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MULTIFACTORIAL STUDY FOR THE PRODUCTION OF BIOACTIVE COLLAGEN HYDROLYSATES FROM BLUE SHARK SKIN.

Agricultural, Marine and Food Biotechnology

PO - (678) - MULTIFACTORIAL STUDY FOR THE PRODUCTION OF BIOACTIVE COLLAGEN HYDROLYSATES FROM BLUE SHARK SKIN.

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Body

Portugal is the third country in the world with the highest fish consumption, with an average of 59 kg per capita per year¹. This results in the production of a considerable amount of fish waste, of which up to 30% can be skin and bones. It is well known that fish skin has more than 70% of its total protein content in the form of collagen². This structural protein is present in the extracellular matrices of animals and has wide applications in the food, cosmetic, biomedical, and pharmaceutical industries³. For decades, the main commercial sources of collagen and its derivatives (gelatin and hydrolyzed collagen) have been bovine and porcine. However, due to religious beliefs and some infectious diseases, other sources of collagen are debated. In this regard, the use of marine-based collagen is considered very attractive by the industry as the main alternative source. Blue shark skin represents a potential source of this protein. This is a by-product rich in collagen, abundant in the processing industry in Portugal. Thus, the objective of the present study was to evaluate the plant protease bromelain at 0.5% (w/w) potential to obtain bioactive hydrolysates from blue shark skin. In this study, a sustainable process⁴ was used to obtain low molecular weight hydrolysates with antioxidant activity (ORAC, 665.8 μmol Trolox Equivalent/mg protein) and ACE inhibitory activity (IC_{50} , 314.9 μg protein/mL) at 1 h of hydrolysis. Therefore, it was possible to obtain an ingredient (collagen hydrolyzate) currently required by industries such as cosmetics and nutraceuticals, with antioxidant and antihypertensive potential. In relation to what already exists in the market, it was possible to apply a sustainable process that consumes less time and uses an alternative and abundant raw material.

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Palavras-chave : Blue Shark skin, enzymatic hydrolysis, collagen, fishery by-products, bioactive peptides, bromelain, antioxidant, antihypertensive