03/2015
DR, Television
Jacob Andresen
Anne Marie Vinggaard
National Food Institute, Division of Toxicology and Risk Assessment

Subject
MRSA handlingsplan
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

MRSA handlingsplan
18/03/2015
Ritzau, Web
Julie Johansen
Frank Møller Aarestrup
National Food Institute, Division of Epidemiology and Microbial Genomics

Subject
MRSA handlingsplan, specifikt om reduktion i forbrug
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

MRSA handlingsplan, specifikt om reduktion i forbrug
18/03/2015
Berlingskes nyhedsbureau, Print
Jan Bjerre
Frank Møller Aarestrup
National Food Institute, Division of Epidemiology and Microbial Genomics

Cocktail effekter
18/03/2015
Dr.dk Lev.nu, Web
Lisa Kristensen
Anne Marie Vinggaard

Subject
Cocktail effekter
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Cocktail effekter
18/03/2015
Dr.dk Lev.nu, Web
Lisa Kristensen
Anne Marie Vinggaard
Mikrobølgeovne, myter, sundhed
Morten Poulsen
18/03/2015

Subject
Mikrobølgeovne, myter, sundhed
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Mikrobølgeovne, myter, sundhed
18/03/2015
journaliststudere nde - freelance, Web
Mathias Meier
Morten Poulsen
National Food Institute, Division of Toxicology and Risk Assessment

Sikkerhed af sødestoffer
Alicja Mortensen
16/03/2015

Subject
Sikkerhed af sødestoffer
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Sikkerhed af sødestoffer
16/03/2015
ALT for damerne, Print
Jo Brand
Alicja Mortensen
National Food Institute, Division of Toxicology and Risk Assessment

Indsamling af vilde planter og mulige sundhedsskadelige effekter
Kirsten Pilegaard
15/03/2015

Subject
Indsamling af vilde planter og mulige sundhedsskadelige effekter
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Indsamling af vilde planter og mulige sundhedsskadelige effekter
15/03/2015
MetroXpress, Print
Christian Hansen
Kirsten Pilegaard
National Food Institute, Division of Toxicology and Risk Assessment

Håndtering af klausuleret pressemeddelelse
Heidi Kornholt
13/03/2015

Subject
Håndtering af klausuleret pressemeddelelse
National Food Institute, Communications and Management Secretariat
**Håndtering af klausuleret pressemeddelelse**

13/03/2015
TV2 Nyhederne, Television
Martin Vestergaard-Hasen
Heidi Kornholt
National Food Institute, Communications and Management Secretariat

**Akrylamid**

13/03/2015

Kit Granby

**Subject**

Akrylamid
National Food Institute, Division of Food Chemistry

**Danskernes kostvaner**

13/03/2015

Sisse Fagt

**Subject**

Danskernes kostvaner
National Food Institute, Division of Nutrition

**Akrylamid**

13/03/2015

Kit Granby

**Subject**

Akrylamid
National Food Institute, Division of Food Chemistry

**Danskernes kostvaner**

13/03/2015

Radio Nova FM, Radio
Christina Sander
Sisse Fagt
National Food Institute, Division of Nutrition

**Akrylamid**

13/03/2015

Esktrabladet, Print
Gitte Laasby
Kit Granby
National Food Institute, Division of Food Chemistry
Akrylamid
Kit Granby
13/03/2015

Subject
Akrylamid
National Food Institute, Division of Food Chemistry

Media contribution (1)

Akrylamid
13/03/2015
Ekstrabadet, Print
Gitte Laasby
Kit Granby
National Food Institute, Division of Food Chemistry

Lanceringen af rapporten om danskernes kostvaner
Agnes N. Pedersen
12/03/2015

Subject
Lanceringen af rapporten om danskernes kostvaner
National Food Institute, Division of Nutrition

Media contribution (1)

Lanceringen af rapporten om danskernes kostvaner
12/03/2015
BT, Web
Bavngaard
Agnes N. Pedersen
National Food Institute, Division of Nutrition

Danskernes kostvaner
Sisse Fagt
12/03/2015

Subject
Danskernes kostvaner
National Food Institute, Division of Nutrition

Media contribution (1)

Danskernes kostvaner
12/03/2015
Food Culture, Web
Christian Erin-Madsen
Sisse Fagt
National Food Institute, Division of Nutrition

Danskernes kostvaner
Sisse Fagt
12/03/2015

Subject
Danskernes kostvaner
National Food Institute, Division of Nutrition

Media contribution (1)
Subject
Akrylamid
National Food Institute, Division of Food Chemistry

Media contribution (1)

Akrylamid
11/03/2015
MetroExpress, Print
Maria Cuculiza
Kit Granby
National Food Institute, Division of Food Chemistry
Press / Media

Healthy Kids - madpakker
Marianne Sabinsky
10/03/2015

Subject
Healthy Kids - madpakker
National Food Institute, Division of Nutrition

Media contribution (1)

Healthy Kids - madpakker
10/03/2015
P4, Radio
Marianne Sabinsky
National Food Institute, Division of Nutrition
Press / Media

Akrylamid
Pelle Thonning Olesen
06/03/2015

Subject
Akrylamid
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Akrylamid
06/03/2015
JP, Print
Pelle Thonning Olesen
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Sikkerhed af sødestoffer
Alicja Mortensen
06/03/2015

Subject
Sikkerhed af sødestoffer
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Sikkerhed af sødestoffer
06/03/2015
videnskab.dk, Web
Rune Sørensen
Alicja Mortensen
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media
Antibiotikaforbrug, McDonald, USA
Frank Møller Aarestrup
05/03/2015

Subject
Antibiotikaforbrug, McDonald, USA
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Antibiotikaforbrug, McDonald, USA
05/03/2015
Bill Kimball, Television
BBC World
Frank Møller Aarestrup
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Burden of disease
Ulla Hass
05/03/2015

Subject
Burden of disease
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Burden of disease
05/03/2015
Politiken, Print
Ulla Hass
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Antibiotikaresistens, antibiotikaforbrug, EFSA
Frank Møller Aarestrup
04/03/2015

Subject
Antibiotikaresistens, antibiotikaforbrug, EFSA
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Antibiotikaresistens, antibiotikaforbrug, EFSA
04/03/2015
Landbrugsavisen, Print
peter kirkegaard
Frank Møller Aarestrup
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Bidrag med 'facts' til artikel om aldring
Tine Rask Licht
27/02/2015

Subject
Bidrag med 'facts' til artikel om aldring.
National Food Institute, Division of Food Microbiology

Media contribution (1)
Bidrag med 'facts' til artikel om aldring
27/02/2015
Technologist Magazine, Print
Line Fedders
Tine Rask Licht
National Food Institute, Division of Food Microbiology
Press / Media

Slik
Jeppe Matthiessen
27/02/2015

Subject
Slik
National Food Institute, Division of Nutrition

Media contribution (1)

Slik
27/02/2015
Michael Rothenborg, Print
Politiken
Jeppe Matthiessen
National Food Institute, Division of Nutrition
Press / Media

Sundhedsrisiko ved cadmium i chokolade
Max Hansen
25/02/2015

Subject
Sundhedsrisiko ved cadmium i chokolade
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Sundhedsrisiko ved cadmium i chokolade
25/02/2015
DR3, Television
Sidsel Marie Miller Hansen
Max Hansen
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

En artikel som blev publiceret i dag i NATURE af Chassaing et al.
Alicja Mortensen
24/02/2015

Subject
En artikel som blev publiceret i dag i NATURE af Chassaing et al.
Journalisten kendte til artiklen fra eurekalert.org
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

En artikel som blev publiceret i dag i NATURE af Chassaing et al.
24/02/2015
experimentarium.dk, Web
Christoffer Muusmann
Alicja Mortensen
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media
DTU vurdering af EFSA's nye TDI
Ulla Hass
23/02/2015

Subject
DTU vurdering af EFSA's nye TDI
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

DTU vurdering af EFSA's nye TDI
23/02/2015
Videnskab.dk, Web
Irene Petersen
Ulla Hass
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Cadmium i chokolade
Rie Romme Rasmussen
23/02/2015

Subject
Cadmium i chokolade
National Food Institute, Division of Food Chemistry

Media contribution (1)

Cadmium i chokolade
23/02/2015
DR Videnskab, Television
Sidsel Miller Hansen
https://vimeo.com/130973651
Short video
Rie Romme Rasmussen
National Food Institute, Division of Food Chemistry
Press / Media

DTU vurdering af EFSA's nye TDI
Ulla Hass
23/02/2015

Subject
DTU vurdering af EFSA's nye TDI
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Antibiotikaresistens, antibiotikaforbrug, MRSA, rådgivning og roller
Frank Møller Aarestrup
20/02/2015

Subject
Antibiotikaresistens, antibiotikaforbrug, MRSA, rådgivning og roller
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)
Antibiotikaresistens, antibiotikaforbrug, MRSA, rådgivning og roller
20/02/2015
DR P1, Radio
Bettina Olsen
Frank Møller Aarestrup
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Risikorangering af frugt og grønt
Louise Boysen
19/02/2015

Subject
Risikorangering af frugt og grønt
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Risikorangering af frugt og grønt
19/02/2015
Hjemmet, Print
Natalie Klejn
Louise Boysen
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Om planter og sundhed
Kirsten Pilegaard
18/02/2015
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Om planter og sundhed
18/02/2015
Sundhed, Print
Karin Svennevig
Kirsten Pilegaard
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Brændt mad er kræftfremkaldende
Kit Granby
18/02/2015
National Food Institute, Division of Food Chemistry

Media contribution (1)

Brændt mad er kræftfremkaldende
18/02/2015
Metro Express, Print
Maria Cuculiza
Kit Granby
National Food Institute, Division of Food Chemistry
Press / Media

DTU vurdering af EFSA's nye TDI
Ulla Hass
17/02/2015

Subject
DTU vurdering af EFSA's nye TDI
National Food Institute, Division of Toxicology and Risk Assessment

Press / Media
Media contribution (1)

DTU vurdering af EFSA's nye TDI
17/02/2015
Altinget, Web
Hjalte Kragsteen (HK)
Ulla Hass
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

DTU vurdering af EFSA's nye TDI
Ulla Hass
17/02/2015

Subject
DTU vurdering af EFSA's nye TDI
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

DTU vurdering af EFSA's nye TDI
17/02/2015
EU Food Policy, Web
Katrine Trollope
Ulla Hass
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

GM æbler der ikke bliver brune
Folmer Damsted Eriksen
16/02/2015
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

GM æbler der ikke bliver brune
16/02/2015
Ingeniøren, Web
Mie Stage
Folmer Damsted Eriksen
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Myter om mælk
Gitte Gross
11/02/2015

Subject
Myter om mælk
National Food Institute, Division of Nutrition

Media contribution (1)

Myter om mælk
11/02/2015
Go Aften Danmark, Television
Stig Nissen
Gitte Gross
National Food Institute, Division of Nutrition
Press / Media

Reduktion af mikroorganismser på frugt og grønt og tilstrækkelighed ved vask
Louise Boysen
10/02/2015
Reduktion af mikroorganismer på frugt og grønt og tilstrækkelighed ved vask
10/02/2015
Vores mad – landbrug og fødevarer, Web
Louise Boysen
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Svindel med kosttluskud (På baggrund af udenlandske analyse, DNA barcoding)
06/02/2015
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

AB forbrug
Flemming Bager
06/02/2015

DEHP fundet i plastikarmbånd til børn
Anne Marie Vinggaard
05/02/2015

DEHP fundet i plastikarmbånd til børn
05/02/2015
Politiken, Web
Laura Rabøl
Anne Marie Vinggaard
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Risikorangering af frisk frugt og grønt
Louise Boysen
04/02/2015
Energidrikke
Jeppe Matthiessen
15/01/2015

Subject
Energidrikke
National Food Institute, Division of Nutrition

Media contribution (1)

Energidrikke
15/01/2015
DTU Avisen, Print
Christina Tækker
Jeppe Matthiessen
National Food Institute, Division of Nutrition
Press / Media

Anmeldelse af hollandsk bog
Heddie Mejborn
15/01/2015

Subject
Journalisten skriver (anmelder?) en ny hollandsk? bog om kostråd for en sund aldring skrevet af en "forsker" hvis navn jeg ikke fik fat i. Bogen kritiserer de fleste europæiske kostråd, inkl. den danske kostpyramide, men ikke i så høj grad kostrådene (fra FVST)
National Food Institute, Division of Nutrition

Media contribution (1)

Anmeldelse af hollandsk bog
15/01/2015
Jyllandsposten, Web
Edith Rasmussen
Heddie Mejborn
National Food Institute, Division of Nutrition
Press / Media

Proteinindtagelse ved sports- og motionsaktivitet
Jeppe Matthiessen
14/01/2015

Subject
Proteinindtagelse ved sports- og motionsaktivitet
National Food Institute, Division of Nutrition

Media contribution (1)

