

## **Enzymatic Hydrolysis of Protein Hydrolysate from Pangasius sp. by-Product using Bromelain**

### **ABSTRACT**

Fish protein hydrolysate (FPH) is a product resulting from the degradation of fish protein into simple peptides and amino acids through hydrolysis. This study aims to optimise the enzymatic hydrolysis conditions of Pangasius sp. by-products to produce high-quality fish protein hydrolysate. Bromelain enzyme was used as the catalyst for hydrolysis. The degree of hydrolysis (DH), pH and antioxidant activity of FPH were used as response parameters. The optimisation was done using response surface methodology (RSM) by applying two factors (enzyme concentration and incubation time) with a 3-level Central Composite Design (CCD) model. The result showed that the bromelain concentration and incubation time gave significantly different effects ( $p < 0.05$ ) on the response parameters of Pangasius protein hydrolysate. Hydrolysis of Pangasius protein with 0.04% bromelain enzyme and incubation time of 2.8 hours resulted in DH, pH and DPPH antioxidant activity of 35.88%, 7.07 and 29.86%, respectively. The response value of Pangasius protein hydrolysate was within the range of the predicted value of hydrolysate. Therefore, the optimum conditions suggested by RSM can be used in the future production of Pangasius FPH. In addition, amino acid profiles of Pangasius protein hydrolysate showed high concentrations of Glycine, L-glutamic acid and L-aspartic Acid.