INTRODUCTION

Fisheries make a significant contribution towards food supplies in the developing countries. Fisheries development aims at increasing fish production by increasing efforts as well as by preventing post-harvest spoilage of fish quality before it reaches consummer.

Gujarat needs 16.5 thousand tonnes of animal protein every year. The food deficits of today and future as well as protein hunger, malnutrition of millions in state and India can be met by aquatic life resources (Chhaya, 1988). Realizing the importance of fish as a source of cheap and nutritions protein, Government of India gave importance in its development plant to the improvement of fishing and fish processing (Venkatraman and Devadasen, 1978). India exports fish and fishery products to nearly 60 countries of the world (Menon, 1978). Such products for export as well as for internal consumption are subjected to compulsory quality control. Standardization of fish and fisheries products is generally designed to serve following purposes : 1. To ensure that the product has been prepared from quality raw material and that it has not been grossly contaminated. 2. To ensure that the product is absolutely free from pathogens or toxins of public health significance. 3. To ensure that product was procured under ideal conditions. 4. To ensure

that product has reasonably extended shelf life. A proper quality control set up can result in maintenance of uniform quality in products (Mathen, 1979). Thus post-harvest fisheries research is becoming increasingly important with expansion of fisheries.

Determination of alterations in biochemical compositions from main feature of quality control operations. Physical appearence is an important quality measurement of the consumer. In view of this importance different variety of freshwater and marine fishes were used for the measurement of the physical quality by sensory evaluation and comparing the same with biodeterioration, determined using biochemical methods. Spoilage characteristics under ideal conditions were also determined. Experiments have been carried out to present the deterioration of food fishes.

Low temperature is one of the most effective method for long term storage of fish. It seems to be one method which can provide solution to the problem, regarding fluctuations in supply, seasonal factors and consumer demands by maintaining a balance between demand and supply (Abdullah and Yean, 1985). However, some undesirable changes still go on at low temperature, rendering the product unfit for human consumption. Investigations on the changes in quality and improvement of preservation, storage and processing

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procedures at -10°C, 0°C, 8°C and at room temperature has been carried out, using fresh water and marine fishes like Harpodon nehereus, Labeo rohita, Catla catla, Pampus chinensis, Hilsa ilisha, Pampus argenteus, Lutianus Johni, Rastrelliger kanagurta etc.

The study has also been extended to determine nutritional quality changes with respect to their anatomical portions viz. dorsal, ventral, caudal and head region.

Fishes were sun dried after keeping at 8°C to 30°C, for period varying from 2 to 4 days. Such fishes when stored at 39 to 42% RH showed least possible moisture absorption upto six weeks. Keeping fish catch at 0°C to -10°C low temperature does not improve storage life.

Fish material gets spoiled on storage and spoilage depends on the biochemical composition, structure of muscle and conditions of storage. Total volatile nitrogen (TVN) was studied in fish muscle under different conditions of storage. A chart showing rate of spoilage at different temperatures has been prepared from the TVN values which will be useful guide for quality judgement to those concerned in fish transport, storage, processing and marketing. When TVN values exceeded 41.57 mg.N/100 gm of fish, it became

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unacceptable to consumer.

Peroxide values and acid values were also studied in fish muscles under varied conditions of temperature. . The deterioration of lipid is important factor affecting keeping qualities.

Some aspects of biochemical quality changes were studied using varied salt concentrations at room temperature. Salt moisture exchange and TVN values were recorded. This will help in improving salting process for a definite period of storage time.

Effectiveness of the low temperatures varying from 0°C to 8°C for extension of shelf-life has been studied, using commonly available marine and fresh water food fishes. Rate of deterioration, as indicated by TVN values, was faster in marine fishes as compared to freshwater fishes. TVN values showed a gradual increase during storage. The lean fish have longer storage life than fatty fish species. Size of fish also affects shelf life.

Protein solubility changes were studied to assess quality during storage at -10°C, 0°C and 8°C for varied time in marine and freshwater species. No marked difference was noticed in marine and fresh water species. Storage temperature and length of

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storage period had influence on protein solubility values. Linear relationship between temperature and rate of solubility may be expected. Relative rate of spoilage chart has been prepared, using the data recorded, for measurement of shelf life of various fishes. Rate of spoilage in different regions of a fish have been considered. Volatile nitrogen values were also estimated and the fish was found to be unfit for human consumption when the log volatile nitrogen values exceeded 1.5 to 1.6 mg.N/100 gm.