Proteinindtagelse ved sports- og motionsaktivitet
14/01/2015
MetroExpress, Print
Cordelia Weber
Jeppe Matthiessen
National Food Institute, Division of Nutrition
Press / Media

Timeglasbogen
Agnes N. Pedersen
14/01/2015

Subject
Timeglasbogen
National Food Institute, Division of Nutrition

Media contribution (1)
Anbefaling for indtag af æg
Heddie Mejborn
13/01/2015

Subject
Anbefaling for indtag af æg
National Food Institute, Division of Nutrition

Media contribution (1)

Anbefaling for indtag af æg
13/01/2015
Samvirke, Print
Inger Abildgaard
Heddie Mejborn
National Food Institute, Division of Nutrition
Press / Media

En artikel om test af bl.a. hormonforstyrrende stoffer i produkter til børn i Forbrugerrådet Tænks februarnummer
Ulla Hass
12/01/2015

Subject
En artikel om test af bl.a. hormonforstyrrende stoffer i produkter til børn i Forbrugerrådet Tænks februarnummer
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

En artikel om test af bl.a. hormonforstyrrende stoffer i produkter til børn i Forbrugerrådet Tænks februarnummer
12/01/2015
Tænk, Print
Tage Mejland
Ulla Hass
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

"Hvid januar"
Gitte Gross
11/01/2015

Subject
"Hvid januar"
National Food Institute, Division of Nutrition

Media contribution (1)

"Hvid januar"
11/01/2015
P4 Weekend, Radio
Gitte Gross
National Food Institute, Division of Nutrition
Press / Media

Selvdiagnosticering
Tine Rask Licht
07/01/2015
Subject
Vil gerne have min medvirken som interviewperson i et program, der skal handle om 'selvdagnosticering' – hvad får man egentlig ud af at få sit genom eller sine tarmbakterier kortlagt. (Min rolle er ift det sidste).
National Food Institute, Division of Food Microbiology

Media contribution (1)

Selvdagnosticering
07/01/2015
DR3, Television
 Sofie Maria Vangsbjerg Mogensen
 Tine Rask Licht
 National Food Institute, Division of Food Microbiology

Danskernes forbrug af fastfood
Sisse Fagt
05/01/2015

Subject
Danskernes forbrug af fastfood
National Food Institute, Division of Nutrition

Media contribution (1)

Danskernes forbrug af fastfood
05/01/2015
Søndagsavisen, Print
Niels Philip Kjeldsen
Sisse Fagt
National Food Institute, Division of Nutrition

Danskernes sundhedsinteresse
Sisse Fagt
05/01/2015

Subject
Danskernes sundhedsinteresse
National Food Institute, Division of Nutrition

Media contribution (1)

Danskernes sundhedsinteresse
05/01/2015
Christian Birch, Web
etilbudsaviser
Sisse Fagt
National Food Institute, Division of Nutrition

Er der forskel på næringsstofindhold i friskpresset juice og i juice fra koncentrat?
Pia Knuthsen
05/01/2015

Description
Grønsager og frugt indeholder mange mineraler og vitaminer, og grove grønsager især indeholder mange kostfibre. Disse næringsstoffer vil til dels komme med over i friskpresset juice, i høj grad hvis frugtkødet medtages og i mindre grad hvis frugtkødet ikke medtages. Da juice af koncentrat er mere processeret end friskpresset juice, vil næringsstofindholdet, alt andet lige, forventes at være bedst bevaret i friskpresset juice.

Efterfølgende fik jeg den 'færdige' artikel til gennemsyn. Journalisten har her skrevet at 'der er en klar fordel i at drikke et glas juice frem for at spise et stykke frugt' – hvor kilden er det norske net-tidskrift 'forskning.no', der referer til en videnskabelig artikel. Det er altså ikke mig, der citeres for den 'kække' udtalelse, men jeg har kraftig opponeret mod at anbefale at drikke et glas juice frem for at spise et stykke frugt.
Erforder forskel på næringsstofindhold i friskpresset juice og i juice fra koncentrat?

National Food Institute, Division of Food Chemistry

Media contribution (1)

Er der forskel på næringsstofindhold i friskpresset juice og i juice fra koncentrat?
05/01/2015
Videnskab.dk, Web
Anne Marie Lykkegaard
Pia Knuthsen
National Food Institute, Division of Food Chemistry
Press / Media

DTU-bryghus
Timothy John Hobley
30/12/2014

Gulkort ordningen og forbruget til svin
Yvonne Agersø
19/12/2014

Slik
Jeppe Matthiessen
18/12/2014

Slik
18/12/2014
Politiken, Web
Michael Rothenborg
Jeppe Matthiessen
Sygdom/patogener i forbindelse med julemaden
Anne Wingstrand
18/12/2014

Subject
Sygdom/patogener i forbindelse med julemaden
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Sygdom/patogener i forbindelse med julemaden
18/12/2014
Ekstrabladet (EB), Print
Christian Kloster (CK)
Anne Wingstrand
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Energidrikke
Jeppe Matthiessen
16/12/2014

Subject
Energidrikke
National Food Institute, Division of Nutrition

Media contribution (1)

Energidrikke
16/12/2014
DR, Vejle, Television
Thomas Gammeltoft Pedersen
Jeppe Matthiessen
National Food Institute, Division of Nutrition
Press / Media

Energidrikke
Jeppe Matthiessen
16/12/2014

Subject
Energidrikke
National Food Institute, Division of Nutrition

Media contribution (1)

Energidrikke
16/12/2014
tv2.dk, Web
Cecilie Lund Kristiansen
Jeppe Matthiessen
National Food Institute, Division of Nutrition
Press / Media

Energidrikke
Jeppe Matthiessen
15/12/2014

Subject
Energidrikke
National Food Institute, Division of Nutrition
Media contribution (1)

Energidrikke
15/12/2014
DR, Television
Christian Nordkap
Jeppe Matthiessen
National Food Institute, Division of Nutrition
Press / Media

Færre antibiotika-resistente colibakterier i økologiske svin
Annette Nygaard Jensen
13/12/2014
National Food Institute, Division of Food Microbiology

Media contribution (1)

Færre antibiotika-resistente colibakterier i økologiske svin
13/12/2014
OrganicToday, Web
http://www.organictoday.dk/faerre-antibiotika-resistente-colibakterier-i-okologiske-svin/
Annette Nygaard Jensen
National Food Institute, Division of Food Microbiology

Relations
Projects:
SafeOrganic: Restrictive use of antibiotics in organic animal farming – a potential for safer, high quality products with less antibiotic resistant bacteria
Press / Media

Rapporten, Pesticidrester i fødevarer 2013
Bodil Hamborg Jensen
12/12/2014

Subject
Rapporten, Pesticidrester i fødevarer 2013
National Food Institute, Division of Food Chemistry

Media contribution (1)

Rapporten, Pesticidrester i fødevarer 2013
12/12/2014
Politiken, Web
Emilie Stilling (ES)
Bodil Hamborg Jensen
National Food Institute, Division of Food Chemistry
Press / Media

Akrylamid møde i EFSA vedr. høring. Risk management.
Christine Nellemann
11/12/2014

Description
Dear Kate Trollope,

DTU Food is committed to offering advice to government administration, primarily in regard to risk assessments. Though on request from government administrations, we can also offer advice on what mitigation measures that potentially could be implemented. However, our institute has no role in deciding what measures of risk management that should be implemented.
Therefore we cannot speak on behalf of what mitigation measures Denmark would like to see implemented.
Please contact the Danish veterinary and Food Administration for information regarding the Danish position on this issue.

Best regards
Christine Nellemann
Subject
Akrylamid møde i EFSA vedr. høring. Risk management.
National Food Institute, Communications and Management Secretariat

Media contribution (1)

Akrylamid møde i EFSA vedr. høring. Risk management.
11/12/2014
EU Food Policy , Web
Kate Trollope
Christine Nellesmann
National Food Institute, Communications and Management Secretariat
Press / Media

Et debatindlæg direkte stilet til Danmarks Biavlerforening.
Jan W. Pedersen
11/12/2014

Subject
Et debatindlæg direkte stilet til Danmarks Biavlerforening.
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Et debatindlæg direkte stilet til Danmarks Biavlerforening.
11/12/2014
Altinget, Web
Sine Riis Lund
Jan W. Pedersen
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Fluorstoffer i emballage – norsk tv program Forbrukerinspektørene
Xenia Trier
09/12/2014

Subject
Fluorstoffer i emballage – norsk tv program Forbrukerinspektørene
National Food Institute, Division of Food Chemistry

Media contribution (1)

Fluorstoffer i emballage – norsk tv program Forbrukerinspektørene
09/12/2014
NRK Forbrukerinspektørene, Television
Elisabet Høye
Xenia Trier
National Food Institute, Division of Food Chemistry
Press / Media

Danskernes indtag af fisk, kartofler og mejeriprodukter
Sisse Fagt
08/12/2014
National Food Institute, Division of Nutrition

Media contribution (1)

Danskernes indtag af fisk, kartofler og mejeriprodukter
08/12/2014
DR, Television
Lasse Olofson
Sisse Fagt
National Food Institute, Division of Nutrition
Press / Media
Listeria
08/12/2014

Subject
Listeria
Communications and Management Secretariat

Media contribution (1)

Listeria
08/12/2014
Jyllandsposten, Print
Communications and Management Secretariat
Press / Media

Energidrikke
Marta Axelstad Petersen
04/12/2014

Subject
Energidrikke
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Energidrikke
04/12/2014
Metrexpress, Print
Maria Cuculiza
Marta Axelstad Petersen
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

D-vitamin og berigelse
Rikke Andersen
02/12/2014

Subject
D-vitamin og berigelse
National Food Institute, Division of Nutrition

Media contribution (1)

D-vitamin og berigelse
02/12/2014
Politiken, Print
Emilie Klebing
http://politiken.dk/forbrugogliv/sundhedogmotion/ECE2458809/eksperten-der-skal-d-vitamin-i-broed-og-maelk/
Rikke Andersen
National Food Institute, Division of Nutrition
Press / Media

Danskernes indtag af frugt og grønt
Sisse Fagt
02/12/2014

Subject
Danskernes indtag af frugt og grønt
National Food Institute, Division of Nutrition

Media contribution (1)

Danskernes indtag af frugt og grønt
Danskernes indtag af fisk
Sisse Fagt
02/12/2014

Subject
Danskernes indtag af fisk
National Food Institute, Division of Nutrition

Media contribution (1)

Danskernes indtag af fisk
02/12/2014
DR, Television
Lasse Olofson
Sisse Fagt
National Food Institute, Division of Nutrition
Press / Media

Evidensgrundlaget for kostråd
Inge Tetens
01/12/2014

Subject
Evidensgrundlaget for kostråd
National Food Institute, Division of Nutrition

Media contribution (1)

Evidensgrundlaget for kostråd
01/12/2014
Kost & Ernæringsforbundets faglige nyhedsbrev ERNÆRING & SUNDHED, Print
Signe Kierkegaard Cain
Inge Tetens
National Food Institute, Division of Nutrition
Press / Media

Fluorstoffer i emballage – opfølgning på Kontant i september om fluorstoffer.
Xenia Trier
27/11/2014

Subject
Fluorstoffer i emballage – opfølgning på Kontant i september om fluorstoffer.
National Food Institute, Division of Food Chemistry

Media contribution (1)

Fluorstoffer i emballage – opfølgning på Kontant i september om fluorstoffer.
27/11/2014
DR Kontant, Television
Mette Lund
Xenia Trier
National Food Institute, Division of Food Chemistry
Press / Media

Sprøjtede økologiske juletræer
Heidi Kornholt
26/11/2014
**Subject**
Sprøjtede økologiske juletræer
National Food Institute, Communications and Management Secretariat

**Media contribution (1)**

**Sprøjtede økologiske juletræer**
26/11/2014
TV2 Nyhederne, Television
Niels Lykke Møller
Heidi Kornholt
National Food Institute, Communications and Management Secretariat

**Fluorstoffer i emballage – opfølgning på Kontant i september om fluorstoffer.**
Xenia Trier
25/11/2014

**Subject**
Fluorstoffer i emballage – opfølgning på Kontant i september om fluorstoffer.
National Food Institute, Division of Food Chemistry

**Media contribution (1)**

**Fluorstoffer i emballage – opfølgning på Kontant i september om fluorstoffer.**
25/11/2014
DR Kontant, Television
Mette Lund
Xenia Trier
National Food Institute, Division of Food Chemistry

**Sagsanlæg i krabbesag**
Heidi Kornholt
25/11/2014

**Subject**
Sagsanlæg i krabbesag
National Food Institute, Communications and Management Secretariat

**Media contribution (1)**

**Sagsanlæg i krabbesag**
25/11/2014
Frederiksborg Amts Avis, Print
Casper Thorlacius
Heidi Kornholt
National Food Institute, Communications and Management Secretariat

