

Improving the Acceptability of Canned Mackerel Tuna (*Euthynnus affinis*)

White and light meat tuna, namely, *Thunnus albacares* (yellow fin), *Thunnus alalunga*, *Thunnus thynnus* (blue fin), *Thunnus tonggol* (northern blue fin), *Katsuwonus pelamis* (oceanic skipjack) are commonly used for canning. Black meat or dark meat varieties such as *Auxis thazard* (frigate mackerel) and *Euthynnus affinis* (mackerel tuna) are considered unsuitable for canning because of the dark colour of meat, unpleasant flavour and poor yield. Majority of tuna landings in India is contributed by *Euthynnus affinis* which, being the dark meat variety is not in demand for fresh consumption nor is used for processing.

Canned tuna is very much in demand in all the overseas markets. A variety of canned fish products including white and light meat tuna canned with vegetables and spices to improve the flavour and appearance are popular in several countries. It has been noted that if a better flavour and appearance to be imparted, even black meat varieties of tuna can find acceptance in India and abroad. This will ensure economic utilization of the hitherto underutilised black meat tuna resources and will also help in the diversification of the seafood canning industry necessary for making use of the idle capacity. The method of improving the colour and flavour of canned mackerel tuna and the modification in the canning process adopted are reported in this communication.

Tuna caught in gill nets were kept in ice until used for canning. Dry red chilly (*Capsicum annum*) was used to impart colour and flavour to the canned product. An easy and cheap process was employed to extract the colour of red chilly. After removing seeds and stalk the dry chilly was powdered well and gently warmed after suspending in vegetable oil used as canning medium and then decanted. This was

continued until most of the colour was extracted and the combined oil extracts were filtered through fine cloth to remove solid particles and the concentrate thus prepared was suitably diluted with fresh oil.

The method of canning adopted was essentially that of Madhavan & Balachandran (1971) with slight modification. It was found difficult to maintain the drip water in oil at not more than 5% (v/v), unless extreme care is taken in draining the brine from the pieces after dipping. Therefore instead of dipping in the brine, 2% salt was added to the meat in can. Processed cans were kept at room temperature for a sufficient length of time to permit equitable distribution of salt and flavour. Simultaneously cans were prepared from the same lot of tuna processed under identical conditions with plain oil as the filling medium.

On opening the can, with the contents in tact, it was found that tuna packed in spiced oil had a better appearance as the brownish colour of the fish meat was masked by the pigments of chilly, whereas in the other pack the brownish colour of the meat was visible through the oil. However, the meat did not absorb any colour from the oil and on draining the oil, the meat had similar colour in either cases. Taste, flavour and odour were better in the meat packed in spiced oil.

Both products were stored at room temperature for a period of one year and examined periodically for the quality as well as the soundness of the can interior. It was observed after 12 months that the contents and can interior remained intact without any perceptible sign of deterioration. Neither the pigments nor the essential oils in chilly did affect the can lacquer in any way. The storage period increased the absorption of

the spicy flavour by the meat and this improved the taste and flavour considerably. After one year, fish packed in spiced oil showed marked improvement in flavour and taste over the one packed in plain oil. By this time the meat had taken up a slight pungency from the essential oils of chilly

and this resulted in improving the taste to a very great extent.

Reference

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