

Skin and bone collagen hydrolysates from European hake (*Merluccius merluccius*): potential cosmetic ingredient

Blanco, M., García-López, M., Perez Testa M., Perez-Martin R.I., and Sotelo, C.

In order to promote sustainable fishing practices within European fishing fleets and to avoid the large waste of valuable fish biomass through the practice of fish discarding, the new reform of the Common Fisheries Policy includes the obligation of landing all species under TAC's regulation. The new policy also prohibits the use of specimens under *Minimum Conservation Reference Size* for direct human consumption. In this context it is necessary to find new uses for undersized fish, which might contribute to alleviate the costs that implies the landing obligation but without prompting the creation of a market. European hake (EH)(*Merluccius merluccius*) which is one of the most important commercial fish species for the Spanish fishing industry, with a total TAC for 2018 of 37.423 t, was used for this study. Consistent with the current policy framework and taking into account the importance of this species, the aim of this work was to study the production of collagen hydrolysates with different molecular weight, from the skin and bones (18 % yield) of undersized hake specimens, with the final objective of incorporate them as an active ingredient into different cosmetic preparations. To achieve this objective an experimental design including two different enzymes (Alcalase and Papain), different enzyme/protein ratios and different times of hydrolysis was developed. The analytical characterization of each hydrolysate included: degree of hydrolysis, gel permeation chromatography and SDS-PAGE profiles. The results obtained were compared to commercial hydrolyzed collagen. Preliminary experimental results show a lower molecular weight distribution of EH collagen hydrolysates compared to commercial preparations. Antioxidant capacity of EH and commercial hydrolysates and the effect on the collagen synthesis using human dermal fibroblast will be assessed. The application of the mineral fraction left after collagen extraction will be also evaluated.