**Vitamin D i fødevarer**
Jette Jakobsen
19/11/2014

**Subject**
Vitamin D i fødevarer
National Food Institute, Division of Food Chemistry

**Media contribution (1)**

**Vitamin D i fødevarer**
19/11/2014
Food Culture, Web
Nina Birk
Jette Jakobsen
Vedr. DTU/SSI seminar om Europæisk Antibiotika dag d. 18/11-2014 på DTU byg. 308
Helle Bisgaard Korsgaard
18/11/2014

Subject
Vedr. DTU/SSI seminar om Europæisk Antibiotika dag
d. 18/11-2014 på DTU byg. 308
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Vedr. DTU/SSI seminar om Europæisk Antibiotika dag d. 18/11-2014 på DTU byg. 308
18/11/2014
DR Nyheder, Television
?
Helle Bisgaard Korsgaard
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

De 'gode' bakterier i tarmen
Tine Rask Licht
18/11/2014

Subject
De 'gode' bakterier i tarmen
National Food Institute, Division of Food Microbiology

Media contribution (1)

De 'gode' bakterier i tarmen
18/11/2014
videnskab.dk, Web
Charlotte Price Persson
Tine Rask Licht
National Food Institute, Division of Food Microbiology
Press / Media

Journalisten er interesseret i møl og giftstoffer i mandler
Kirsten Pilegaard
17/11/2014

Subject
Journalisten er interesseret i møl og giftstoffer i mandler
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Journalisten er interesseret i møl og giftstoffer i mandler
17/11/2014
Madmagasinet DR, Television
Kathrine Ladefoged Lenschau
Kirsten Pilegaard
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Danskernes indtag af æg
Agnes N. Pedersen
14/11/2014

Subject
Danskernes indtag af æg
National Food Institute, Division of Nutrition

Media contribution (1)

Danskernes indtag af æg
14/11/2014
Berlingske Tidende, Print
Marianne Fajstrup
Agnes N. Pedersen
National Food Institute, Division of Nutrition
Press / Media

Anbefalinger om brug af vitaminpiller
Vibeke Kildegaard Knudsen
14/11/2014

Subject
Anbefalinger om brug af vitaminpiller
National Food Institute, Division of Nutrition

Media contribution (1)

Anbefalinger om brug af vitaminpiller
14/11/2014
Detektor, DR2, Television
Jytte Bergman
Vibeke Kildegaard Knudsen
National Food Institute, Division of Nutrition
Press / Media

Burden of foodborne diseases' Report
Sara Monteiro Pires
13/11/2014

Subject
Burden of foodborne diseases' Report published. The journalist wanted to have clarified the real meaning of the underreporting gap we have estimated, and how certain we were of our results. In addition, the journalist asked about the utility of such information for politicians.
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Burden of foodborne diseases' Report
13/11/2014
Ritzau, Web
Morten Bank
Sara Monteiro Pires
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Burden of foodborne diseases' Report
Sara Monteiro Pires
13/11/2014

Subject
Burden of foodborne diseases' Report published. The journalist wanted to clarify the difference in the number of total estimated cases for campylobacter as presented in the Danish summary’s table and the report’s text. Also asked about the real meaning of the difference between reported and estimated cases, and the utility of these results for risk management policies.
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Burden of foodborne diseases' Report
13/11/2014
Campylobacter situationen og Sonosteam
Hanne Rosenquist
07/11/2014

Subject
Campylobacter situationen og Sonosteam
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)
Campylobacter situationen og Sonosteam
07/11/2014
Politiken, Print
Signe Thomsen
Hanne Rosenquist
National Food Institute, Division of Epidemiology and Microbial Genomics

Hvilke mikroorganismer der giver anledning til humane tilfælde
Hanne Rosenquist
07/11/2014

Subject
Hvilke mikroorganismer der giver anledning til humane tilfælde
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)
Hvilke mikroorganismer der giver anledning til humane tilfælde
07/11/2014
Berlingske, Print
Marianne Fajstrup
Hanne Rosenquist
National Food Institute, Division of Epidemiology and Microbial Genomics

Biodynamik som trend
Sisse Fagt
07/11/2014

Subject
Biodynamik som trend
National Food Institute, Division of Nutrition

Media contribution (1)
Biodynamik som trend
07/11/2014
Politiken, Print
Karine Kirkebæk
Sisse Fagt
National Food Institute, Division of Nutrition

Internetsalg af farlige kosttilskud på Internettet.
Kirsten Pilegaard
06/11/2014
Internetsalg af farlige kosttilskud på Internettet
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

High-fructose corn syrup og sundhed: Sukker og sygdom
Heddie Mejborn
05/11/2014
National Food Institute, Division of Nutrition

Media contribution (1)

Procesteknologi – de store muligheder for Danmark
Jens Adler-Nissen
05/11/2014

Media contribution (1)

High-Fructose-Corn-Syrup (HFCS)
Heddie Mejborn
05/11/2014

Media contribution (1)
Bidrag til populærvidenskabelig artikel i 'JP Newton' søndagstillægget.
Tine Rask Licht
05/11/2014

Subject
Bidrag til populærvidenskabelig artikel i 'JP Newton' søndagstillægget.
National Food Institute, Division of Food Microbiology

Media contribution (1)

Bidrag til populærvidenskabelig artikel i 'JP Newton' søndagstillægget.
05/11/2014
Jyllandsposten, Print
Kristian Sjøgren
Tine Rask Licht
National Food Institute, Division of Food Microbiology
Press / Media

Forskelle i danskernes kostvaner
Sisse Fagt
31/10/2014

Subject
Forskelle i danskernes kostvaner
National Food Institute, Division of Nutrition

Media contribution (1)

Forskelle i danskernes kostvaner
31/10/2014
Berlingske, Print
Marianne Fajstrup
Sisse Fagt
National Food Institute, Division of Nutrition
Press / Media

MRSA
Jeppe Boel
27/10/2014
National Food Institute, Division of Food Microbiology

Media contribution (1)

MRSA
27/10/2014
DR Nyheder, Television
Morten Frandsen
Jeppe Boel
National Food Institute, Division of Food Microbiology
Press / Media

MRSA
Yvonne Agersø
24/10/2014

Subject
MRSA
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

MRSA
24/10/2014
Ændring af grænseværdier for udvalgte pesticider
Trine Klein Reffstrup
22/10/2014

Subject
Ændring af grænseværdier for udvalgte pesticider
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Ændring af grænseværdier for udvalgte pesticider
22/10/2014
Danmarks Medie og Journalisthøjskole, Web
Helene Bagge Grimstrup
Trine Klein Reffstrup
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Aspartam og hjerneskader, kræft og metanolforgiftning
Alicja Mortensen
22/10/2014

Subject
Aspartam og hjerneskader, kræft og metanolforgiftning
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Aspartam og hjerneskader, kræft og metanolforgiftning
22/10/2014
MadMagasinet, Television
Martin Torpe
Alicja Mortensen
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

MRSA
Jeppe Boel
21/10/2014
National Food Institute, Division of Food Microbiology

Media contribution (1)

MRSA
21/10/2014
DR Nyheder, Television
Morten Frandsen
Jeppe Boel
National Food Institute, Division of Food Microbiology
Press / Media

Danskernes kostvaner
Sisse Fagt
15/10/2014

Subject
Danskernes kostvaner
National Food Institute, Division of Nutrition
Danskernes kostvaner
15/10/2014
Netavisen, Web
Julie Høgholm
Sisse Fagt
National Food Institute, Division of Nutrition
Press / Media

"Naturligt" sødestof (steviolglykosider)
Kirsten Pilegaard
13/10/2014

Subject
"Naturligt" sødestof (steviolglykosider), som markedsføres som fra Stevia-planten, er ud fra et
sikkerhedsmæssigt/toksikologisk synspunkt hverken værre eller bedre end andre sødestoffer/tilsætningsstoffer. Planten er
ikke godkendt efter novel food reglerne.
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

"Naturligt" sødestof (steviolglykosider)
13/10/2014
DR Madmagasinet, Television
Martin Torpe
Kirsten Pilegaard
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Vilde planter
Kirsten Pilegaard
13/10/2014

Subject
Hun har set invitationen til Botanical-conferencen og er interesseret i at komme i kontakt med en forsker, der "However I
am more interested in wild plants consumption. Would you kindly give me a contact with a scientist working wild plant
picking regulation in an European country ?"
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Vilde planter
13/10/2014
Ud fra et medsendt CV ser det ud til at hun er freelancer, Web
Marie-Paule Nougaret
Kirsten Pilegaard
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Campylobacter – om initiativer til campylobacter
Hanne Rosenquist
08/10/2014

Subject
Campylobacter – om initiativer til campylobacter
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Campylobacter – om initiativer til campylobacter
08/10/2014
TV2 Nyhederne, Television
Kristina Hohlmann
Hanne Rosenquist
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

OPUS skolemad
Inge Tetens
08/10/2014

Subject
OPUS skolemad
National Food Institute, Division of Nutrition

Media contribution (1)

OPUS skolemad
08/10/2014
Jyllandsposten, Print
Ronja Melander
Inge Tetens
National Food Institute, Division of Nutrition
Press / Media

Steviolglykosider – Stevia rebaudiana – naturlig kontra menneskeskabt
Kirsten Pilegaard
07/10/2014

Subject
Steviolglykosider – Stevia rebaudiana – naturlig kontra menneskeskabt
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Steviolglykosider – Stevia rebaudiana – naturlig kontra menneskeskabt
07/10/2014
Madmagasinet, Print
Martin Torpe
Kirsten Pilegaard
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Øget interesse fra svinebrug for at teste dyr for MSRV
Steen Nordentoft
07/10/2014

Subject
Øget interesse fra svinebrug for at teste dyr for MSRV
National Food Institute, Division of Food Microbiology

Media contribution (1)

Øget interesse fra svinebrug for at teste dyr for MSRV
07/10/2014
DR, Television
Morten Frandsen
Steen Nordentoft
National Food Institute, Division of Food Microbiology
Press / Media

DTU Fødevarerinstituttets anbefalinger om testning af MRSA i svinekød, kyllingekød og kalkunkød
Yvonne Agersø
04/10/2014

Subject
DTU Fødevarerinstituttets anbefalinger om testning af MRSA i svinekød, kyllingekød og kalkunkød
DTU Fødevarerinstituts anbefalinger om testning af MRSA i svinekød, kyllingekød og kalkunkød
04/10/2014
Politiken, Print
Flemming Christensen samt journalist fra TV2
Yvonne Agersø

Salmonella – risiko for forbrugerne
Dorte Lau Baggesen
02/10/2014

Slik og chokolade
Jeppe Matthiessen
02/10/2014

Fødevareteknologi og verdens ressourceproblemer
Jens Adler-Nissen
01/10/2014

Fødevareteknologi og verdens ressourceproblemer
01/10/2014
Messemagasinet Food Tech, Print
David Wedege
Jens Adler-Nissen
National Food Institute, Division of Industrial Food Research
Press / Media
Betydningen af det økologiske miljø for resistens med særligt fokus på MRSA og svin
Anne Wingstrand
01/10/2014

Subject
Betydningen af det økologiske miljø for resistens med særligt fokus på MRSA og svin
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Betydningen af det økologiske miljø for resistens med særligt fokus på MRSA og svin
01/10/2014
Økologi og Erhverv, Web
Karen Munck Nielsen
Anne Wingstrand
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Botanicals-konferencen
Kirsten Pilegaard
30/09/2014

Subject
Botanicals-konferencen
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Botanicals-konferencen
30/09/2014
Food Culture, Web
Mads Pedersen
Kirsten Pilegaard
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Stigning i forbrug til svin
Yvonne Agersø
30/09/2014

Subject
Stigning i forbrug til svin
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Stigning i forbrug til svin
30/09/2014
TV2 Nyhederne, Television
Olav Christensen
Yvonne Agersø
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Stigning i forbrug til svin
Yvonne Agersø
30/09/2014

Subject
Stigning i forbrug til svin
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)
Stigning i forbrug til svin
30/09/2014
DR Nyhederne, Television
Maja
Yvonne Agersø
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Det veterinære forbrug
Yvonne Agersø
30/09/2014

Subject
Det veterinære forbrug
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Pesticider i økologiske æbler (Boxer-sag)
Jens Hinge Andersen
29/09/2014

Subject
Pesticider i økologiske æbler (Boxer-sag)
National Food Institute, Division of Food Chemistry

Media contribution (1)

Vurdering af 2 vitaminpille præparater lancieret til kvinder og mænd
Anja Pia Biltoft-Jensen
29/09/2014

Subject
Vurdering af 2 vitaminpille præparater lancieret til kvinder og mænd
National Food Institute, Division of Nutrition

Media contribution (1)
Artikel i Ingeniøren d. 26.september 2014 angående kommende MRSA forskningsprojekt
Christine Nellemann
26/09/2014

Subject
Artikel i Ingeniøren d. 26.september 2014 angående kommende MRSA forskningsprojekt
National Food Institute, Communications and Management Secretariat

Media contribution (1)

Artikel i Ingeniøren d. 26.september 2014 angående kommende MRSA forskningsprojekt
26/09/2014
Politiken, Print
Flemming Kristiansen
Christine Nellemann
National Food Institute, Communications and Management Secretariat
Press / Media

