DOI :10.31357/fapsmst.2006.00517

Preservation and value addition of fish salaya (*Sardinella gibbosa*)

By

HAEMAH VAIKUNTHARAJA

M.Sc **2006**

Declaration of Candidate

The work described in this thesis was carried out by me under the supervision of Prof. Arthur Bamunuarachchi and a report on this has not been submitted in whole or in part to any university or any other institution for another degree / diploma.

Date: 24.11.2006

Haemah. Vaikuntharaja

Declaration of Supervisor

I, Prof. Arthur Bamunuarachchi certify that the above statement made by the candidate is true and that this thesis is suitable for submission to the University for the purpose of evaluation.

Date: 27/11/06

Signature

Prof. Arthur Bamunuarachchi,

Coordinator Food Science and Technology Programs,

Department Of Food Science and Technology,

University of Sri Jayewardenepura,

Sri Lanka.

TABLE OF CONTENTS

CHAPTER 3

Lists of Tables

Lists of figures

Abbreviations

APC	-Aerobic plate counts
cfu	-Colony forming units
DMA	-Dimethylamine
DHA	- Docosa hexaenoic acid
EPA	- Eicosa pentaenoic acid
PUFA	- Polyunsaturated Fatty acids
TBC	-Total bacterial count
TMA	-Trimethylamine
TMAO	-Trimethylamine oxide
TVB-N	-Total volatile basic nitrogen
TVC	-Total Viable count

ACKNOWLEDGEMENTS

I would like to express my sincere thanks to my supervisor, Professor. Arthur Bamunuarachchi, Coordinator Food Science and Technology Programs, Department of Food science and Technology, Faculty of Applied sciences, University Of Sri Jayawardanapura for his guidance, advice and encouragement throughout the period of study to complete it successfully.

Also my thanks goes to Dr.K.K.D.S Ranaweera, the research Coordinator Food Science and Technology Programs, and Head of Department of Food science and Technology, Faculty of Applied sciences, University Of Sri Jayawardanapura for helping me throughout this research work and for the advice given to me regarding my research.

My special thanks are due to the staff of the Department of Food science and Technology, Specially to Mrs.Rupika.Perera, Mr SisiraWeerasinge and Mr.D.P Rubasinge. Also, I would like to take this opportunity to thank all the members of the laboratory staff in the Department of Food science and Technology for the help given.

I am also indebted to my colleagues of the M.Sc course in Food Science and Technology who encouraged and helped me in many ways. I also thank my Husband, father mother and all others too, who helped me in my research in various ways.

ABSTRACT

This report deals with some of quality parameters and sensory evaluation of steamed dried fish and value added fish.

Preservation and value addition of fish salaya is becoming one of the important things nowadays. Because, Salaya fish is a world species of interest to fisheries. Since 1972, the catches of this species have been steadily increasing almost every year and also Salaya provides a good source of protein and contains many vitamins and minerals and essential fatty acids, all of which are vital for the healthy functioning of the body.

The goal of this project was to preserve fish salaya without any chemicals with a minimum cost, even salt was not used in this process of preserving salaya and develops new knowledge to increase the value of underutilized fish salaya. This was achieved by accomplishing good practices of collection and storage of the fish, to retain the chemical, biological, and physical qualities of the fish and developing new and improved value added products. In the process of value addition, spices and vinegar were used as ingredients. These ingredients not only give taste and flavours but also contain a lot of medicinal uses. They also control the microbial activity to some extent.

The process involved were steaming and drying .In this process steaming cooks the fish partially and at the same time kills micro organisms. Drying process

reduces the moisture content, thus available water for growth of microorganisms is also reduced.

In this process artificial drier was used for drying. Artificial drier can increase drying rates and produce lower moisture content in the final products, with improvements in fish quality compared with the traditional sun-drying techniques.

The product was subjected to chemical, physical and microbial analyses during the storage period. Sensory evaluation was also done at the end of the storage period.

Moisture contents of the dried fish samples and value added fish samples were determined at every two weeks intervals. The moisture contents gradually increased during the storage period of three months.

The maximum moisture content of the dried fish during the storage period was 9.98%. The fish products can be kept without any damage as long as the moisture content is below 11-12 %.

Trimethylamine contents of the dried fish samples and value added fish samples were determined at every two weeks intervals. The Trimethylamine contents gradually increased during the storage period of three months.

The maximum Trimethylamine (TMA) value of the fish product during the storage was 16.3 mg/ 100g that also did not exceed the marketable level of TMA (26 mg/ 100g).

Microbial analysis were done on dried fish samples and value added fish samples

The results showed that, the microbial content was in the acceptable range (total viable counts of 10^2 -10^6 cfu /g are common on whole fish).

Sensory evaluation is used in the testing of fishery products for conformity requirements. Three types of samples (dried fish, Value added fish, and dried fish -salaya bought from supermarket) were evaluated by 12 assessors. From the results of evaluation statistical analyses were done.

Sensory evaluation also proved that, there was no significant difference among the fishes preserved by this process and the dry fish already available in the market.

Considering the quality attributes, it could be concluded that the preserved fishes is marketable and consumable within three months of its production.