

Accepted Manuscript

Physical and Oxidative Stability of Fish Oil-In-Water Emulsions Stabilized with Fish Protein Hydrolysates

Pedro J. García-Moreno, Antonio Guadix, Emilia M. Guadix, Charlotte Jacobsen

PII: S0308-8146(16)30235-7

DOI: <http://dx.doi.org/10.1016/j.foodchem.2016.02.073>

Reference: FOCH 18793

To appear in: *Food Chemistry*

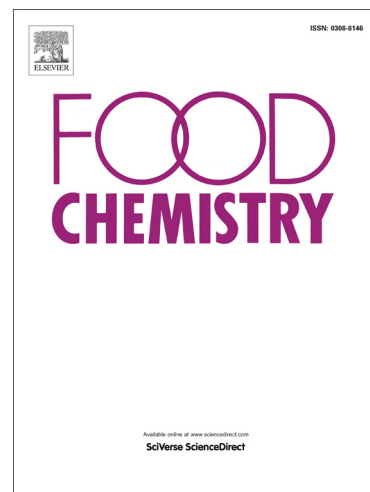
Received Date: 5 October 2015

Revised Date: 18 January 2016

Accepted Date: 9 February 2016

Please cite this article as: García-Moreno, P.J., Guadix, A., Guadix, E.M., Jacobsen, C., Physical and Oxidative Stability of Fish Oil-In-Water Emulsions Stabilized with Fish Protein Hydrolysates, *Food Chemistry* (2016), doi: <http://dx.doi.org/10.1016/j.foodchem.2016.02.073>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



PHYSICAL AND OXIDATIVE STABILITY OF FISH OIL-IN-WATER EMULSIONS STABILIZED WITH FISH PROTEIN HYDROLYSATES

Pedro J. García-Moreno^{1,2*}, Antonio Guadix¹, Emilia M. Guadix¹, Charlotte Jacobsen²

¹Department of Chemical Engineering, University of Granada, 18071 Granada, Spain

²Division of Food Technology, National Food Institute, Technical University of Denmark, 2800 Kgs. Lyngby, Denmark

ABSTRACT

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 (*S. pilchardus*) and small-spotted catshark (*S. canicula*) were hydrolysed 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.

Keywords: omega-3, fish protein hydrolysates, oil-in-water emulsions, physical stability, oxidative stability

* Corresponding author. Tel: +34958241329; Fax: +34958248992 E-mail: pjgarcia@ugr.es

Download English Version:

<https://daneshyari.com/en/article/7588922>

Download Persian Version:

<https://daneshyari.com/article/7588922>

[Daneshyari.com](https://daneshyari.com)