

Abstract

In the present study, optimization of hydrolyzed protein extraction conditions of Salmon (*Salmo salar*) filleting waste with antioxidant properties produced by trypsin using Full Factorial model was investigated. Hydrolyzed Protein produced under three different variables, time in two levels (1 and 2 hour), amount of enzyme in three levels (0.5%, 1% and 2%) and temperature in two levels (37 and 55 °C). Degree of hydrolysis, nitrogen recovery and DPPH radical scavenging activity were measured for all treatments and Fe²⁺ chelating activity and reducing power for three top treatments. Also, the effect of hydrolysis conditions on degree of hydrolysis, nitrogen recovery and DPPH radical scavenging activity was studied. Protein, lipid, moisture and Ash content were 83.63±0.03%, 0.6±0.01%, 5.8±0.1% and 5.3±0.2% respectively for optimal treatment, which had significant difference with salmon waste (p<0.05). Maximum degree of hydrolysis, nitrogen recovery, DPPH free radical scavenging, metal chelating activity and reducing power were obtained 81.78±0.48, 96.48±1.48, 93.99±4.56, 12.8±0.6 and 0.42 respectively for the hydrolyzed proteins. Ratio of essential amino acids to total amino acids and the ratio of essential amino acids to non-essential amino acids were 51/52% and 1/10 respectively for optimal hydrolyzed protein. The results indicated that enzymatic hydrolysis of salmon wastes generated peptides with antioxidant properties which optimal antioxidant properties was obtained in the concentration of enzyme 2%, temperature 55 °C and time 1 hour and could be used as food additives after clinical approve.

Keywords: Trypsin, Hydrolyzed protein, Salmon, Free radical



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