

Determination of Antioxidant and Metal Chelating Activities of Water Extracted *Lepidocybium flavobrunneum* Muscle Protein Hydrolysates

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Lepidocybium flavobrunneum is a marine fatty fish also known as Escolar fish. Due to laxative effect and histamine poisoning many countries reject its consumption as a food leading to wastage of the fishery resources. The objective of the study was to determine the antioxidant and metal chelation activities of Fish Protein Hydrolysates produced from water extracted crude proteins of *L. flavobrunneum* muscles. In this study Escolar fish muscle was separated from skin and mixed with water according to 1:1, 1:2, 1:3, 1:4 ratios and they were observed under 10% SDS-PAGE gel. Crude extraction was lyophilized and hydrolyzed using Pepsin, Protease and Trypsin enzymes (1:100) under 37 °C at optimum pH conditions for 0, 3, 6, 9, 12 and 24 hours followed by heat inactivation at 100 °C for 15 minutes. Samples were examined for antioxidant activities by TBARS assay, DPPH scavenging assay, and metal chelation activity by Fe (II) chelating activity method, followed by statistical analysis of results. Since there was no any significant different between yields ($p>0.05$), 1:1 ratio was selected as the best extraction method. 3 hours was selected as the time of hydrolysis, for all enzyme treatments by observing 15% SDS-PAGE gel images. According to results obtained from both TBARS assay and DPPH scavenging assay did not show any significance difference ($p>0.05$). Infact all hydrolysates showed oxidative activities while Fe (II) chelating was high in hydrolysates produced from Trypsin enzyme ($37.45\pm 3.33\%$) compared to rest ($p>0.05$). Accordingly, the study concluded that hydrolysates produced from incubating with Trypsin for 03 hours followed with heat inactivation has better metal chelating activities compared to other hydrolyzing treatments.

Keywords: Escolar fish, Bioactive compounds, Extraction, Hydrolysates