

FISH AND FISHERY PRODUCTS SUITABLE FOR INDIAN DOMESTIC MARKET SECTOR IN COVID AND POST COVID ERA

Abstract

Fisheries sector plays an important role in socio-economic development with significant contribution to food security, livelihood option, and diversified agriculture. Adding value to fish increases economic profitability as well as improves processing utilization. Value added and diversified products from fish, crustaceans, cephalopods, aquaculture fish and fish mince have great demand in international markets. Value addition is enhancing value of any fish and fishery product using various techniques from simpler to complex one, either alone or in combination. There is a tremendous scope for value addition in fish and fishery products for domestic market. Training and demonstrations for making fisherman realize about the importance of it is a need of an hour. Centralized processing units may be established for benefit of fishermen and market and infrastructure strengthening are also essential points to be considered.

Keywords: Fishery Products, Domestic Market Sector, Covid Era

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Production of fish over the globe has been estimated at 179 million tonnes in 2018 wherein, direct human consumption share accounts for 156.4 million tonnes with 22.2 million tonnes being utilized for non-food uses. Global per capita consumption of fish is 20.5 kg (FAO, 2020a).

Fisheries sector plays an important role in socio-economic development with significant contribution to food security, livelihood option, and diversified agriculture. Blue economy in India indicated 3rd position in total fish production and 2nd position in aquaculture production across the globe with about 13.76 million tonnes of fish production in 2018-19 with 3.69 million tonnes from marine and 8.9 million tonnes from inland fisheries sector (World Fish, 2020). Fish and fishery products processing are one of the rising sectors in Indian economy for earning foreign exchange through worldwide export of substantial amount of fish and fishery products (Shinoj et al., 2009). Export of fish and fishery products from India accounted for nearly 47000 crores for about 13 lakh tonnes of fish and fishery products in terms of quantity (MPEDA, 2020a).

COVID-19 pandemic is causing severe disruption and damage to economy throughout the globe. To slow down the virus spread, Government imposed measures including social distancing and lockdown. Seafood industry is facing demand and supply challenges. Prolonged market downturn is expected Post-COVID (FAO, 2020b).

Fish marketing in domestic markets is usually run by private players with stakeholders which include auctioneer, wholesaler, retailer and vendor in general. Domestic sector is unorganized wherein usually unprocessed fish are sold by vendors. There is time gap of at least 1 or 2 days between fish catching and reaching till consumers. Various reasons involved are infrastructure for processing and storage, market structure (wholesale, retail, retail outlets, roadside vending, etc.) wherein no proper temperature is maintained till it reaches consumers whereas fish which are meant for export are usually maintained in ice and kept under HACCP compliant conditions. Due to the COVID-19 pandemic, home delivery option is opt by many retailers and fish is processed, cut, cleaned, packed and delivered to the consumers as per the consumers' choice. Similarly, in interstate transport, railways are used. In hypermarket and supermarket, packaging is carried out in hygienic mode.

In the post covid era, government is promoting local products through the campaign vocal for local. There is a scope for domestic market for processed fish. Promotion of domestic market and development of domestic market chain for fish and fishery products is essential (Jena, 2020) which have vast scope for growth. Local products need to made easily available in the domestic market, organization of fish festivals and promotional events for promotion of fish and fishery products in domestic market is a need of the hour (Jena, 2020). PMMSY scheme announced by Union cabinet also promotes management of post-harvest fisheries sector in India. Restrictions on transportation and shuttered hotel business affected fish supply chains. Distribution channel for online seafood exhibited enhancement.

I. FISH AND FISHERY PRODUCTS SUITABLE FOR INDIAN MARKET

COVID-19 will cause significant change in food and related industries. The pandemic will lead to acceleration of food service trend, enhanced hygiene practices, use of antimicrobial materials will be enhanced in post-covid era. Enhanced online food ordering,

higher demand for processed food (Kuhn, 2020). Adding value to fish increases economic profitability as well as improves processing utilization. Value added and diversified products from fish, crustaceans, cephalopods, aquacultured fish and fish mince have great demand in international markets (Maqsood et al., 2020). The forms preferred by International buyers are usually different from those preferred by domestic consumers. Surimi, few Japanese products, and imitation products are generally preferred in International markets whereas; Indians prefer spicy fish and fishery products which have scope in domestic market. Convenience food products in the form of ready to eat or ready to fry and possessing assurance in terms of quality are preferred. Value added products range includes smoked products, canned products, frozen ready to eat (RTE) products, battered and breaded products, conventional products, etc. Rapid industrial development, urban development, increased number of working women in family, increasing awareness among people about health and hygiene, education are the important factors for demand in domestic fisheries sector. Variety of value-added products suitable for domestic market has been developed and standardized by various R and D institutions and seafood processors across India.

II. WHAT IS VALUE ADDITION?

Value addition is enhancing value of any fish and fishery product using various techniques from simpler to complex one, either alone or in combination.

