

## BIOCHEMICAL AND SHELF LIFE STUDY OF QUALITY OF FISH SAUSAGE IN AMBIENT AND REFRIGERATED STORAGE

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**ABSTRACT :** Fish is a nutritious food consisting of high grade of proteins some extent vitamins, minerals and relatively low calories. In this study Bulls eye fish (*Priacanthus hamrur*) were taken for sausage preparation due to low market price for fresh fish consumption. Utilization of bull's eye fish as raw material for preparation of sausage it will improves the value of fish. An investigation was carried out to assess suitability and shelf life of fish sausage prepared from Bull's eye minced meat stored at both ambient ( $28\pm 2^{\circ}\text{C}$ ) and refrigerated temperature ( $5\pm 2^{\circ}\text{C}$ ). The samples were evaluated for quality parameters such as physico-chemical, microbiological and sensory attributes on regular intervals. During storage the peroxide value (PV) free fatty acid (FFA), total volatile base nitrogen (TVB-N) and Total plate count (TPC) increased significantly in ambient stored samples when compared to refrigerated stored samples. The minced meat yield of Bulls eye fish (*Priacanthus hamrur*) was 31.50%. The sausage stored under refrigerated temperature found to be more elastic in nature in comparison to sausage stored under ambient condition. Similarly the folding test of refrigerated samples showed to be moderate up to 25 days whereas it was 2 days for ambient stored samples. The overall acceptability scores of sausage stored under refrigerated temperature was found to be higher when compared to ambient temperature. The present study indicated that, the quality of sausage stored in ambient condition deteriorated beyond 2 days whereas the refrigerated stored sausage was acceptable up to 25 days. Therefore, it can be concluded that, the shelf life of sausage evaluated on the basis of biochemical, microbiological and organoleptic parameters revealed that sausage of Bull's eye meat could be stored for two days at ambient temperature whether stored under refrigerated temperature shelf life of the product increased up to 25 days.

**Key words :** Bull's eye, fish sausage, storage conditions, gel strength and quality.

### INTRODUCTION

Consumption of fish and fishery product has formed an important dietary practice of Indians from the time immemorial which significantly improves the nutritional status of the population. Several species of fish like pink perch, croakers, lizard fish, soles, ribbon fishes, silver bellies and big head etc. are being caught using trawl nets. Various sizes of fishes are available and sometimes they go as a waste or sold at low price due to their unattractive colour, flavor, texture, small size and low meat recovery. Bulls eye fish (*Priacanthus hamrur*) is caught by trawl net and it has less demand in the market for fresh fish. Hence, it was utilized as raw material for the for the preparation of fish sausage.

Fish sausage is one of the value added products prepared from minced fish meat, it constitutes food additives to impart the taste flavor and gel strength of the product. The fish minced meat is mixed with additives stuffed into suitable casings and heat processing (Raju *et al*, 2003). The main criteria for choosing the raw material for fish sausage and kamoboko is the inherent ability of the fish meat to form good gel. The major

component in the formation of gel in the kamoboko is due to the presence of myofibrillar proteins such as myosin, actin and actomyosin (Niwa *et al*, 1972; Suzuki, 1981 and Asghar *et al*, 1985). The texture of fish sausage and kamoboko mainly dependent on gelling ability of fish used as raw material by Niwa (1992). Rheological and functional properties of *Priacanthus hamrur* were assessed by Binsi *et al* (2009). The applications of non meat proteins as functional ingredients to improve the gelling ability of myofibrillar proteins have been assessed by Alvarez *et al* (1990), Atughonu *et al* (2000), Ensoret *et al* (1987).

The objective of this study was to evaluate the suitability and shelf life of bull's eye fish for preparation of sausage in relate to biochemical, microbiological and sensory qualities. Further, the shelf life of the prepared fish sausages was also carried out at ambient ( $28\pm 2^{\circ}\text{C}$ ) and refrigerated ( $5\pm 2^{\circ}\text{C}$ ) storage condition.

### MATERIALS AND METHODS

Fresh bull's eye fish (*Priacanthus hamrur*) procured from Mangaluru fish landing center in iced condition with a fish/ice at 1:2 (w/w) ratio in commercial foam box on