

## **Optimization of enzymatic hydrolysis of tilapia (*Oreochromis Spp.*) scale gelatine**

### **ABSTRACT**

Gelatine hydrolysate is a type of gelatine that undergoes a controlled hydrolysis treatment to further break apart the gelatine or collagen molecules. In this study, gelatine hydrolysate was produced from commercial tilapia scale gelatine via controlled enzymatic hydrolysis. Commercial Alcalase 2.4 L, a protease enzyme was used to breakdown the peptide chains present in the gelatine. Optimization of hydrolysis conditions (temperature, time and enzyme to substrate ratio) was conducted by utilizing response surface methodology (RSM). Results showed that a hydrolysis temperature of 57.6 C together with a hydrolysis time of 80 min and enzyme to substrate ratio of 1.20 % (v/w) were the optimum conditions to obtain the highest degree of hydrolysis (10.91 %). The freeze-dried gelatine hydrolysate was characterized with respect to chemical composition: approximate composition, viscosity and molecular weight. The gelatine hydrolysate produced contained a high content of protein (85.26 %); thus, it may serve as a potential protein source for human needs.

**Keyword:** Gelatine hydrolysate; Enzymatic hydrolysis; Optimization; RSM