Artikel i Ingeniøren d. 26.september 2014 angående kommende MRSA forskningsprojekt
Christine Nellemann
26/09/2014

Subject
Artikel i Ingeniøren d. 26.september 2014 angående kommende MRSA forskningsprojekt
National Food Institute, Communications and Management Secretariat

Media contribution (1)

Artikel i Ingeniøren d. 26.september 2014 angående kommende MRSA forskningsprojekt
26/09/2014
Ingeniøren, Web
Maria Berendt
Christine Nellemann
National Food Institute, Communications and Management Secretariat
Press / Media

Skolemælk
Jeppe Matthiessen
24/09/2014

Subject
Skolemælk
National Food Institute, Division of Nutrition

Media contribution (1)

Skolemælk
24/09/2014
DR1, Television
Amalie Kaldan
Jeppe Matthiessen
National Food Institute, Division of Nutrition
Press / Media

MRSA i svinekød
Yvonne Agersø
24/09/2014

Subject
MRSA i svinekød
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

MRSA i svinekød
MRSA i svinekød
Yvonne Agersø
24/09/2014

Subject
MRSA i svinekød
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

MRSA i svinekød
24/09/2014
Jyllandsposten, Print
Morten Zahle
Yvonne Agersø
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Børns frokost i skolen
Lene Møller Christensen
23/09/2014

Subject
Børns frokost i skolen
National Food Institute, Division of Nutrition

Media contribution (1)

Børns frokost i skolen
23/09/2014
Politiken, lørdagsliv, Print
Annemette Grundtvig
Lene Møller Christensen
National Food Institute, Division of Nutrition
Press / Media

Fluorstoffer i emballage
Xenia Trier
22/09/2014

Subject
Fluorstoffer i emballage
National Food Institute, Division of Food Chemistry

Media contribution (1)

Fluorstoffer i emballage
22/09/2014
Radio 24/7, Radio
Sine Riis Lund
Xenia Trier
National Food Institute, Division of Food Chemistry
Press / Media

MRSA i svinekød
Yvonne Agersø
22/09/2014
Subject
MRSA i svinekød
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

MRSA i svinekød
22/09/2014
TV2 Syd, Television
Morten Brøcker
Yvonne Agersø
National Food Institute, Division of Epidemiology and Microbial Genomics

Sødemidler
Tine Rask Licht
19/09/2014
Subject
Et nyt paper i Nature som viser at kunstige sødemidler skader glucosetolerancen, og at dette skyldes en ændring i tarmens bakteriesammensætning.
National Food Institute, Division of Food Microbiology

Media contribution (1)

Sødemidler
19/09/2014
Web
Tine Rask Licht
National Food Institute, Division of Food Microbiology

Salmonella i danskere 2013
Birgitte Helwigh
19/09/2014
Subject
Salmonella i danskere 2013
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Salmonella i danskere 2013
19/09/2014
DR Detektor, Television
Chris
Birgitte Helwigh
National Food Institute, Division of Epidemiology and Microbial Genomics

Kontant: Giftig mademballage
Xenia Trier
18/09/2014
Subject
Fluorerede stoffer i mademballage af papir og pap
National Food Institute, Division of Food Chemistry

Media contribution (1)

Kontant: Giftig mademballage
18/09/2014
DR - Kontant, Television
Christian Engell
28 min
Tilsætningsstoffer i fødevarer
Torben Hallas-Møller
18/09/2014

Subject
Tilsætningsstoffer i fødevarer
National Food Institute

Media contribution (1)

Tilsætningsstoffer i fødevarer
18/09/2014
Søndag, Print
Tania Clausager
Torben Hallas-Møller
National Food Institute
Press / Media

MRSA, samråd, Dan Jørgensen
Frank Møller Aarestrup
16/09/2014

Subject
MRSA, samråd, Dan Jørgensen
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

MRSA, samråd, Dan Jørgensen
16/09/2014
Ingeniøren, Web
Helle Erhardsen
Frank Møller Aarestrup
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

MRSA
Frank Møller Aarestrup
16/09/2014

Subject
MRSA
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

MRSA
16/09/2014
Radio 24/7, Radio
Mette Larsen
Frank Møller Aarestrup
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Perfluorstoffer i fisk
Kit Granby
15/09/2014

Subject
Perfluorstoffer i fisk
National Food Institute, Division of Food Chemistry

Media contribution (1)

Perfluorstoffer i fisk
15/09/2014
Mediehuset Ingeniøren A/S, Web
Maria Behrendt
Kit Granby
National Food Institute, Division of Food Chemistry
Press / Media

Skolemadsordninger
Lene Møller Christensen
15/09/2014

Subject
Skolemadsordninger
National Food Institute, Division of Nutrition

Media contribution (1)

Skolemadsordninger
15/09/2014
Politiken, lørdagsliv, Print
Annemette Grundtvig
Lene Møller Christensen
National Food Institute, Division of Nutrition
Press / Media

Protein udtalelse
Agnes N. Pedersen
12/09/2014

Subject
protein udtalelse
National Food Institute, Division of Nutrition

Media contribution (1)

Protein udtalelse
12/09/2014
Jyllandsposten, Print
Agnes N. Pedersen
National Food Institute, Division of Nutrition
Press / Media

EuroSense 2014: A Sense of Life
Grethe Hyldig
11/09/2014

Subject
EuroSense 2014: A Sense of Life
National Food Institute, Division of Industrial Food Research

Media contribution (1)

EuroSense 2014: A Sense of Life
11/09/2014
videnskab.dk, Web
Emmelie Sakina Hytting
Grethe Hyldig
National Food Institute, Division of Industrial Food Research
Press / Media
Salmonella tilbagetrækningssagen, opfølgning på nyhed på nettet.
Jeppe Boel
11/09/2014

Subject
Salmonella tilbagetrækningssagen, opfølgning på nyhed på nettet.
National Food Institute, Division of Food Microbiology

Media contribution (1)

Salmonella tilbagetrækningssagen, opfølgning på nyhed på nettet.
11/09/2014
Ingeniøren, Web
Magnus Bredsdorf
Jeppe Boel
National Food Institute, Division of Food Microbiology
Press / Media

TV 2 og MRSA
Heidi Kornholt
09/09/2014

Subject
TV 2 og MRSA
National Food Institute, Communications and Management Secretariat

Media contribution (1)

TV 2 og MRSA
09/09/2014
Television
Heidi Kornholt
National Food Institute, Communications and Management Secretariat
Press / Media

Æbler
Gitte Ravn-Haren
09/09/2014

Subject
Æbler
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Æbler
09/09/2014
DR, Madmagasinet Bitz & Frisk, Television
Frederik Wiese
Gitte Ravn-Haren
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Danskernes måltidsvaner
Sisse Fagt
08/09/2014

Subject
Danskernes måltidsvaner
National Food Institute, Division of Nutrition

Media contribution (1)
Danskernes måltidsvaner
08/09/2014
Berlingske Tidende, Print
Marianne Fajstrup
Sisse Fagt
National Food Institute, Division of Nutrition
Press / Media

Så længe holder mad i fryseren
Heidi Kornholt
05/09/2014

Subject
Så længe holder mad i fryseren
National Food Institute, Communications and Management Secretariat

Media contribution (1)

Så længe holder mad i fryseren
05/09/2014
Søndag, Print
Ilona Jacobsen
Heidi Kornholt
National Food Institute, Communications and Management Secretariat
Press / Media

Fluorstoffer i grundvand
Xenia Trier
05/09/2014

Subject
Fluorstoffer i grundvand
National Food Institute, Division of Food Chemistry

Media contribution (1)

Fluorstoffer i grundvand
05/09/2014
Radio 24-7, Radio
Xenia Trier
National Food Institute, Division of Food Chemistry
Press / Media

Næringsdeklarationer på fødevarer og tolerancer samt analysemetode(r) til fedt.
Pia Knuthsen
04/09/2014

Subject
Næringsdeklarationer på fødevarer og tolerancer samt analysemetode(r) til fedt.
National Food Institute, Division of Food Chemistry

Media contribution (1)

Næringsdeklarationer på fødevarer og tolerancer samt analysemetode(r) til fedt.
04/09/2014
DR Madmagasinet, Television
Morten Brink Iwersen
Pia Knuthsen
National Food Institute, Division of Food Chemistry
Press / Media

MRSA i konventionelle og økologiske svinebesætninger
Anne Wingstrand
03/09/2014
Subject
MRSA i konventionelle og økologiske svinebesætninger
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

MRSA i konventionelle og økologiske svinebesætninger
03/09/2014
Ingeniøren, Web
Helle Erhardsen
Anne Wingstrand
National Food Institute, Division of Epidemiology and Microbial Genomics

Novel foods
Kirsten Pilegaard
02/09/2014

Subject
Stevia rebaudiana, som ikke er godkendt som novel food, og som derfor ikke må sælges i EU kontra steviolglykosider som sødestof (som Alicja Mortensen) har talt med ham om.
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Novel foods
02/09/2014
DR (Madmagasinet), Television
Martin Torpe
Kirsten Pilegaard
National Food Institute, Division of Toxicology and Risk Assessment

Danskernes frugt og grøntindtag
Sisse Fagt
02/09/2014

Subject
Danskernes frugt og grøntindtag
National Food Institute, Division of Nutrition

Media contribution (1)

Danskernes frugt og grøntindtag
02/09/2014
Food Culture, Web
Nanna Birk
Sisse Fagt
National Food Institute, Division of Nutrition

Sukker og sødestoffer
Alicja Mortensen
02/09/2014

Subject
1) EFSA vurdering af aspartam:(a) Er jeg enige med konklusioner? (b) Har EFSA taget i betragtning undersøgelse af Soffritti et al og af Halldorsson et al. i sin revurdering af aspartam?
2) Har sorbitol en aflæggende effekt?
3) Hvordan man fastsætter en acceptabel daglig indtægtes (ADI) af sødestoffer?
4) hvad er stevia?
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)
Sukker og sødestoffer
02/09/2014
DR Madmagasinet, Print
Martin Torpe
Alicja Mortensen
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

MRSA i mink
Miriam Meister
02/09/2014

Subject
MRSA i mink
National Food Institute, Communications and Management Secretariat

Media contribution (1)

MRSA i mink
02/09/2014
Ingeniøren, Web
Maria Berenth
Miriam Meister
National Food Institute, Communications and Management Secretariat
Press / Media

MRSA
Yvonne Agersø
02/09/2014

Subject
MRSA
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

MRSA
02/09/2014
Ingeniøren, Web
Helle Erhardsen
Yvonne Agersø
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Resistensforekomst i konventionelle og økologiske svinebesætninger
Hanne Rosenquist
29/08/2014

Subject
Resistensforekomst i konventionelle og økologiske svinebesætninger
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Resistensforekomst i konventionelle og økologiske svinebesætninger
29/08/2014
Ingeniøren, Web
Helle
Hanne Rosenquist
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media
Listeria – høje kimtal af Listeria monocytogenes koldrøget hellefisk
Paw Dalgaard
29/08/2014

Subject
Listeria – høje kimtal af Listeria monocytogenes koldrøget hellefisk
National Food Institute, Division of Industrial Food Research

Media contribution (1)

Listeria – høje kimtal af Listeria monocytogenes koldrøget hellefisk
29/08/2014
MetroExpress, Print
Christian Kloster
Paw Dalgaard
National Food Institute, Division of Industrial Food Research
Press / Media

DANMAP
Heidi Kornholt
29/08/2014

Subject
DANMAP
National Food Institute, Communications and Management Secretariat

Media contribution (1)

DANMAP
29/08/2014
TV2 Dokumentar, Television
Merle Strand Banggaard
Heidi Kornholt
National Food Institute, Communications and Management Secretariat
Press / Media

Helsingør statement på fluorerede stoffer
Xenia Trier
29/08/2014

Subject
Helsingør statement på fluorerede stoffer
National Food Institute, Division of Food Chemistry

Media contribution (1)

Helsingør statement på fluorerede stoffer
29/08/2014
DR P1, Morgen, Radio
Michelle ?
Xenia Trier
National Food Institute, Division of Food Chemistry
Press / Media

Akrylamid i chips
Kit Granby
27/08/2014

Subject
Akrylamid i chips
National Food Institute, Division of Food Chemistry

Media contribution (1)

Akrylamid i chips
27/08/2014
DR (Madmagasinet Bitz og Frisk), Television
Dennis Nielsen
Kit Granby
National Food Institute, Division of Food Chemistry
Press / Media

**Listeria: Flere og flere tilbagetrækninger.**
Jens Kirk Andersen
26/08/2014

**Subject**
Listeria: Flere og flere tilbagetrækninger.
National Food Institute, Division of Food Microbiology

**Media contribution (1)**

**Listeria: Flere og flere tilbagetrækninger.**
26/08/2014
TV2 Go’aften Danmark, Television
Lisbeth Langer
Jens Kirk Andersen
National Food Institute, Division of Food Microbiology
Press / Media

