

**DEVELOPMENT OF SMOKED FISH PATTY
USING INDUSTRIAL TUNA OFFCUTS**

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by

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ABSTRACT

Tuna is a good source of animal protein and production of value-added products is important. Tuna offcuts are good source to produce new products. Objective of this study was to develop a smoked fish patty using industrial yellowfin tuna (*Thunnus albacares*) offcuts. Bread crumbs, ice flakes, vegetable fat and spices were used to make the patty. To determine the best ratios several sensory analyses were conducted using 30 untrained panellists using 7-point hedonic scale. Proximate analysis was conducted for moisture, ash, crude protein and crude fat content in both raw tuna and final product. As the wood material citronella and cinnamon and combination (1:1) was used. Based on the sensory analysis fish patty was finalized with 73% (w/w) tuna, 4% (w/w) vegetable fat, 10% (w/w) bread crumbs and ice flakes and 3% salt and other spices. Final product was smoked with the 03 combustion materials and accordingly appearance, aroma and overall acceptability was better in combination of wood ($p < 0.05$). Moisture and crude protein in tuna was $78.85 \pm 0.66\%$ and $21.06 \pm 0.86\%$ respectively while $58.12 \pm 1.68\%$ and $18.39 \pm 0.5\%$ respectively in the final fish patty. Lipid ($2.51 \pm 0.44\%$) and ash ($1.08 \pm 0.09\%$) contents in fish mince were lower than smoked fish patty. *Salmonella* and *E. coli* were negative in all smoked patties ($n=3$). Total plate count, pH, lipid oxidation, texture analysis was done for 49 days of storage. During the storage period pH values did not change significantly ($p > 0.05$). Lipid oxidation low in combination sample. “L” “a” and “b” values were varied during the storage and cinnamon showed the lowest values compared to others. Gumminess, chewiness and hardness reduce with the storage up to day 14 and then increase. Accordingly, fish patty made with 73% (w/w) tuna off cuts, smoked with cinnamon: citronella 1:1 ratio can be considered as the best.

Key words: Tuna off cuts; Cinnamon; Citronella; Keeping quality