

STUDY ON THE KEEPING QUALITY OF FROZEN FISH SAUSAGE

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ABSTRACT

Fish products are important source of protein in human nutrition, particularly in certain developing countries. The objective of this investigation was to determine ideal method for fish sausage processing, find out the microbiological change and chemical deteriorative during cold storage at 4°C for 12 days and frozen storage at (-20°C) for 6 months.

Samples had been prepared and the end products was kept in polyethylene bags and stored at 4°C and withdrawn every three days for 12 days. Other samples stored at (-20°C) and withdrawn monthly for 6 months to determine: total bacterial count (TBC), proteolytic bacteria, psychrophilic bacteria, *Salmonella*, Coliform-group, anaerobes, moisture content, crude protein, ether extract, ash, sodium chloride, total volatile nitrogen (TVN), trimethyl amine (TMA), ammonia nitrogen (AN) and thiobarbituric acid (TBA).

Total bacterial counts, proteolytic bacteria, psychrophilic bacteria, moisture content and protein decreased with increasing of storage period of frozen storage. Whereas, there were slight increasing in ether extract, ash, sodium chloride, TVN, TMA, AN, and TBA by increasing of storage period of both cold storage and frozen storage.

Moreover, *Salmonella*, Coliform-group and anaerobic bacteria were not present in fish sausage. Three species of *Bacillus* were isolated and identified as *B. subtilis* 58.93%, *B. polymyxa* 23.21% and *B. licheniformis* 17.36%. Organisms having health hazard were not detected.

INTRODUCTION

Protein play an important role in the life of man and nations. Fish and fish products are important source of protein in human nutrition, particularly in certain developing countries.

The microbial quality of a fishery product depends on various factors: namely, the freshness of raw material, methods of handling, processing, and sanitary conditions during processing.

According to Kakhorkova *et al.* (1958) fresh raw sausage contained 0.48×10^6 cells of bacteria per gram sausage. The number of bacteria increased up to 100×10^6 bacteria per gram sausage, after storage at 14-17°C for 10 days.