**Grill-risiko**
Jens Kirk Andersen
26/08/2014

**Subject**
Grill-risiko
National Food Institute, Division of Food Microbiology

**Media contribution (1)**

**Grill-risiko**
26/08/2014
DR3, Television
Josefine Sofia Svendsen
Jens Kirk Andersen
National Food Institute, Division of Food Microbiology
Press / Media

**Er fisk sundt**
Max Hansen
26/08/2014

**Subject**
Er fisk sundt
National Food Institute, Division of Toxicology and Risk Assessment

**Media contribution (1)**

**Er fisk sundt**
26/08/2014
Videnskab.dk, Web
Irene Petersen
Max Hansen
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

**Helsingør statement på fluorerede stoffer**
Xenia Trier
26/08/2014
Listeria sag rullepølser, Virus i frosne hindbær, VTEC i spirer, Salmonella i æg, MRSA
Jens Kirk Andersen
25/08/2014

Subject
Listeria sag rullepølser, Virus i frosne hindbær, VTEC i spirer, Salmonella i æg, MRSA
National Food Institute, Division of Food Microbiology

Media contribution (1)
Listeria sag rullepølser, Virus i frosne hindbær, VTEC i spirer, Salmonella i æg, MRSA
25/08/2014
TV2 Go'Morgen Danmark, Television
Lisbeth Østergaard
Jens Kirk Andersen
National Food Institute, Division of Food Microbiology

Salmonella, Listeria og fødevaresikkerhed
25/08/2014

Subject
Salmonella, Listeria og fødevaresikkerhed
Communications and Management Secretariat

Media contribution (1)
Salmonella, Listeria og fødevaresikkerhed
25/08/2014
DR P1, Morgen, Radio
Communications and Management Secretariat

Listeria – FVST – ændring af kontrolrapporter
Dorte Lau Baggesen
24/08/2014

Subject
Listeria – FVST – ændring af kontrolrapporter
National Food Institute, Division of Food Microbiology

Media contribution (1)
Listeria – FVST – ændring af kontrolrapporter
24/08/2014
DR Nyheder, Television
Søren Larsen
Dorte Lau Baggesen
National Food Institute, Division of Food Microbiology

Spørgsmål om fiskerogn
Ole Mejlholtm
22/08/2014

Subject
Spørgsmål om fiskerogn
National Food Institute, Division of Industrial Food Research

Media contribution (1)
Spørgsmål om fiskerogn
22/08/2014
Forbrugerbladet Samvirke, Print
Winnie From Thesbøl
Ole Mejholm
National Food Institute, Division of Industrial Food Research
Press / Media

Salmonella Enteritidis PT 21 i æg
Søren Aabo
22/08/2014

Subject
Salmonella Enteritidis PT 21 i æg
National Food Institute, Division of Food Microbiology

Media contribution (1)

Salmonella Enteritidis PT 21 i æg
22/08/2014
DR1, Tv-avisen, Television
Sigga Nolsøe
Søren Aabo
National Food Institute, Division of Food Microbiology
Press / Media

Listeria og fødevaresikkerhed
22/08/2014

Subject
Listeria og fødevaresikkerhed
Communications and Management Secretariat

Media contribution (1)

Listeria og fødevaresikkerhed
22/08/2014
TV2 News, Television
Communications and Management Secretariat
Press / Media

Salmonella og fødevaresikkerhed
22/08/2014

Subject
Salmonella og fødevaresikkerhed
Communications and Management Secretariat

Media contribution (1)

Salmonella og fødevaresikkerhed
22/08/2014
TV2 Go’aften DK, Television
Communications and Management Secretariat
Press / Media

Afsmiting af primære aromatiske aminer (PAA) fra sorte køkkenredskaber
Xenia Trier
22/08/2014

Subject
Afsmining af primære aromatiske aminer (PAA) fra sorte køkkenredskaber
National Food Institute, Division of Food Chemistry
Afsmitning af primære aromatiske aminer (PAA) fra sorte køkkenredskaber
22/08/2014
TV2 Go’aften Danmark, Television
Michael Ohmsen
Xenia Trier
National Food Institute, Division of Food Chemistry
Press / Media

Salmonella i pasteuriseret æg – hvordan kan det lade sig gøre?
Jens Kirk Andersen
22/08/2014

Subject
Salmonella i pasteuriseret æg – hvordan kan det lade sig gøre?
National Food Institute, Division of Food Microbiology

Om tilsætningsstoffer er farlige
Anette Schnipper
22/08/2014

Subject
Om tilsætningsstoffer er farlige
National Food Institute, Division of Toxicology and Risk Assessment

Salmonella i æg
Dorte Lau Baggesen
22/08/2014

Subject
Salmonella i æg
National Food Institute, Division of Food Microbiology
Salmonella i æg
Dorte Lau Baggesen
22/08/2014

Subject
Salmonella i æg
National Food Institute, Division of Food Microbiology

Media contribution (1)

Salmonella i æg
22/08/2014
Radio 24-7, Radio
Cecilie Rox
Dorte Lau Baggesen
National Food Institute, Division of Food Microbiology

Bladet "Copenhagen Food" bringer på side 42-43 en opskrift med bregneskud (art ej nævnt)
Kirsten Pilegaard
22/08/2014

Subject
Bladet "Copenhagen Food" bringer på side 42-43 en opskrift med bregneskud (art ej nævnt)
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Bladet "Copenhagen Food" bringer på side 42-43 en opskrift med bregneskud (art ej nævnt)
22/08/2014
Copenhagen Food, Web
Kirsten Pilegaard
National Food Institute, Division of Toxicology and Risk Assessment

Juice
Inge Tetens
21/08/2014

Subject
Juice
National Food Institute, Division of Nutrition

Media contribution (1)

Juice
21/08/2014
Politiken, Print
Lars Igum Rasmussen
Inge Tetens
National Food Institute, Division of Nutrition

Kan man spise hestebønner rå
Kirsten Pilegaard
21/08/2014

Subject
Kan man spise hestebønner rå
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)
Kan man spise hestebønner rå
21/08/2014
Praktisk Økologi, Web
Jacob Bock
Kirsten Pilegaard
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Fluorerede stoffer grundvand under forurenede grunde (luftavne, tekstil virksomheder mm)
Xenia Trier
21/08/2014

Subject
Fluorerede stoffer grundvand under forurenede grunde (luftavne, tekstil virksomheder mm)
National Food Institute, Division of Food Chemistry

Media contribution (1)

Fluorerede stoffer grundvand under forurenede grunde (luftavne, tekstil virksomheder mm)
21/08/2014
Ingeniøren, Print
Thomas Djursing
Xenia Trier
National Food Institute, Division of Food Chemistry
Press / Media

Listeria
Paw Dalgaard
20/08/2014

Subject
Listeria – styring af vækst i fødevarer samt anvendelse af prædiktive modeller og software
National Food Institute, Division of Industrial Food Research

Media contribution (1)

Listeria
20/08/2014
Berlingske Tidende, Web
Marianne Fejstrup
Paw Dalgaard
National Food Institute, Division of Industrial Food Research
Press / Media

Fluorerede stoffer i papir og pap
Xenia Trier
20/08/2014

Subject
Fluorerede stoffer i papir og pap
National Food Institute, Division of Food Chemistry

Media contribution (1)

Fluorerede stoffer i papir og pap
20/08/2014
DR Kontant, Television
LEa Frederiksen, Mette Lund
Xenia Trier
National Food Institute, Division of Food Chemistry
Press / Media
Listeria
Paw Dalgaard
20/08/2014

Subject
Listeria – styring af vækst i fødevarer samt anvendelse af prædiktive modeller og software
National Food Institute, Division of Industrial Food Research

Media contribution (1)

Listeria
20/08/2014
Berlingske Tidende, Print
Marianne Fejstrup
Paw Dalgaard
National Food Institute, Division of Industrial Food Research

Sundhedsanprisninger
Inge Tetens
19/08/2014

Subject
Sundhedsanprisninger
National Food Institute, Division of Nutrition

Media contribution (1)

Sundhedsanprisninger
19/08/2014
Mandag Morgen, Print
Anders Baumann
Inge Tetens
National Food Institute, Division of Nutrition

Listeria udbrud – opfølgninger
Dorte Lau Baggesen
19/08/2014

Subject
Listeria udbrud – opfølgninger
National Food Institute, Division of Food Microbiology

Media contribution (1)

Listeria udbrud – opfølgninger
19/08/2014
Berlingske Tidende, Print
Ida Brock
Dorte Lau Baggesen
National Food Institute, Division of Food Microbiology

Listeria, typning, nye metode
Gitte Sørensen
19/08/2014

Subject
Listeria, typning, nye metode – og andet om kildesporing og typnings- samarbejde
National Food Institute, Division of Food Microbiology

Media contribution (1)

Listeria, typning, nye metode
Listeria – virker bestrålning?
Jens Kirk Andersen
19/08/2014

Subject
Listeria – virker bestrålning?
National Food Institute, Division of Food Microbiology

Media contribution (1)

Listeria – tekniske styringsmuligheder
Jens Kirk Andersen
19/08/2014

Subject
Listeria – tekniske styringsmuligheder
National Food Institute, Division of Food Microbiology

Media contribution (1)

Listeriose – generelt og udbruddet
Jens Kirk Andersen
19/08/2014

Subject
Listeriose – generelt og udbruddet
National Food Institute, Division of Food Microbiology

Media contribution (1)

Listeria, typning, nye metode
Gitte Sørensen
19/08/2014
Listeria, typning, nye metode – og andet om kildesporing og typnings-samarbejde
National Food Institute, Division of Food Microbiology

Media contribution (1)

Listeria, typning, nye metode
19/08/2014
Jyllandsposten, Print
Lars From
Gitte Sørensen
National Food Institute, Division of Food Microbiology
Press / Media

Er det dyrt at spise sundt
Sisse Fagt
18/08/2014

Subject
Er det dyrt at spise sundt
National Food Institute, Division of Nutrition

Media contribution (1)

Er det dyrt at spise sundt
18/08/2014
Radio 24 syv, Radio
Kristian Danholm
Sisse Fagt
National Food Institute, Division of Nutrition
Press / Media

Listeria
18/08/2014

Subject
Listeria
Communications and Management Secretariat

Media contribution (1)

Listeria
18/08/2014
TV2 News, Television
Communications and Management Secretariat
Press / Media

Listeria
18/08/2014

Subject
Listeria
Communications and Management Secretariat

Media contribution (1)

Listeria
18/08/2014
Ritzau, Web
Communications and Management Secretariat
Press / Media

Listeria udbrud – refleksion over FVSTs redegørelsen
Dorte Lau Baggesen
18/08/2014

**Subject**
Listeria udbrud – refleksion over FVSTs redegørelsen
National Food Institute, Division of Food Microbiology

**Media contribution (1)**

**Listeria udbrud – refleksion over FVSTs redegørelsen**
18/08/2014
Berlingske Tidende, Print
Ida Brock
Dorte Lau Baggesen
National Food Institute, Division of Food Microbiology
Press / Media

**Listeriose - udbrud**
Jens Kirk Andersen
18/08/2014

**Subject**
Listeriose - udbrud
National Food Institute, Division of Food Microbiology

**Media contribution (1)**

**Listeriose - udbrud**
18/08/2014
DR Nyheder, Television
Thomas Jorsal
Jens Kirk Andersen
National Food Institute, Division of Food Microbiology
Press / Media

**Listeria**
18/08/2014

**Subject**
Listeria
Communications and Management Secretariat

**Media contribution (1)**

**Listeria**
18/08/2014
Jyllandsposten, Print
Communications and Management Secretariat
Press / Media

**Listeria, symptomer, udbruddet, underrapportering**
18/08/2014

**Subject**
Listeria, symptomer, udbruddet, underrapportering
Communications and Management Secretariat

**Media contribution (1)**

**Listeria, symptomer, udbruddet, underrapportering**
18/08/2014
Jyllandsposten, Print
Lars From
Communications and Management Secretariat
Press / Media
Listeria
18/08/2014

Subject
Listeria
Communications and Management Secretariat

Media contribution (1)

Listeria
18/08/2014
Politiken, Print
Communications and Management Secretariat
Press / Media

Listeria udbruddet
Birgitte Helwigh
17/08/2014

Subject
Listeria udbruddet
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Listeria udbruddet
17/08/2014
Politiken, Web
Michael Rothenborg
Birgitte Helwigh
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Er det dyrt at spise sundt
Sisse Fagt
16/08/2014

Subject
Er det dyrt at spise sundt
National Food Institute, Division of Nutrition

Media contribution (1)

Er det dyrt at spise sundt
16/08/2014
Politiken, Print
Adam Hannestad
Sisse Fagt
National Food Institute, Division of Nutrition
Press / Media

Salmonella Molekylære metoder Detektion Pork meat processing
Charlotte Löfström
15/08/2014

Subject
Salmonella
Molekylære metoder
Detektion
Pork meat processing
National Food Institute, Division of Food Microbiology