The range of products include various ready to eat (RTE), ready to cook, ready to fry and many more. Due to nutraceutical and pharmaceutical importance of fishery products, various derived products are also termed as value added products from fish. Value added products range from simply precooked/ blanched products to battered and breaded varieties. Categorization can be based on fish used such as products from fish, products from shrimp, value added products from cephalopods, products from crab, products from bivalves, etc. Based on the processing techniques used range of value added products include; marinated products, individually quick frozen products (IQF), coated products, stretched products like shrimps, skewered shrimps, blanched products, sushi, canned products, accelerated freeze dried products, vacuum packed, fish powder products, fish soups, fish/ shrimps/ cephalopods cut in various forms such as fillets/ rings/ peeled and deveined/ headless/ butterfly cut/ stripes/ pine or diamond cut/ tubes/ steaks/ tray packed, pasteurized products, analogue products, sausages from seafood, fried products, salad type products, salted and dried products, fermented products and various mince and mince based products (MPEDA, 2020b). Various products suitable for Indian market are described in brief as;

Fish being perishable in nature is susceptible to spoilage quickly after catching. Fish need to be preserved in order to keep them fresh for long period either by chilling or icing and other long-term preservation means like freezing, salting and drying, smoking, curing, etc.

1. **Salting:** Use of common salt as antibacterial agent which also inactivates enzymes responsible for spoilage. It can be dry or wet salting.
2. **Smoking:** Brined fish can be either hot or cold smoked giving the product characteristic smoky flavour and odour.

3. **Drying:** It involves dehydration of fish to the moisture level below 10%. Value added dehydrated fish products available in the market are fish soup powder, fish chutney powder, fish protein concentrates, etc.
4. **Pickled Fish Products:** Pickles are traditional Indian products and there is expanding market for pickled products too.
5. **Fish fillets in Frozen Form:** Fillets with or without skin from white meat fishes have high potential in domestic markets. These can be used in preparation of ready to serve fish products as well.

Other value-added products are stretched shrimps/ nobashi which is popular due to its appearance and higher uptake of breading during battering and breading. Barbequed shrimps are the one wherein bamboo stick is pierced in meat from head portion and packed in thermoform trays under vacuum and frozen, skewered crustaceans similar to barbeque style with u shape piercing, sushi are butterfly cut shrimps, fingers with rectangular shape from fish mince, fish sausages in PVC casings, etc. (Venugopal and Shahidi, 1995).

Fish cutlets, fish burgers, fish cakes, fish salads, are also important products which can have great potential in domestic market (Devadasan, 2003).

6. **Fish Cakes:** Fatty varieties of fish are commonly used in fish cake preparation. Cleaned fish are steamed and boiled potatoes with spice mixture are mixed with fish layers and vacuum packed.
7. **Fish Salads:** Fish salads are a common concept in European countries having scope in Indian market too. Steam boiled fish/ shrimps are added with other salad ingredients which can be consumed freshly or can be stored for marketing.
8. **Fish Wafers:** Fish wafers would be a good option for utilization of low value fish meat by adding spices and flour to it.
9. **Coated or Battered And Breaded Products:** These are popular among various value-added product forms. Variety of fish and shellfish are offered in the form of convenience foods by battering and breading them increasing the bulk and weight and reducing the production cost. A minimum weight in coated products for fish should be 50% of the total weight. There are various steps involved in production of battered and breaded products right from shaping, pre-dusting, dipping in batter, applying coating such as bread crumbs, pre-frying, freezing, packaging in suitable packaging material and cold storage of the battered and breaded products. Battered and breaded products include variety of fish fillets, shrimp products, rings from cephalopods, stuffed products, bivalve products, etc. (Balachandran, 2001).
10. **Fish Mince and Mince-Based Products:** Meat separated from fish without skin and bones is termed as minced meat which can form a basic ingredient in preparation of range of value-added fish products. Mincing is usually carried out with the help of meat bone separators or meat mincers. Sausages, cutlets, balls, patties, textured products, paste

products, patties, surimi are the various products prepared from minced meat. Surimi is water washed minced meat added with cryoprotectants and frozen stored which is having high demand in preparation of analogue products. Several products such as kamaboko, chikuwa, ham, sausages can be manufactured from fish mince wherein ingredients involved differ and includes salt, sugar, starch, water and many more cryoprotectants. Fiberized products are also manufactured from minced meat which are imitation products. Fiberized products contain surimi as a base ingredient along with salt, starch, flavors, flavor enhancers, etc. and are heat treated to make gel-based products (Gopakumar, 2000; Venugopal, 2003).

- 11. Individually Quick Frozen (IQF) Products:** Freshwater/ marine fish in various forms, cultured and wild caught varieties of shrimps and cephalopods, bivalves can be processed using this technique which will lead to gaining of more economic returns compared to block frozen products. Tray packaged and frozen stored IQF products is a commonly followed marketing trend. Surface dehydration is one of the problems associated with IQF processing.
- 12. Heat Processed or Canned Products:** Thermal processing is one of the techniques which is not so popular but having higher shelf life. Heat processing and packaging in retortable pouches and various types of cans to prepare ready to eat products is usually followed technique. Advantage is these products can be stored at room temperature and does not need any specialized equipment for storage.
- 13. Accelerated Freeze Dried Products:** This technique employs sublimation of ice crystals as a result of high vacuum applied in frozen products leading to no shrinkage and quick rehydration. Ready to eat products processing using this technique has scope in Indian market.

III. CONCLUSION

Domestic market sector can benefit consumers as well as fishermen due to lesser operational cost, new markets addition, direct consumer models adoption. There is a tremendous scope for value addition in fish and fishery products for domestic market. Training and demonstrations for making fisherman realize about the importance of it is a need of an hour. Centralized processing units may be established for benefit of fishermen and market and infrastructure strengthening are also essential points to be considered.

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