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RESEARCH PAPER

Shelf-life of surimi prepared from Tilapia (*Oreochromis niloticus*) during frozen storage

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ABSTRACT

In the present investigation, an attempt has been made to prepare surimi from Tilapia (*Oreochronis niloticus*) and to study its shelf-life during frozen storage. The fresh materials were divided into three groups. One group of whole fish after thorough cleaning was taken as control sample. The second group *i.e.* minced meat was prepared and subjected to water washing using chilled water (5^0C). This was done in order to remove blood, pigments, fat etc. and subsequently dewatered by gently squeezing in a muslin cloth bringing down the moisture content to about 80%. The sample was packed in low density polyethylene (LDPE) bags. The third group *i.e.* after dewatering, the meat was mixed with 4% sorbitol and 0.3% sodium tripolyphosphate in a bowl chopper for 5 minutes maintaining temperature of 10-12^0C and the sample was packed in bags as in case of 2nd sample. All the three samples were frozen at -35^0C and stored in a cold storage maintained at a temperature of -18^0C. The present investigation indicates that the production and frozen storage of Tilapia surimi offers a potential means of processing fresh water fish. Addition of suitable cryoprotectants can improve the stability of Tilapia mince significantly.

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Key words : Tilapia fish, *Oreochromis niloticus,* Fish mince, Cryoprotectants, Frozen storage.

The technology of minced fish meat has got worldwide attention in the recent past and has made a major contribution to the increased utilisation of underutilised fishes (Lanier and Lee, 1992; Shindo *et al.*, 2000). A variety of fish products have been prepared using minced meat as the basic material from several species which have little or no commercial value due to low meat and high bone content, darker appearance and unpleasant smell (Burges,1975; Baily,1976). With improved standard of living, demand for 'convenience' products is likely to increase in developing countries like India and also have a good export potential. Surimi is one such product, which is gaining rapid popularity due to its simple production procedure and wide versatility. There has been a huge expansion of Tilapia production over the last 10 years and equivalent increase is predicted for the next 10 years. As the capture fisheries are declining worldwide, culture fishery has to cater for the shortfall and Tilapia is regarded as the only 'global product' that can effectively fill this niche. In the present investigation, an attempt has been made to prepare surimi from Tilapia (*Oreochronis niloticus*) and to study its shelf-life during frozen storage.

MATERIALS AND METHODS

Live Tilapia caught from a culture pond was processed within 3 hours of harvesting and the processing was carried out under hygienic condition and maintaining low temperature. The fresh materials were divided into three groups. One group of whole fish after thorough cleaning was taken as control sample. The second group *i.e.* minced meat was prepared and subjected to water washing following the method described by Suzuki (1981) using chilled water (5^0C). This was done in order to remove blood, pigments, fat etc. and subsequently dewatered by gently squeezing in a muslin cloth bringing down the moisture content to about 80%. The sample was packed in low density polyethylene (LDPE) bags. The third group *i.e.* after dewatering, the meat was mixed with 4% sorbitol and 0.3% sodium tripolyphosphate in a bowl chopper for 5 minutes maintaining temperature of 10-12^0C and the sample was packed in bags as in case of 2nd sample. All the three samples were frozen at -35^0C and stored in a cold storage maintained at a temperature of -18^0C.

Total length and average weight of 100 fish selected at random were measured. The yield of picked meat was calculated based on the whole fish and dressed fish separately. Moisture, crude protein, crude fat and total ash were measured by the method of AOAC (1995). The TVB-N, an index of spoilage was determined by the