



## Quality changes in krill and krill products during their manufacturing process the effect of temperature

Lu, Henna Fung Sieng; Jacobsen, Charlotte; Bruheim, Inge

*Publication date:*  
2014

*Document Version*  
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

*Citation (APA):*  
Lu, H. F. S., Jacobsen, C., & Bruheim, I. (2014). *Quality changes in krill and krill products during their manufacturing process: the effect of temperature*. Abstract from 105th AOCS Annual Meeting, San Antonio, TX, United States.

---

### General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

## **Quality changes in krill products during their manufacturing process: the effect of temperature**

Henna Lu Fung Sieng (fshl@food.dtu.dk)<sup>1</sup>, Charlotte Jacobsen (chja@food.dtu.dk)<sup>1</sup> & Inge Bruheim (Inge.Bruheim@olympic.no)<sup>2</sup>,

<sup>1</sup>Division of Industrial Food Research, Lipids and Oxidation Group, National Food Institute, Technical University of Denmark, Søtofts Plads, Building 221, 2800 Kgs, Lyngby, Denmark

<sup>2</sup>Olympic Seafood AS, P.O. Box 234, N-6099 Fosnavaag, Norway

The main objective of this study is to a) investigate the effect of temperature towards the non-enzymatic browning reactions and lipid oxidation in krill products sampled at different stages during their manufacturing process. In order to further investigate this, a simple model system comprising amino acids (leucine, isoleucine, valine, methionine and lysine) was prepared with addition of lipid (saturated and  $\alpha$ ,  $\beta$ -unsaturated aldehydes) or non-enzymatic (Strecker aldehydes and pyrazine) derived volatiles. Therefore, the secondary objective is to investigate if the occurrence of non-enzymatic browning reactions in krill products was due to the presence of carbonyl compounds degraded from lipid oxidation, and if the presence of a high level of non-enzymatic products would affect the formation of pyrroles. Characterisation of krill products sampled at different stages was made by determining the lipid composition, antioxidant content and volatile profile. Non-enzymatic browning development in model system was investigated through the measurement of volatile, pyrroles, free amino acid content and browning development (YI). The use of thermal treatment could cause the development of non-enzymatic browning reactions and lipid oxidation in krill products during their manufacturing process. The occurrence of these reactions could be observed in krill meal and this was ascribed to the presence of carbonyl compounds derived lipid oxidation products. The presence of a high level of non-enzymatic degradation products in krill products could enhance the pyrrolisation.