

Value Added Chilled or Frozen Fish

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The modern food habits along with the fast life have created an enormous demand for ready to make food products, especially in urban areas. Value addition can be defined as an additional activity that changes the nature and form of the fish and help realizing a better price at the point of sale. Value can be added to fish and fish products according to the requirements of consumers. Improved market forms are one kind of value addition to fish and shell fish, through which the consumers can reduce the time required for further preparation of the product. A brief detail on value added chilled and frozen fish styles are given below.

Improved market forms-chilled/frozen fish

Chilling is an effective method for maintaining the freshness of fishery products. This normally involves keeping fish in melting ice or slurry ice to maintain the fish temperature around 1-4°C. Different types of chilled fish products are available in the markets.

Dressed and gutted fish

The purpose of gutting is to remove the viscera, gonads and sometimes the swim bladder. Hygienically gutted fish fetches higher price in the retail as well as export markets. Extreme care has to be taken while gutting to avoid bruises or cut in the fish flesh. This procedure is performed on a table made of special

material which is hard, easy to wash and does not absorb fluids. Yield of gutted fish ranges from 75-80%. Dressed and washed fish can be distributed in consumer packs in ice. Vacuum packaging and active packaging further improve the shelf life of the products.

Fish steaks

Steak is a section of fish removed by cutting approximately at right angles to the back bone of fish. Slicing of beheaded whole fish into steaks of 2.5-3.5 cm with a cut perpendicular to the animal's backbone is a very common fish processing method. The high technological efficiency of this processing technique compared to filleting makes it popular in retail markets as well as in the canning industry. Larger fish, particularly cyprinids, which have a massive and more solid backbone, need slicing mechanically. Most of the mechanical slicer utilize multiple rotating circular saws attached to the drive. The distance between the saws as well as the elements moving the fish along the line can be adjusted. A mechanized cutter can process 20-40 fishes/minute, depending on the fish size. The steaks are packed in consumer packets and kept in chilled condition. The shelf life of steaks can be improved by vacuum packaging, modified atmosphere and active packaging techniques.

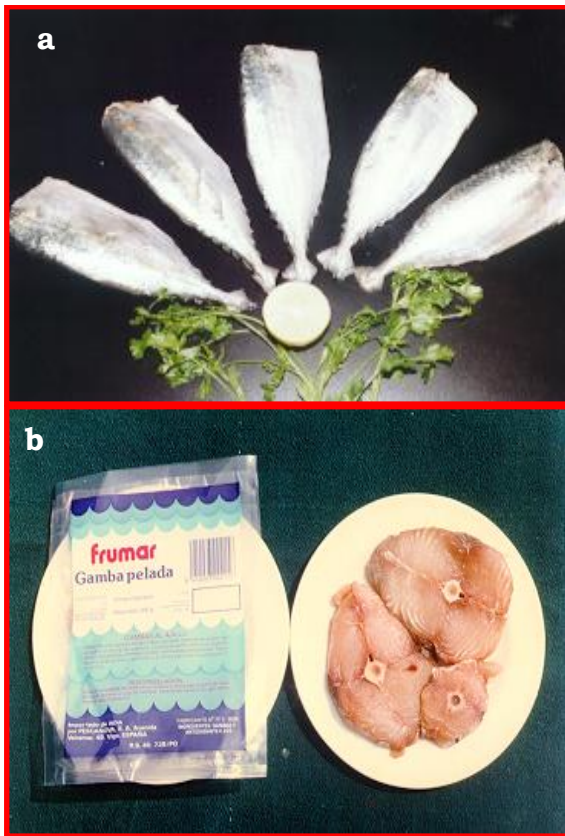


Fig. a) Gutted fish and b) Fish steaks in consumer pack

Fish fillet

Fish fillet is a skinless, boneless fish loin cut parallel to the central bone frame and trimmed free of loose or hanging meat. Filleting can be done manually or mechanically. Filleting efficiency depends upon fish species, its sex, size, freshness and nutritional condition. Manual filleting is very labour-intensive and largely depends on the skills of the workers. A sharp knife and flat board made up of metal or plastics are required for manual filleting. The fillet is placed on the board skin down, the meat is grasped in the left hand and the knife is drawn between the skin and meat. Manual filleting is time

consuming; however, it gives better yield than mechanical filleting.

The simplest filleting machine for gutted and beheaded fish has two disc knives set from each other at a distance equal to the thickness of the fish's backbone. Filleting speed of these devices is 30-40 fishes/min: they are efficient and the quality of the final product is good. The size range of the processed fish is 20-45 cm. Machines of different design and with bigger knives are used for processing larger fish. Fillets with low fat and minimum fat content are preferred by the consumers. Average yield of skinless fillet is 40-45%. Skinless fillet can be used as a raw material for the production of a variety of value added products.

Marinated fish

Fish steaks or fillet pieces can be marinated with salt and spices and packed in thermoformed trays. The fish is coated with a paste consisting of spices, salt, seasonings and allowed to remain for 6-12 hrs or preferably overnight at chilled condition. This fish can be fried in oil or roasted before consumption. Ready to fry marinated fish/shell fish shrimp, mussel, oyster, squid, cuttle fish etc. can be stored up to 3-4 weeks at 4°C. Frozen marinated fish steaks are also available in the market. Cured product like mackerel is suitable for marinating with spices.

IQF fish/shrimp

Freezing is an old age practice to retain the quality and freshness of fishery products for a long time. Slow freezing has a negative impact on quality whereas quick freezing improves the quality. Quick freezing is accomplished

by using any of the following methods; air blast freezing, plate freezing, immersion freezing and cryogenic freezing. Individually quick frozen fish fillets and shrimp have higher price in the export market than the bulk frozen products. However, for the production of IQF products, raw materials of very high quality need to be used. IQF prawn, lobster, cuttle fish, fish fillet etc. have good demand in the international markets.

Live fish

A recent trade in international fish trade is the growing demand for fish and shell fish. Live fishes are sold across South East Asian countries as a luxury item. There is a great demand for live fish and they fetch maximum price compared to all other forms of value added products as it maintains the

highest freshness. The fishes are transported live in air cargo maintained at very temperatures to slow down the metabolic activities of the fish.

However, it is a costly operation and the high rate of mortality adds to operational cost. Some of the most valued live fishes in the trade are lobster, clam, eel, groupers, mussels etc.

Suggested reading

1. Jose Joseph., Mathew P.T., Joseph A.C., Muraleedharan, V. 2003. Product Development and Seafood Safety. CIFT. Pp. 125-132.
2. D.D. Nambudiri. 2012. Advances in Harvest and Post Harvest Technology of Fish. New India Publishing agency. New Delhi. Pp265-305.