Media contribution (1)
Salmonella Molekylære metoder Detektion Pork meat processing
15/08/2014
Food News International, Web
Sheila Wan
Charlotta Löfström
National Food Institute, Division of Food Microbiology
Press / Media

Danskernes Sundhedsinteresse
Sisse Fagt
15/08/2014

Subject
Danskernes Sundhedsinteresse
National Food Institute, Division of Nutrition

Media contribution (1)

Danskernes Sundhedsinteresse
15/08/2014
Ugebrevet mandag morgen, Print
Villads Anders
Sisse Fagt
National Food Institute, Division of Nutrition
Press / Media

Campylobacter og kyllinger
Birthe Hald
15/08/2014

Subject
Campylobacter og kyllinger,
Kan fluenet hjælpe ?
National Food Institute, Division of Food Microbiology

Media contribution (1)

Campylobacter og kyllinger
15/08/2014
Ekstrabladet, Print
Peter Jeppesen
Birthe Hald
National Food Institute, Division of Food Microbiology
Press / Media

Listeria udbrud
Charlotta Löfström
13/08/2014

Subject
Listeria udbrud

Journalistenen ønskede information om hvornår ny
metode (fuld genom-sekventering, WGS) er taget i brug i og hvor om udbruddet ville have været opklaret uden og/eller
hvor hurtigere i forhold til tidligere
National Food Institute, Division of Food Microbiology

Media contribution (1)

Listeria udbrud
13/08/2014
Ingeniøren, Print
Thomas Djursing
Charlotta Löfström
Listeria-udbrud, WGS typning
Dorte Lau Baggesen
13/08/2014

Subject
Listeria-udbrud, WGS typning
National Food Institute, Division of Food Microbiology

Media contribution (1)

Listeria-udbrud, WGS typning
13/08/2014
Berlingske Tidende, Print
Marianne Svejstrup
Dorte Lau Baggesen
National Food Institute, Division of Food Microbiology
Press / Media

Udbrud af Listeria i kødpålæg
Ole Mejlholm
12/08/2014

Subject
Udbrud af Listeria i kødpålæg
National Food Institute, Division of Industrial Food Research

Media contribution (1)

Udbrud af Listeria i kødpålæg
12/08/2014
DR Nyheder, Print
Lisbeth Sung
Ole Mejlholm
National Food Institute, Division of Industrial Food Research
Press / Media

Danskernes indtag af chips m.m.
Sisse Fagt
12/08/2014

Subject
Danskernes indtag af chips m.m.
National Food Institute, Division of Nutrition

Media contribution (1)

Danskernes indtag af chips m.m.
12/08/2014
Print
Sisse Fagt
National Food Institute, Division of Nutrition
Press / Media

Listeria i forbindelse med udbrud af listeriose
Jens Kirk Andersen
12/08/2014

Subject
Listeria i forbindelse med udbrud af listeriose
National Food Institute, Division of Food Microbiology
Media contribution (1)

Listeria i forbindelse med udbrud af listeriose
12/08/2014
DR Aftenshowet, Television
Christian Porsgaard
Jens Kirk Andersen
National Food Institute, Division of Food Microbiology
Press / Media

Listeria i forbindelse med udbrud af listeriose
Jens Kirk Andersen
12/08/2014

Subject
Listeria i forbindelse med udbrud af listeriose
National Food Institute, Division of Food Microbiology

Media contribution (1)

Listeria i forbindelse med udbrud af listeriose
12/08/2014
TV2 News, Television
Jens Gaardbo
Jens Kirk Andersen
National Food Institute, Division of Food Microbiology
Press / Media

Afsmitning af kemiske stoffer fra madpapir, herunder fluorstoffer
Anne Marie Vinggaard
12/08/2014

Subject
Afsmitning af kemiske stoffer fra madpapir, herunder fluorstoffer
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Afsmitning af kemiske stoffer fra madpapir, herunder fluorstoffer
12/08/2014
Freelance journalist, Print
Ramus Bitsch
Anne Marie Vinggaard
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Afsmitning af kemiske stoffer fra madpapir, herunder fluorstoffer
Xenia Trier
11/08/2014

Subject
Afsmitning af kemiske stoffer fra madpapir, herunder fluorstoffer
National Food Institute, Division of Food Chemistry

Media contribution (1)

Afsmitning af kemiske stoffer fra madpapir, herunder fluorstoffer
11/08/2014
Freelance journalist, Print
Ramus Bitsch
Xenia Trier
National Food Institute, Division of Food Chemistry
Press / Media
Kostfibre
Inge Tetens
11/08/2014

Subject
Kostfibre
National Food Institute, Division of Nutrition

Media contribution (1)

Kostfibre
11/08/2014
BT, Print
Dorthe B. Kristensen
Inge Tetens
National Food Institute, Division of Nutrition
Press / Media

Afsmitning af kemiske stoffer fra madpapir, herunder flu-orstoffe
Xenia Trier
11/08/2014

Subject
Afsmitning af kemiske stoffer fra madpapir, herunder flu-orstoffe
National Food Institute, Division of Food Chemistry

Media contribution (1)

Afsmitning af kemiske stoffer fra madpapir, herunder flu-orstoffe
11/08/2014
TV2 Go’aften Danmark, Print
Iben Kjerside
Xenia Trier
National Food Institute, Division of Food Chemistry
Press / Media

Berigelse af fødevarer med vitaminer/mineraler og den sundhedsmæssig baggrund for dette.
Pia Knuthsen
08/08/2014

Subject
Berigelse af fødevarer med vitaminer/mineraler og den sundhedsmæssig baggrund for dette.
National Food Institute, Division of Food Chemistry

Media contribution (1)

Berigelse af fødevarer med vitaminer/mineraler og den sundhedsmæssig baggrund for dette.
08/08/2014
DR, Print
Bjarke Christensen
Pia Knuthsen
National Food Institute, Division of Food Chemistry
Press / Media

Danskernes måltidsvaner
Sisse Fagt
07/08/2014

Subject
Danskernes måltidsvaner
National Food Institute, Division of Nutrition

Media contribution (1)
Danskernes måltidsvaner
07/08/2014
Kristeligt dagblad, Print
Else Marie Nygaard
Sisse Fagt
National Food Institute, Division of Nutrition
Press / Media

Campylobacter – omkostninger for samfundet.
Hanne Rosenquist
07/08/2014

Subject
Campylobacter – omkostninger for samfundet.
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Campylobacter – omkostninger for samfundet.
07/08/2014
FødevareWatch, Print
Niclas ...
Hanne Rosenquist
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Campylobacter – om handlingsplanen og overvågnings-tal.
Hanne Rosenquist
07/08/2014

Subject
Campylobacter – om handlingsplanen og overvågnings-tal.
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Campylobacter – om handlingsplanen og overvågnings-tal.
07/08/2014
Ekstrabladet, Print
Kristian Kornø
Hanne Rosenquist
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Berigelse
Inge Tetens
07/08/2014

Subject
Berigelse
National Food Institute, Division of Nutrition

Media contribution (1)

Berigelse
07/08/2014
DR1, Print
Morten Frandsen
Inge Tetens
National Food Institute, Division of Nutrition
Press / Media
Mikrobølgeovne, mad, sikkerhed, sundhed
Morten Poulsen
06/08/2014

Subject
Mikrobølgeovne, mad, sikkerhed, sundhed

Som svar på en bekymret læsers spørgsmål – en slags brevkasse
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Mikrobølgeovne, mad, sikkerhed, sundhed
06/08/2014
videnskab.dk, Web
Anne Ringgaard
Morten Poulsen
National Food Institute, Division of Toxicology and Risk Assessment

Campylobacter
Hanne Rosenquist
05/08/2014

Subject
Campylobacterhandlingsplanen – om den har haft effekt.
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Campylobacter
05/08/2014
FødevareWatch, Print
Niclas ...
Hanne Rosenquist
National Food Institute, Division of Epidemiology and Microbial Genomics

Danskernes kaffeindtag
Vibeke Kildegaard Knudsen
31/07/2014

Subject
Danskernes kaffeindtag
National Food Institute, Division of Nutrition

Media contribution (1)

Danskernes kaffeindtag
31/07/2014
DR Midt og Vest, Television
Peter Stephansen
Vibeke Kildegaard Knudsen
National Food Institute, Division of Nutrition

Research i forbindelse med temaaften kaldet "Mit kemi-ske liv".
Jens Højslev Petersen
30/07/2014

Subject
Research i forbindelse med temaaften kaldet "Mit kemi-ske liv".
National Food Institute, Division of Food Chemistry

Media contribution (1)
Research i forbindelse med temaaften kaldet "Mit kemi-ske liv".
30/07/2014
DR2-temalørdag, Television
Eva Nitschke
Jens Højslev Petersen
National Food Institute, Division of Food Chemistry
Press / Media

Uønskede stoffer i maden generelt. Både pesticider og forureninger
Annette Petersen
29/07/2014

Subject
Uønskede stoffer i maden generelt. Både pesticider og forureninger
National Food Institute, Division of Food Chemistry

Media contribution (1)

Uønskede stoffer i maden generelt. Både pesticider og forureninger
29/07/2014
CPH Meida/DR2, Television
Eva Nitschke
Annette Petersen
National Food Institute, Division of Food Chemistry
Press / Media

Danskernes kødforbrug
Sisse Fagt
28/07/2014

Subject
Danskernes kødforbrug
National Food Institute, Division of Nutrition

Media contribution (1)

Danskernes kødforbrug
28/07/2014
Go’ Aften Danmark, Television
Stig Nissen
Sisse Fagt
National Food Institute, Division of Nutrition
Press / Media

Danskernes forbrug af sodavand
Gitte Gross
27/07/2014

Subject
Danskernes forbrug af sodavand
National Food Institute, Division of Nutrition

Media contribution (1)

Danskernes forbrug af sodavand
27/07/2014
Politiken, Print
Henrik Kaufholz
Gitte Gross
National Food Institute, Division of Nutrition
Press / Media
Danskernes forbrug af sodavand
Gitte Gross
27/07/2014

Subject
Danskernes forbrug af sodavand
Presse om øget indtag af sodavand – muligvis som følge af afgiftssænkning
National Food Institute, Division of Nutrition

Media contribution (1)

Danskernes forbrug af sodavand
27/07/2014
DR, TV-avisen, Television
Ole Carlo Petersen
Gitte Gross
National Food Institute, Division of Nutrition
Press / Media

Prøveprogram med henblik på at kunne markedsføre dansk svinekød som MRSA frit
Birgitte Borck Høg
25/07/2014

Subject
Prøveprogram med henblik på at kunne markedsføre dansk svinekød som MRSA frit
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Prøveprogram med henblik på at kunne markedsføre dansk svinekød som MRSA frit
25/07/2014
Ingeniøren, Print
Helle Maigaard Erhardsen
Birgitte Borck Høg
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Pesticidrester/rangordning
Jens Hinge Andersen
23/07/2014

Subject
Pesticidrester/rangordning
National Food Institute, Division of Food Chemistry

Media contribution (1)

Pesticidrester/rangordning
23/07/2014
Esktrabladet, Print
Peter Jeppesen
Jens Hinge Andersen
National Food Institute, Division of Food Chemistry
Press / Media

Pesticidrester; rangordning af frugt og grøntsager
Jens Hinge Andersen
21/07/2014

Subject
Pesticidrester; rangordning af frugt og grøntsager
National Food Institute, Division of Food Chemistry

Media contribution (1)
Ifølge Fødevareminister Dan Jørgensen skal danskerne udsættes for en måltidsrevolution for at spise sundere. Detailhandlen skal desuden ikke booste usunde fødevarer ved at placere dem de gode steder.

National Food Institute, Division of Nutrition

Media contribution (1)

Dan Jørgensens madrevolution
Sisse Fagt
10/07/2014

Subject
Ifølge Fødevareminister Dan Jørgensen skal danskerne udsættes for en måltidsrevolution for at spise sundere. National Food Institute, Division of Nutrition
Ifølge Fødevareminister Dan Jørgensen skal danskerne udsættes for en måltidsrevolution for at spise sundere.

