

Effect of Thermal Pretreatment on Functional Properties of Chicken Protein Hydrolysate

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Abstract : Chicken products are major export product of Thailand. With a dramatically increasing consumption of chicken product in the world, there are abundant wastes from chicken meat processing industry. Recently, much research in the development of value-added products from chicken meat industry has focused on the production of protein hydrolysate, utilized as food ingredients for human diet and animal feed. The present study aimed to determine the effect of thermal pre-treatment on functional properties of chicken protein hydrolysate. Chicken breasts were heated at 40, 60, 80 and 100°C prior to hydrolysis by Alcalase at 60°C, pH 8 for 4 hr. The hydrolysate was freeze-dried, and subsequently used for assessment of its functional properties molecular weight by gel electrophoresis (SDS-PAGE). The obtained results show that increasing the pre-treatment temperature increased oil holding capacity and emulsion stability while decreasing antioxidant activity and water holding capacity. The SDS-PAGE analysis showed the evidence of protein aggregation in the hydrolysate treated at the higher pre-treatment temperature. These results suggest the connection between molecular weight of the hydrolysate and its functional properties.

Keywords : chicken protein hydrolysate, enzymatic hydrolysis, thermal pretreatment, functional properties

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