

## **Physicochemical Characteristics and Antioxidant Activity in the Protein Hydrolysate of Common Dolphinfish (*Coryphaena hippurus*) Roe**

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**Abstract :** Byproducts of the fisheries industry can be a source of nutritional and functional food ingredients, such as fish roe, which contains a high protein content and some important amino acids. This study aimed to explore the functional characteristics, amino acid profile, and antioxidant activity of the protein hydrolysate from the roe of the common dolphinfish (*Coryphaena hippurus*). The roe was prepared and hydrolyzed using a crude papain extract (CPE) and pure papain enzyme (PPE). Analysis of the chemical characteristics of the hydrolysate showed that PPE had a higher protein content and degree of hydrolysis than CPE (63.82% vs. 50.76%), but PPE had a lower fat content than CPE (0.26% vs. 0.71%). Based on the amino acid profile, the percentage of glutamate was lower in PPE than in CPE (8.39% vs. 10.335%). Analysis of the physical characteristics showed that the water absorption, fat absorption, and froth potency of CPE (1.35 mL/g, 2.50 mL/g, and 42%, respectively) were higher than for PPE (1.17 mL/g, 2.24 mL/g, and 39.50%, respectively), but the emulsion capacity of PPE was lower than that of CPE (39.50% vs 42.00%). The antioxidant activity (IC<sub>50</sub>) of CPE was lower than that of PPE (0.059 mg/mL vs. 0.204 mg/mL). The chemical characteristics of the hydrolysate showed that PPE had a higher protein content and hydrolysis degree than CPE, but PPE had a lower fat content than CPE.

**Keywords :** antioxidant activity, enzymatic, protein hydrolysate.

**Johanna L. Thenu *et al*** /International Journal of ChemTech Research, 2016,9(12): 622-629.

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