

CP053

PROTEINS AND PEPTIDES EXTRACTION FROM FISH BY-PRODUCTS

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With the rise in awareness of the association between diet and health, there has been an increase in the research focused on the identification of natural bioactive compounds (such as proteins/peptides) that may exhibit some beneficial health effect and consequently be used as functional ingredients [2]. Byproducts represent a sustainable, environmentally-friendly and relatively low cost source of bioactive ingredients. Fishery bioactive peptides, given their structures and amino acid composition, have been shown to display a wide range of biological functions including antioxidant, antimicrobial, opioid agonistic, prebiotic, mineral binding, anti-thrombotic or hypocholesterolemic effects [1, 3]. As such, fishery byproducts may represent an interesting source of biologically relevant peptides to be used in food formulations or cosmetic/pharmaceutical products. Considering the arguments above, the present work aimed to characterize the composition of two fishery by products, Sardine cooking water (from the canning industry) and cod blood (from the cod salting industry) and produce and characterize potentially bioactive peptide fractions from. It aimed to obtain fractions enriched in peptides with a molecular weight cut-off (MWCO) between 2.5 and 50kDa from cod blood and fractions enriched in peptides with a molecular weight cut-off (MWCO) of 2.5 and 1 kDa from sardine cooking wastewater. Fast protein liquid chromatography (FPLC) characterization completed with the definition of the most interesting fractions to be targeted for functional properties aiming at their great potentials for nutraceutical, medical, and food applications. Results provided the baseline data that they are good sources in antioxidant and have a great potential for food and/or cosmetics.

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References

- [1] Kim, S.; Mendis, E. **(2006)**. Bioactive compounds from marine processing byproducts – A review. *Food Research International*, 39, 383–393.
- [2] Ryan, J. T.; Ross, R. P.; Bolton, D.; Fitzgerald, G. F.; Stanton, C. **(2011)**. Bioactive peptides from muscle sources: Meat and fish, review. *Nutrients*, 3, 765–791
- [3] Rajanbabu, V.; Chen, J.Y. **(2011)**. *Fish and Shellfish Immunology*, 30, 39–44.