

## **ACCELERATED METHOD OF FERMENTED TUNA SAUCE PREPARATION**

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Waste materials of tuna processing can be converted to foods for human consumption. One of the options is fermented fish sauce. Traditional method of fish sauce preparation takes more than 12 months and sauce contains more than 25% salt. Hence this study was conducted to accelerate the production process by using pineapple and papaya juices while improving the eating quality by reducing salt to 20% and adding spices.

Fish sauce was prepared by mixing minced flesh, salt and juice of pineapple or papaya at 55°C. Effect of different concentrations of pineapple and papaya (20%, 25% and 30%) on proteolysis by measuring total nitrogen content in the filtrate by using Micro-Kjeldahl method (AOAC, 1995), effect of de-boning and mincing on proteolysis by measuring total nitrogen content in the filtrate by using Micro-Kjeldahl method, effect of fermentation period on proteolysis by measuring total nitrogen content, total soluble solids (TSS), pH, degree of brown color at  $A_{420nm}$ , moisture % and total liquid yield % in the filtrate (AOAC, 1995) at 4 days interval for 32 days period were studied. The data were analyzed using ANOVA procedures in SAS followed by DNMR. Effects of the best spice-mixture on organoleptic qualities (color, aroma, taste, saltiness and overall acceptability) of fish sauce (0%, 1.5%, 3.5%, 6.5% (w/w) spiced sauces and 2 commercial fish sauces) were evaluated by using a sensory panel. Data were analyzed using Friedman test in MINITAB. Shelf life of the final product was evaluated by measuring pH, Total Plate Count (TPC) and rancidity (AOAC, 1995) over 4 weeks of storage period and material cost of production for one liter of fish sauce was assessed.

Mean total nitrogen content in the filtrate was high in mixtures having pineapple juice than papaya juice. Mean total nitrogen content in the filtrate of mixtures having 25% and 30% pineapple juice were not significantly different ( $p>0.05$ ). Mean total nitrogen content in the filtrate of mixtures having de-boned minced flesh and non de-boned non-minced flesh were not significantly different ( $p>0.05$ ). There was no effect of de-boning and mincing on proteolysis. After 20 days, total nitrogen content in the filtrate increased from 3.09 g/l to 14.1 g/l after that the increase was not significant. ( $p>0.05$ ). Total nitrogen content of commercial sauce ranged from 2.7 – 14.5 g N/l. In the sensory analysis, control sauce obtained higher medians for color and overall acceptability. Panelists preferred light color fish sauce than dark color. 3.5% spiced sauce obtained higher medians for aroma and taste. During 4 weeks of storage period pH reduced from 5.3 to 5.2, TPC increased from  $2.5 \times 10^3$  cfu/ ml to  $4.15 \times 10^3$  cfu/ ml, and TBA value remained at 0.31 mg of melonaldehyde/kg. Those were same in commercial fish sauce. Material cost of production for one liter of fermented Tuna sauce was fifty rupees.