

**DEVELOPMENT OF A READY TO EAT CANNED
FISH USING UNDERUTILIZED FISH WITH
DIFFERENT FILLING MATERIALS**

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ABSTRACT

Fishes are one of the most important nutrient sources for humans. Nowadays the demand for ready to eat food is increasing. Present study was to develop a ready to eat canned fish by using underutilized fish. Two fish species, Frigate tuna and Rainbow runner were used and preliminary trials were conducted to find out the best spices level (chili powder, pepper, coriander, garlic, turmeric, cinnamon, ginger, brindle berry cream, cardamom, curry leaves, pandan leaves) and filling solutions (tomato sauce, soy sauce, soybean oil and water) followed by sterilization at 121 °C for different times (50, 65, 70, 75 minutes) using 30 untrained panelists. Colour, texture, aroma, juiciness, mouth feel, overall taste and overall acceptance tested were analyzed by using the 9 point hedonic scale. Best combination of species and filling solutions were subjected for keeping quality analysis by checking pH, lipid oxidation (TBARS and DPPH) and microbial count (TPC, *E. coli* and *Salmonella*). According to the sensory data, soy sauce and tomato sauce were selected as the best filling solutions for Frigate tuna and Rainbow runner ($p < 0.05$). Rainbow runner was better in all sensory attributes in tomato sauce and soy sauce compared to the rest ($p < 0.05$). Sterilization for 65 minutes at 121 °C was selected as the best sterilization condition in comparing organoleptic properties ($p < 0.05$). Canned fish produced by Rainbow runner with tomato sauce and soy sauce were selected for keeping quality analysis. Final products were free from *E. coli* and *Salmonella*. pH of the soy sauce and tomato sauce range from 5.65 ± 0.19 to 5.75 ± 0.01 and 5.59 ± 0.10 to 5.64 ± 0.11 respectively during storage. Lipid oxidation and TPC were within the acceptable levels during the storage period for 30 days at room temperature. Proximate analysis confirmed that the product is rich in protein. As the conclusion, Rainbow runner fish can be used as one of the best underutilized fish species to produce ready to eat canned products.

Keywords: Keeping quality, Proximate analysis, Frigate tuna, Rainbow runner