

# # C226194 : MAJOR FOOD TECHNOLOGY

KEY WORD : PROTEIN HYDROLYSATE / FOOD FLAVOR

ARPATHSRA SUKCHAROENSAKKUL: PRODUCTION OF PROTEIN HYDROLYSATE FROM TUNA-  
PRECOOKING WATER FOR FOOD FLAVOR. THESIS ADVISOR: ASSOC. PROF. PANTIPA  
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Factors affecting hydrolysis of tuna-precooking water were studied by varying quantity of Neutrase® (0.5 unit/g) which was diluted to 1:9 (v/v) at 0.5, 1.0, 1.5, 2.0, 2.5 % (v/v) and temperature at 45, 50, 55 and 60 °C. Effects of pH and reaction time were studied at the pH: 5.5, 6.5, 7.5 and the time: 10 and 20 min. The best quality hydrolysates were obtained when using 1.0 % Neutrase<sup>R</sup> for skipjack-precooking water, 1.5 % Neutrase<sup>R</sup> for mixed-tuna-precooking water, at pH 6.5, 55 °C for 10 min. The DH values for both products were 48.93 % and 53.49 % , respectively.

Appropriate conditions for acid hydrolysis were studied by varying quantity of 6 M.HCl at 5, 10, 15, 20 and 25 % (v/v), temperature at 50 and 60 °C, and hydrolysing time at 1, 2, 3, 4, 5 and 6 hrs. The best quality hydrolyastes were obtained when using 15 % 6 M.HCl at 60 °C for 3 hrs. The resulting DH values for the skipjack and mixed-tuna-hydrolysates were 32.50 % and 38.53 % respectively.

Improvement of the hydrolysates odor was carried out by varying activated carbon quantity at 0.01 and 0.02 % (w/v) and the reaction time of 30 and 60 min. The best quality for the enzyme hydrolysate product was obtained from mixed-tuna-precooking water previously treated with 0.02 % activated carbon at 50 °C for 30 min. The best quality acid hydrolysate was from mixed-tuna-precooking water treated with 0.01 % activated carbon at 50 °C for 30 min.

Evaporation of water from the hydrolysates to 65 °Brix was carried out in vacuum rotary evaporator at 50 and 60 °C. The appropriate temperature was 60 °C.

Quality of the enzyme and acid concentrates as food flavor in imitated tuna-sandwich was compared with commercially produced product; Skipjack Extract®. At the most appropriate quantity for each product, flavor score of imitated tuna-sandwich with enzyme hydrolysate was comparable to that with Skipjack Extract® and samples formulated with both products were better than that formulated with the acid hydrolysate.