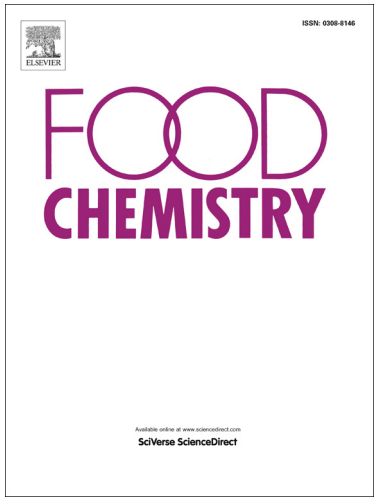

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PHYSICAL AND OXIDATIVE STABILITY OF FISH OIL-IN-WATER EMULSIONS STABILIZED WITH FISH PROTEIN HYDROLYSATES

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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

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