

RESEARCH ARTICLE

Effect of baking on quality changes in mullet (*Mugil cephalus*)

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ABSTRACT..... An important brackish water fish, grey mullet (*Mugil cephalus*) which is commonly available along Chilika lake of Odisha was considered for baking and effect of baking on quality changes has been studied in the present paper. The fish portions of 50 to 60 g each were marinated with spice mixture at room temperature for 60 min. for spices to penetrate into the fish muscle. The heat processing time of fish portions was standardised for 60 min. at 15 psi (121.2°C) so as to make the fish bones soft and palatable. Baking time was also standardised at 160°C for a period of 60 min. for preparation of baked product. The proximate composition of fish and baked fish portions revealed that moisture content decreased by 16.8 per cent where as crude protein and lipid content increased significantly by 36.5 per cent and 42.4 per cent, respectively ($p < 0.05$). The chemical and microbiological changes due to baking the fish portions were also analysed and discussed. The organoleptic evaluation of baked fish mullet samples was conducted in a 5-point hedonic scale where, the baked product showed higher scores in all the sensory attributes. Besides, the softness of the bones, its palatability improved the overall acceptability of baked product to a higher degree.

KEY WORDS..... Baking, Mullet, Quality changes

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INTRODUCTION.....

Fish species are known to provide high contents of important constituents for the human diet such as nutritional and readily digestive proteins, lipid soluble vitamins, microelements and poly-unsaturated fatty acids (Friedman, 1996 and Simopoulos, 1997). However, fishes are known to easily deteriorate during post-mortem storage and processing as a result of different damage mechanisms such as autolytic degradation, microbiological spoilage and lipid oxidation (Whittle *et al.*, 1990 and Olafsdottir *et al.*, 1997).

In recent years, fish technologists and fish trade have increasingly prompted more attention to develop such a value added product where the most problematic bones of fish can be palatable. Baking is a method of processing where fish is exposed to very high temperature under dry condition. In this many damage pathways are inhibited extending shelf-life, thus minimising the post process loss.

Grey mullet (*Mugil cephalus*) is an important brackish water fish which is very much appreciated by the consumers and is plentifully available from Chilika lake, Odisha. Although previous research concerning the baking of marine fish has observed non-palatability of bones (Ninawe and Rathnakumar, 2008), standardisation of the process of development of baked fish in such that fish bones can be made palatable is in fact need of the hour. This will help enhancing the consumption of calcium along with the fish meat. Looking to this, the present study aims at standardisation of baking and its effect on quality changes in the baked fish.

RESEARCH METHODS.....

Raw fish processing and chemicals:

Grey mullet (*Mugil cephalus*) (50 individuals, total weight 12.6 kg) were obtained in November 2010 from Chilika fish landing centre in Ganjam district of Odisha and transported in