National Food Institute, Division of Nutrition

Subject

Acrylamid

National Food Institute, Division of Food Chemistry

Subject

Dan Jørgensens madrevolution

National Food Institute, Division of Nutrition

Subject

Acrylamid

National Food Institute, Division of Food Chemistry

Subject

Radio 24-7, Radio

National Food Institute, Division of Nutrition

Subject
Politiken - madrevolution
Sisse Fagt
07/07/2014

Subject
Dan Jørgensens "madrevolution"
National Food Institute, Division of Nutrition

Media contribution (1)

Politiken - madrevolution
07/07/2014
Print
Sisse Fagt
National Food Institute, Division of Nutrition

MRSA
Heidi Kornholt
07/07/2014

Subject
Research – opfølgning på skriv fra Yvonne Agersø og Frank Møller Aarestrup om MRSA forløb
National Food Institute, Communications and Management Secretariat

Media contribution (1)

MRSA
07/07/2014
TV2 News, Television
Thomas Funding
Heidi Kornholt
National Food Institute, Communications and Management Secretariat

Tang
Susan Løvstad Holdt
06/07/2014

Subject
Dansk tang til Kina
National Food Institute, Division of Industrial Food Research

Media contribution (1)

Tang
06/07/2014
Furesø Avis, internettet, Web
Stig Tolderlund
Susan Løvstad Holdt
National Food Institute, Division of Industrial Food Research

Acrylamid
Kit Granby
04/07/2014

Subject
Udtalt mig om EFSA draft opinion på akrylamid, Over-vågning har ikke vist reduktion i fødevarer, der findes ,uligheder for at reducere, men kun indikative værdier , ikke grænseværdier hvorfor industrien i visse tilfælde har reduceret, men der ikke er noget fald generelt i Europa.
National Food Institute, Division of Food Chemistry
Media contribution (1)

Acrylamid
04/07/2014
Radioavisen, Radio
Sofie Rønne
Kit Granby
National Food Institute, Division of Food Chemistry
Press / Media

Parabener i kosmetik
Ulla Hass
04/07/2014
Subject
Parabener i kosmetik, hvorfor er der uenighed om risikoen?
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Parabener i kosmetik
04/07/2014
Magasinet Sundhed, Print
Christina Alfthan
Ulla Hass
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

MRSA
Frank Møller Aarestrup
27/06/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

MRSA
27/06/2014
Ingeniøren, Print
Helle Erhardsen
Frank Møller Aarestrup
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

MRSA
Yvonne Agersø
27/06/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

MRSA
27/06/2014
TV2, Web
Thomas Funding Therkildsen
Yvonne Agersø
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

MRSA
Yvonne Agersø
27/06/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)
MRSA
27/06/2014
TV Syd, Television
Morten Brøcker
Yvonne Agersø
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Danskernes indtag af kødpålæg
Sisse Fagt
27/06/2014
National Food Institute, Division of Nutrition

Media contribution (1)

Danskernes indtag af kødpålæg
27/06/2014
TÆNK, Print
Maria Stove
Sisse Fagt
National Food Institute, Division of Nutrition
Press / Media

Forbrugerrådet - kødpålæg
Sisse Fagt
27/06/2014

Subject
Danskernes indtag af kødpålæg
National Food Institute, Division of Nutrition

Media contribution (1)

Forbrugerrådet - kødpålæg
27/06/2014
Forbrugerrådet: TÆNK, Print
Maria Stove
Sisse Fagt
National Food Institute, Division of Nutrition
Press / Media

Diabetes
Agnes N. Pedersen
25/06/2014
National Food Institute, Division of Nutrition

Media contribution (1)

Diabetes
25/06/2014
Berlingske Tidende, Print
Tina Birkkjær Nikolajsen
Agnes N. Pedersen
National Food Institute, Division of Nutrition
Press / Media

Stringente regler for anvendelsen af nitrit
Pelle Thonning Olesen
24/06/2014
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Stringente regler for anvendelsen af nitrit
Danish battle against salmonella in chicken: No infections for 3rd year
Birgitte Helwigh
24/06/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Danish battle against salmonella in chicken: No infections for 3rd year
24/06/2014
Oregonlive.com, Print
Lynne Terry
http://www.oregonlive.com/health/index.ssf/2014/03/contaminated_chicken_illnesses.html#comments
Birgitte Helwigh
National Food Institute, Division of Epidemiology and Microbial Genomics

Nitrit, nitrosaminer.
Pelle Thonning Olesen
24/06/2014
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Nitrit, nitrosaminer.
24/06/2014
TÆNK, Print
Maria Stove
Pelle Thonning Olesen
National Food Institute, Division of Toxicology and Risk Assessment

Salmonella, rejserelatede human cases
Birgitte Helwigh
23/06/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Salmonella, rejserelatede human cases
23/06/2014
DR P4, Radio
Birgitte Helwigh
National Food Institute, Division of Epidemiology and Microbial Genomics

Salmonella
Birgitte Helwigh
23/06/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Salmonella
23/06/2014
DR P4, Radio
Birgitte Helwigh
Salmonella, broilers, rejserelatede human cases
Birgitte Helwigh
19/06/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Salmonella, broilers, rejserelatede human cases
19/06/2014
Berlingske Nyhedsbureau, Print
Birgitte Helwigh
National Food Institute, Division of Epidemiology and Microbial Genomics

Indhold i Annual report on Zoonoses 2014
Birgitte Helwigh
19/06/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Indhold i Annual report on Zoonoses 2014
19/06/2014
Reuters, Print
Birgitte Helwigh
National Food Institute, Division of Epidemiology and Microbial Genomics

Salmonella
Birgitte Helwigh
19/06/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Salmonella
19/06/2014
Berlingske Tidende, Print
Birgitte Helwigh
National Food Institute, Division of Epidemiology and Microbial Genomics

Annual report on Zoonoses 2014
Birgitte Helwigh
18/06/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Annual report on Zoonoses 2014
18/06/2014
Reuters, Web
Birgitte Helwigh
National Food Institute, Division of Epidemiology and Microbial Genomics

Energidrikke
Marta Axelstad Petersen
17/06/2014
National Food Institute, Division of Toxicology and Risk Assessment
Media contribution (1)

**Energidrikke**
17/06/2014
TV2.dk, Web
Christian Sejer Rasmussen
Marta Axelstad Petersen
National Food Institute, Division of Toxicology and Risk Assessment

Press / Media

**Energidrikke**
Marta Axelstad Petersen
17/06/2014
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

**Energidrikke**
17/06/2014
B.T., Print
Marta Axelstad Petersen
National Food Institute, Division of Toxicology and Risk Assessment

Press / Media

**Energidrikke**
Marta Axelstad Petersen
17/06/2014
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

**Energidrikke**
17/06/2014
Berlingske Tidende, Print
Marta Axelstad Petersen
National Food Institute, Division of Toxicology and Risk Assessment

Press / Media

**Energidrikke**
Marta Axelstad Petersen
17/06/2014
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

**Energidrikke**
17/06/2014
Radio 24/7, Radio
Rasmus Pedersen
Marta Axelstad Petersen
National Food Institute, Division of Toxicology and Risk Assessment

Press / Media

**Energidrikke**
Marta Axelstad Petersen
17/06/2014
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

**Energidrikke**
17/06/2014
TV2.dk, Web
Christian Sejer Rasmussen
Energidrikke
Jeppe Matthiessen
13/06/2014
National Food Institute, Division of Nutrition

Media contribution (1)

Energidrikke
13/06/2014
Jyllands-Posten, Print
Morten Zahle
Jeppe Matthiessen
National Food Institute, Division of Nutrition
Press / Media

Tilsætningsstoffer til fødevarer
Torben Hallas-Møller
11/06/2014
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Koffein
Marta Axelstad Petersen
11/06/2014
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)
Tilsætningsstoffer til fødevarer
Torben Hallas-Møller
11/06/2014
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Tilsætningsstoffer til fødevarer
11/06/2014
Go’ Aften Danmark, Television
Mette Kadziola
Torben Hallas-Møller
National Food Institute, Division of Toxicology and Risk Assessment

Press / Media

Koffein
Marta Axelstad Petersen
11/06/2014
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Koffein
11/06/2014
Kristeligt Dagblad, Print
Jannie Iwankow Sægård
Marta Axelstad Petersen
National Food Institute, Division of Toxicology and Risk Assessment

Press / Media

MRSA
Yvonne Agersø
03/06/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

MRSA
03/06/2014
DR TV-Avisen, Television
Lotte Thor
Yvonne Agersø
National Food Institute, Division of Epidemiology and Microbial Genomics

Press / Media

MRSA
Yvonne Agersø
03/06/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

MRSA
03/06/2014
Ingeniøren, Print
Helle Erhardsen
Yvonne Agersø
National Food Institute, Division of Epidemiology and Microbial Genomics

Press / Media

MRSA
Yvonne Agersø
03/06/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

**Media contribution (1)**

**MRSA**
03/06/2014
DR1, Print
Lotte Thor
Yvonne Agersø
National Food Institute, Division of Epidemiology and Microbial Genomics

**Media contribution (1)**

**MRSA**
Yvonne Agersø
03/06/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

**Media contribution (1)**

**MRSA**
03/06/2014
Ingeniøren, Print
Helle Erhardsen
Yvonne Agersø
National Food Institute, Division of Epidemiology and Microbial Genomics

**Media contribution (1)**

**MRSA**
Frank Møller Aarestrup
02/06/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

**Media contribution (1)**

**MRSA**
02/06/2014
Politiken, Print
Lars Igum Rasmussen
Frank Møller Aarestrup
National Food Institute, Division of Epidemiology and Microbial Genomics

**Media contribution (1)**

**Kostrådene**
Agnes N. Pedersen
02/06/2014
National Food Institute, Division of Nutrition

**Media contribution (1)**

**Kostrådene**
02/06/2014
Politiken, Print
Lars Dahlager
Agnes N. Pedersen
National Food Institute, Division of Nutrition

**Media contribution (1)**

**Myndighederne dækker over fortidens usunde kostråd**
Agnes N. Pedersen
02/06/2014
National Food Institute, Division of Nutrition

**Media contribution (1)**
Myndighederne dækker over fortidens usunde kostråd
02/06/2014
Politiken.dk, Print
Lars Dahlager
Agnes N. Pedersen
National Food Institute, Division of Nutrition
Press / Media

MRSA
Frank Møller Aarestrup
02/06/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

MRSA
02/06/2014
Politiken, Print
Lars Igum Rasmussen
Frank Møller Aarestrup
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Energidrikke
Marta Axelstad Petersen
30/05/2014
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Energidrikke
30/05/2014
DR "Ultra Nyt", Television
Amalie Højgaard
Marta Axelstad Petersen
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Danskernes fuldkornsindtag
Sisse Fagt
27/05/2014
National Food Institute, Division of Nutrition

Media contribution (1)

Danskernes fuldkornsindtag
27/05/2014
DR, Television
Myter om mælk
Heidi Kornholt
23/05/2014
National Food Institute, Communications and Management Secretariat

Media contribution (1)

Kviksølv/methylkviksølv
Max Hansen
21/05/2014
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Probiotika, prebiotika og mælkesyrebakterier
Egon Bech Hansen
19/05/2014
Department of Systems Biology, National Food Institute, Division of Food Microbiology

Media contribution (1)

Æg
Jens Kirk Andersen
17/05/2014
National Food Institute, Division of Food Microbiology

Media contribution (1)

Danskere vil sælge tang i Kina
Susan Levstad Holdt
14/05/2014
National Food Institute, Division of Industrial Food Research

Media contribution (1)

Danskere vil sælge tang i Kina
14/05/2014
Politiken, Print
Kim Rathcke Jensen
Susan Lvstad Holdt
National Food Institute, Division of Industrial Food Research
Press / Media

Danskernes forbrug af kosttilskud
Vibeke Kildegaard Knudsen
14/05/2014
National Food Institute, Division of Nutrition

Media contribution (1)

Development of mucosal delivery system of therapeutic proteins for colorectal cancer using lactic acid bacteria
Peter Ruhdal Jensen
13/05/2014
National Food Institute, Division of Industrial Food Research, Systems Biotechnology

Media contribution (1)

Sundhedsrisiko ved indtag af methylkviksølv
Max Hansen
13/05/2014
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Pressekontakt - Mikrobiel production af protein
Peter Ruhdal Jensen
13/05/2014
National Food Institute, Division of Industrial Food Research, Systems Biotechnology

Media contribution (1)
Pressekontakt - Mikrobiel production af protein
13/05/2014
Ingeniøren, Web
Henrik Bendix
Peter Ruudal Jensen
Systems Biotechnology, National Food Institute, Division of Industrial Food Research
Press / Media

Fødevaresikkerhed
Helle Bisgaard Korsgaard
08/05/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Fødevaresikkerhed
08/05/2014
DR1, Television
Helle Bisgaard Korsgaard
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Energidrik
Jeppe Matthiessen
08/05/2014
National Food Institute, Division of Nutrition

Media contribution (1)

Energidrik
08/05/2014
TÆNK, Print
Mette Schmidt
Jeppe Matthiessen
National Food Institute, Division of Nutrition
Press / Media

EU-regler for fødevarer
Miriam Meister
08/05/2014
National Food Institute, Communications and Management Secretariat

Media contribution (1)

EU-regler for fødevarer
08/05/2014
DR Ultra, Television
Amalie Højgaard
Miriam Meister
National Food Institute, Communications and Management Secretariat
Press / Media

Energidrik
Marta Axelstad Petersen
08/05/2014
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Energidrik
08/05/2014
TÆNK, Print
Mette Schmidt
Marta Axelstad Petersen  
National Food Institute, Division of Toxicology and Risk Assessment  
Press / Media  

**Hormonforstyrrende stoffer og kombinationseffekter**  
Ulla Hass  
07/05/2014  
National Food Institute, Division of Toxicology and Risk Assessment  

