Nilubol Lao-an 2013: Production of Striped Catfish (*Pangasianodon hypophthalmus*) Protein Hydrolysate Powder for Enhance the Nutritional Value of Nutrition Bar. Master of Science (Fishery Products), Major Field: Fishery Products, Department of Fishery Products. Thesis Advisor: Associate Professor Wanchai Worawattanamateekul, Ph.D. 118 pages.

The purpose of this research is to study the production of protein hydrolysate powder from Striped Catfish (*Pangasianodon hypophthalmus*) for supplements to nutrition bar. Commercially protease including Fla., Alc. and combination of both enzymes were used at the concentrations of 0.5, 1 and 2 percentage by the weight of the protein from defatted Striped Catfish mince and take time to digest 60, 120 and 180 minutes. The produced hydrolysates were analyzed the degree of hydrolysis (DH) and then selected the high level of DH samples to evaluate with quantitative descriptive analysis (QDA). The treatment, which was accepted from the panels, was select for further producing protein hydrolysate and then made as powder with freeze drying.

The study showed that increasing enzyme concentrations and digestion time affect the degree of DH. At the hydrolysis conditions, which were at 2 percent concentrations for 180 minutes, the protein hydrolysate digested with enzymes Fla., Alc. and combination of both enzymes giving the highest DH of 43.82, 45.69 and 49.97 respectively. The sensory evaluation showed that protein hydrolysate digested with Fla. contributing to less bitter taste than those of Alc. and combination of both enzymes ($p < 0.05$). The protein hydrolysate digested with Fla. was chosen to produce a protein hydrolysate powder. The product acquired contains 71.95% protein, 0.91% lipid and 2.56 % moisture content. The protein hydrolysate powder contained high amounts of essential amino acids such as glutamic acid, aspartic acid, cysteine and glycine.The protein hydrolysate powder also features an antioxidant when examined by DPPH radical-scavenging activity and metal-chelating activity. The quality and nutrition value for protein hydrolysate powder made from Striped Catfish (*Pangasianodon hypophthalmus*) as well as nutrition bar, made from cereal supplemented with 5% protein hydrolysate powder were evaluated. The supplemented nutrition bar contained 23.26% protein, 13% fat, 5.96% moisture 3.30 % ash and 63.63% carbohydrate. The shelf life study under condition of accelerated aging at 35°C and 45 °C were 21 and 14 days, respectively. The quality of nutrition bar was comply with Thai Community Product Standard (TCPS. 709/2547) with the microbiological examination of bacteria less than $1x10^3$ CFU/g, yeast and mold were not detected in storage conditions. The production cost for nutrition bar was 8.63 baht per 30 gram bar.

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