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
Contributors: Yesiltas, B., Sørensen, A. M., García Moreno, P. J., Anankanbil, S., Guo, Z., Jacobsen, C.
Pages: 290-299
Publication date: 30 Jul 2018
Peer-reviewed: Yes

Publication information
Journal: Food Chemistry
Volume: 255
ISSN (Print): 0308-8146
Ratings:
  BFI (2018): BFI-level 2
  Web of Science (2018): Indexed yes
  BFI (2017): BFI-level 2
  Scopus rating (2017): CiteScore 5.19 SJR 1.793 SNIP 2.109
  Web of Science (2017): Impact factor 4.946
  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): Impact factor 4.529
  Web of Science (2016): Indexed yes
  BFI (2015): BFI-level 2
  Scopus rating (2015): CiteScore 4.31 SJR 1.582 SNIP 1.946
  Web of Science (2015): Impact factor 4.052
  Web of Science (2015): Indexed yes
  BFI (2014): BFI-level 2
  Scopus rating (2014): CiteScore 3.92 SJR 1.557 SNIP 2.01
  Web of Science (2014): Impact factor 3.391
  Web of Science (2014): Indexed yes
  BFI (2013): BFI-level 2
  Scopus rating (2013): CiteScore 3.87 SJR 1.554 SNIP 2.056
  Web of Science (2013): Impact factor 3.259
  ISI indexed (2013): ISI indexed yes
  Web of Science (2013): Indexed yes
  BFI (2012): BFI-level 2
  Scopus rating (2012): CiteScore 3.98 SJR 1.762 SNIP 2.342
  Web of Science (2012): Impact factor 3.334
  ISI indexed (2012): ISI indexed yes
  Web of Science (2012): Indexed yes
  BFI (2011): BFI-level 2
  Scopus rating (2011): CiteScore 4.17 SJR 1.911 SNIP 2.383
  Web of Science (2011): Impact factor 3.655