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Antioxidant Activity of Fish Protein Hydrolysates in in vitro Assays and in Oil-in-Water Emulsions.

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Antioxidant activity of fish protein hydrolysates in *in vitro* assays and in oil-in-water emulsions.

The aim of this study was to screen different protein hydrolysates with respect to their antioxidative properties in order to select the most promising extracts for further evaluation in oil-in-water emulsions. Three fractions of protein hydrolysates (Crude, >5kDa and <5kDa) from cod and plaice were screened for antioxidant activity by using four *in vitro* assays *viz.* 2,2-diphenyl-1-picrylhydrazyl radical scavenging activity, reducing power, ferrous iron-chelating and inhibition of lipid oxidation in liposome model system. Cod protein hydrolysates exhibited significantly higher antioxidative effect in various antioxidant assays and were selected for further study. The lower fraction <5kDa was further fractionated by using a 3kDa cut-off membrane to get two fractions 3-5kDa and <3kDa. Thus, four fractions of cod protein hydrolysates (Crude, >5kDa, 3-5kDa and <3kDa) were further screened by using the above mentioned antioxidant assays. Interestingly, it was found that the fraction <3kDa showed very good reducing power, Fe²⁺ chelating activity and DPPH radical scavenging activity. Moreover, the 3-5kDa fraction was very effective in retarding lipid oxidation in liposome model system. These two fractions were therefore selected for further evaluation in 5% fish oil in water emulsions.