

UTILIZATION OF TUNA PROCESSING BY-PRODUCT FOR PRODUCTION OF PROTEIN HYDROLYSATE AND FISH OIL

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ABSTRACT

The hydrolysis of bigeye tuna head from tuna processing industry for production of protein hydrolysate and fish oil was studied. The hydrolysis process was carried out using 0.5% Protamex at 50°C, natural pH for 4 hours with a water/material ratio of 1:1. The products obtained from enzymatic hydrolysis of tuna head were protein hydrolysate powder, insoluble protein powder and fish oil. Nitrogen and oil recovery, chemical composition of protein hydrolysate powder and insoluble protein powder, and fatty acid composition of fish oil obtained from hydrolysis of tuna head were determined. The results showed that after 4 hours of hydrolysis, the nitrogen and oil recoveries were 77.8% and 61.3% respectively. The protein hydrolysate powder had protein content of 81.5%, lipid content of 1.7% and ash content of 8.1%. The insoluble protein powder had lower protein content and higher lipid content, compared to the protein hydrolysate powder. The fish oil obtained from bigeye tuna head was rich in omega-3 fatty acids, especially docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA). The fatty acids with high contents in the tuna head oil were palmitic acid, oleic acid and docosahexaenoic acid (DHA).

Key words: *Enzymatic hydrolysis, fish oil, protein hydrolysate, tuna head*

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