**Media contribution (1)**

**Hormonforstyrrende stoffer og kombinationseffekter**  
07/05/2014  
D2, Print  
Kristiane Larssen  
Ulla Hass  
National Food Institute, Division of Toxicology and Risk Assessment  
Press / Media  

**MRSA og dødsfald**  
Frank Møller Aarestrup  
07/05/2014  
National Food Institute, Division of Epidemiology and Microbial Genomics  

**Media contribution (1)**

**MRSA og dødsfald**  
07/05/2014  
DR, Print  
Frank Møller Aarestrup  
National Food Institute, Division of Epidemiology and Microbial Genomics  
Press / Media  

**Farvestoffer i maden og overfølsomhed**  
Charlotte Bernhard Madsen  
07/05/2014  
National Food Institute, Division of Toxicology and Risk Assessment  

**Media contribution (1)**

**Farvestoffer i maden og overfølsomhed**  
07/05/2014  
DR Syd, Radio  
Kasper Gram  
Charlotte Bernhard Madsen  
National Food Institute, Division of Toxicology and Risk Assessment  
Press / Media  

**MRSA og dødsfald**  
Frank Møller Aarestrup  
07/05/2014  
National Food Institute, Division of Epidemiology and Microbial Genomics  

**Media contribution (1)**

**MRSA og dødsfald**  
07/05/2014  
Ingeniøren, Print  
Frank Møller Aarestrup  
National Food Institute, Division of Epidemiology and Microbial Genomics  
Press / Media
3R centerets arbejde indtil nu og udviklingen i antal af forsøgsdyr
Christine Nellemann
02/05/2014
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

3R centerets arbejde indtil nu og udviklingen i antal af forsøgsdyr
02/05/2014
DR P1, Radio
Rene Nielsen
Christine Nellemann
National Food Institute, Division of Toxicology and Risk Assessment

Pesticidrester i fødevarer
Bodil Hamborg Jensen
28/04/2014
National Food Institute, Division of Food Chemistry

Media contribution (1)

Pesticidrester i fødevarer
28/04/2014
Ingeniøren, Print
Helle Erhardsen
Bodil Hamborg Jensen
National Food Institute, Division of Food Chemistry

Havets uudnyttede ressourcer
Henrik Jarlbæk
25/04/2014
National Food Institute, Communications and Management Secretariat

Media contribution (1)

Havets uudnyttede ressourcer
25/04/2014
DR Kultur, Television
Anne Kjær
Henrik Jarlbæk
National Food Institute, Communications and Management Secretariat

Atropin i kartofler og grønne tomater
Kirsten Pilegaard
25/04/2014
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Atropin i kartofler og grønne tomater
25/04/2014
Ingeniøren, Print
Kirsten Pilegaard
National Food Institute, Division of Toxicology and Risk Assessment

Når reglerne for emballage pakkes ud: Spørgsmål & Svar artikel
Jens Højslev Petersen
22/04/2014
National Food Institute, Division of Food Chemistry
Media contribution (1)

Når reglerne for emballage pakkes ud: Spørgsmål & Svar artikel
22/04/2014
Jyllands-Posten, Print
Lasse Skytt
Jens Højslev Petersen
National Food Institute, Division of Food Chemistry
Press / Media

PAH'er
Pelle Thonning Olesen
14/04/2014
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

PAH'er
14/04/2014
Politiken, Print
Søren Dilling
Pelle Thonning Olesen
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Risk benefit of food
Maarten Nauta
11/04/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Risk benefit of food
11/04/2014
Berlingske Tidende, Print
Marianne Fajstrup
Maarten Nauta
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Anbefalingerne for tilsat sukker
Jeppe Matthiessen
10/04/2014
National Food Institute, Division of Nutrition

Media contribution (1)

Anbefalingerne for tilsat sukker
10/04/2014
Alt for Damerne, Print
Jo Brand
Jeppe Matthiessen
National Food Institute, Division of Nutrition
Press / Media

Varedeklaration for sukker
Jeppe Matthiessen
10/04/2014
National Food Institute, Division of Nutrition

Media contribution (1)

Varedeklaration for sukker
10/04/2014
Alt for Damerne, Print
Jo Brand
Jeppe Matthiessen
National Food Institute, Division of Nutrition
Press / Media

BPA analog studie
Anna Kjerstine Rosenmai
10/04/2014
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

BPA analog studie
10/04/2014
FoodQualityNews.com, Web
Joseph James Whitworth
Anna Kjerstine Rosenmai
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Danskernes forbrug af kød
Sisse Fagt
09/04/2014
National Food Institute, Division of Nutrition

Media contribution (1)

Danskernes forbrug af kød
09/04/2014
Information, Print
Kim Kristensen
Sisse Fagt
National Food Institute, Division of Nutrition
Press / Media

Tangdyrkning opskalering i Danmark
Susan Løvstad Holdt
09/04/2014
National Food Institute, Division of Industrial Food Research

Media contribution (1)

Tangdyrkning opskalering i Danmark
09/04/2014
DR Vejret, Television
Rasmus Kjølby
Susan Løvstad Holdt
National Food Institute, Division of Industrial Food Research
Press / Media

Test af emballager
Jens Højslev Petersen
08/04/2014
National Food Institute, Division of Food Chemistry

Media contribution (1)

Test af emballager
08/04/2014
Madmagasinet, Print
Martin Torpe
Jens Højslev Petersen
Salmonella i fjerkræ
Birgitte Helwigh
06/04/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Salmonella i fjerkræ
06/04/2014
TV2.dk, Web
Jane Munk
Birgitte Helwigh
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Forsøgsdyrs betydning for videnskaben
Christine Nellemann
03/04/2014
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Forsøgsdyrs betydning for videnskaben
03/04/2014
Politiken, Print
Morten Garly Andersen
Christine Nellemann
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Fødevaresikkerhed
Hanne Rosenquist
03/04/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Fødevaresikkerhed
03/04/2014
Berlingske Tidende, Print
Hanne Lykke
Hanne Rosenquist
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Phthalater i vin
Ulla Hass
03/04/2014

Subject
Phthalater i vin
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Phthalater i vin
03/04/2014
Ingeniøren, Print
Tine Heinricy
Ulla Hass
National Food Institute, Division of Toxicology and Risk Assessment
Plukning af vilde planter
Christine Nellemann
02/04/2014
National Food Institute, Division of Toxicology and Risk Assessment

Media contribution (1)

Plukning af vilde planter
02/04/2014
Web
Johanne Kuznizoff
Christine Nellemann
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Vild med tang
Susan Løvstad Holdt
28/03/2014
Division of Industrial Food Research

Media contribution (1)

Vild med tang
28/03/2014
Søndagsavisen, Print
Christina Kabel
Susan Løvstad Holdt
Division of Industrial Food Research
Press / Media

Christina Kabel
Susan Løvstad Holdt
28/03/2014
Division of Industrial Food Research

Media contribution (1)

Christina Kabel
28/03/2014
Sjællandske, Print
Christina Kabel
Susan Løvstad Holdt
Division of Industrial Food Research
Press / Media

Bakterier fra babylort i spegepølser
Tine Rask Licht
27/03/2014
National Food Institute, Division of Food Microbiology

Media contribution (1)

Bakterier fra babylort i spegepølser
27/03/2014
Videnskab.dk, Web
Thomas Hoffman
http://videnskab.dk/krop-sundhed/bakterier-fra-babylort-gor-spegepolsen-sundere
Tine Rask Licht
National Food Institute, Division of Food Microbiology
Press / Media
Grundlag for kostrådet om fedt
Inge Tetens
26/03/2014
National Food Institute, Division of Nutrition

Media contribution (1)

Viden.dk, Web
Bo Christensen
Inge Tetens
National Food Institute, Division of Nutrition

Press / Media

Danskernes forbrug af fisk, specielt laks
Sisse Fagt
26/03/2014
National Food Institute, Division of Nutrition

Media contribution (1)

DR3 "Sladrehanken", Television
Mette Søndergaard
Sisse Fagt
National Food Institute, Division of Nutrition

Press / Media

Optagelser af laboratorie-check af migration fra fødevareemballager
Jens Højslev Petersen
25/03/2014
National Food Institute, Division of Food Chemistry

Media contribution (1)

DR "Frisk og Bitz", Television
Christian Bitz og Martin Torpe
Jens Højslev Petersen
National Food Institute, Division of Food Chemistry

Press / Media

Contaminated chicken: Illnesses surge, Denmark attacks salmonella in program that proves a success
Birgitte Helwigh
24/03/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

The Oregonian, Print
Terry Lynne
http://www.oregonlive.com/health/index.ssf/2014/03/contaminated_chicken_illnesses.html#comments
Birgitte Helwigh
National Food Institute, Division of Epidemiology and Microbial Genomics

Press / Media
Contaminated chicken: Timeline of Denmark's crackdown on salmonella
Birgitte Helwigh
21/03/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Contaminated chicken: Illnesses surge, Denmark attacks salmonella in program that proves a success
Birgitte Helwigh
21/03/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Contaminated chicken: What can the USDA learn from Denmark about eliminating salmonella? Lynne Terry investigates
Birgitte Helwigh
21/03/2014
National Food Institute, Division of Epidemiology and Microbial Genomics
Contaminated chicken: USDA says difficult to replicate Denmark and eliminate salmonella in poultry
Birgitte Helwigh
21/03/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Contaminated chicken: USDA says difficult to replicate Denmark and eliminate salmonella in poultry
21/03/2014
OrigonLive.com, Print
Terry Lynne
http://www.oregonlive.com/health/index.ssf/2014/03/contaminated_chicken_illnesses.html#comments
Birgitte Helwigh
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Danskernes rugbrødsvaner
Sisse Fagt
21/03/2014
National Food Institute, Division of Nutrition

Media contribution (1)

Danskernes rugbrødsvaner
21/03/2014
TV2 "Go' aften Danmark", Television
Stig Nissen
Sisse Fagt
National Food Institute, Division of Nutrition
Press / Media

Contaminated chicken: Denmark sees costs, benefits trying to eradicate salmonella
Birgitte Helwigh
20/03/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Contaminated chicken: Denmark sees costs, benefits trying to eradicate salmonella
20/03/2014
orionlive.com, Print
Terry Lynne
http://www.oregonlive.com/health/index.ssf/2014/03/contaminated_chicken_illnesses.html#comments
Birgitte Helwigh
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Laboratorie-check af migration fra fødevareemballager
Jens Højslev Petersen
20/03/2014
National Food Institute, Division of Food Chemistry

Media contribution (1)

Laboratorie-check af migration fra fødevareemballager
20/03/2014
DR1, Television
Martin Torpe
Jens Højslev Petersen
National Food Institute, Division of Food Chemistry
Press / Media
Contaminated chicken: How Denmark solved its salmonella problem
Birgitte Helwigh
19/03/2014
National Food Institute, Division of Epidemiology and Microbial Genomics

Media contribution (1)

Contaminated chicken: How Denmark solved its salmonella problem
19/03/2014
OrigonLive.com, Print
Terry Lynne
http://www.oregonlive.com/health/index.ssf/2014/03/contaminated_chicken_illnesses.html#comments
Birgitte Helwigh
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Social ulighed i overvægt blandt børn
Jeppe Matthiessen
18/03/2014
National Food Institute, Division of Nutrition

Media contribution (1)

Social ulighed i overvægt blandt børn
18/03/2014
Berlingske Nyhedsbureau, Print
Katrine Bloch
Jeppe Matthiessen
National Food Institute, Division of Nutrition
Press / Media

Social ulighed i overvægt blandt børn
Jeppe Matthiessen
18/03/2014
National Food Institute, Division of Nutrition

Media contribution (1)

Social ulighed i overvægt blandt børn
18/03/2014
Jyllands-Posten, Print
Kistine Dons
Jeppe Matthiessen
National Food Institute, Division of Nutrition
Press / Media

Social ulighed i overvægt blandt børn
Jeppe Matthiessen
18/03/2014
National Food Institute, Division of Nutrition

Media contribution (1)

Social ulighed i overvægt blandt børn
18/03/2014
Netavisen.dk, Web
Josefine Fagt
Jeppe Matthiessen
National Food Institute, Division of Nutrition
Press / Media

Social ulighed i overvægt blandt børn
Jeppe Matthiessen
Social ulighed i overvægt blandt børn
18/03/2014
Radio 24/7, Radio
Sissel Hasbjerg
Jeppe Matthiessen
National Food Institute, Division of Nutrition
Press / Media

Contaminated chicken: After illnesses soar, Denmark attacks salmonella at its source
Birgitte Helwigh
18/03/2014
National Food Institute, Division of Epidemiology and Microbial Genomics
Press / Media

Birkesaft
Kirsten Pilegaard
17/03/2014
National Food Institute, Division of Toxicology and Risk Assessment
Press / Media

Undersøgelse af folks viden om kostråd
Sisse Fagt
16/03/2014
National Food Institute, Division of Nutrition
Press / Media