

**POST HARVEST HANDLING OF FISH IN  
NAAVALADY AREA**



By  
**PERUMAL UTHAYACHANDRAN**

**227**



**FACULTY OF AGRICULTURE  
EASTERN UNIVERSITY  
SRI LANKA**

**2007**

**PROCESSED  
Main Library, EUSL**

## ABSTRACT

A study was conducted in Naavalady area to identify the postharvest handling of fish. The popular post harvest handling methods were selected by survey method using well structured questionnaires. The results showed that sea fishermen were (90%) full time fishermen and most of them have own fishing boats (70%). In sea Thalapatu, Thirukai, Suudi, Paarai, and Velal were frequently being caught; there are some seasonal species of fish like Kelavaala, and Suraa were caught after June. 70% of the people consumed fish as fish curry, 30% of people consumed fish as value added products such as tin fish, dried fish, and fish pickle.

Another study was carried out to find out the most suitable fish for colombo-curing method. In this experiment, three popular fish species were selected through well structured questionnaire, from this; most suitable fish was selected by chemical evaluation, microbial evaluation and organoleptic evaluation. From these evaluations tuna fish was the most suitable fish for colombo-curing method. Crude protein content seemed to be highest 12.4% in colombo cured tuna fish, moderately high value 11.3% in colombo cured bream fish, and lowest value 10.7% in colombo cured sardinella fish. Crude fat seemed to be highest in colombo cured of sardinella than other colombo cured fishes. Colombo cured tuna fish showed highest pH value 4.71, while colombo cured bream fish showed lower pH value 4.1. According to the organoleptic evaluation of colombo cured fishes, tuna was superior to others. These cured fishes were stored for three months in clay pots and chemical, organoleptic and microbial evaluation were carried in every week at regular intervals.

During this storage periods crude protein was gradually decreased and like wise crude fat also decreased, but moisture content of colombo cured fishes were

gradually increased. During storage periods, up to 20<sup>th</sup> day there was no any microbial contamination found in colombo cured fish, but there was a small microbial contamination in cured fish of sadinella at 30<sup>th</sup> day, but there was a microbial contamination in colombo cured fish of bream at 40<sup>th</sup> day, but up to 70<sup>th</sup> day there was no any microbial contamination found in colombo cured tuna. So colombo cured fish of tuna is good up to 10 weeks, while colombo cured fish of *Sadinalla* is good up to 5 weeks.

# TABLE OF CONTENTS

Page No

<b>ABSTRACT</b>	<b>IV</b>
Acknowledgements	VI
Table of Contents	VIII
List of Tables	XIV
List of Figures	XV
List of Plates	XVI
<b>1. INTRODUCTION</b>	<b>1</b>
<b>2. LITERATURE REVIEW</b>	<b>4</b>
2.1 Fish	4
2.1.1 Origin and distribution	4
2.1.1.1 Tuna	4
2.1.1.2 Sardinella	5
2.1.1.3 Bream	5
2.1.2 Fish production	5
2.1.3 Contribution of fisheries Sector to Gross Domestic Product	6
2.1.4 Uses of fish	7
2.1.5 Proximate composition of fish flesh	7
2.1.5.1 Water	8
2.1.5.2 Protein	8
2.1.5.3 Carbohydrates	9
2.1.5.4 Lipids	9
2.1.5.5 Ash	9

2.1.5.6 Vitamins	11
2.1.6 Classification	13
2.1.6.1 Sardinella	13
2.1.6.2 Tuna	13
2.1.6.3 Bream	14
2.1.7 Morphology and Biology of fish	14
2.1.7.1 Tuna	14
2.1.7.2 Sardinella	16
2.1.7.3 Bream	16
2.2 Fish processing and its important	17
2.3 Bio chemical changes during processing and storage of fish	17
2.4 Production of value added fish products	18
2.4.1 Fish wafers	18
2.4.2 Fish finger	18
2.4.3 Surimi	19
2.4.4 Surimi based products	19
2.5 Sensory evaluation	19
2.5.1 Problems associated with sensory analysis	20
2.5.2 The following result should be essentially followed during sensory evaluation	20
2.5.3 Factors influencing sensory measurement	21
2.5.4 Preparation of sample for the evaluation	21
2.5.4.1 Testing area	22
2.5.4.2 Testing set up	22
2.5.4.3 Lighting	22

2.5.4.4 Testing time	23
<b>3. MATERIALS AND METHODS</b>	<b>24</b>
3.1 Survey study	24
3.1.1 Study area	24
3.1.2 Questionnaire preparation and data collection	26
3.1.3 Data analysis	26
3.2 Laboratory study	26
3.2.1 Location and period of study	26
3.2.2 Limitation of the study	26
3.2.3 Sample selection	26
3.3 Experimental design	26
3.4 Experiment 1 Study on the colombo cured fish	27
3.4.1 Preparation of colombo cured fish	27
3.4.1.1 Ingredients	27
3.4.1.2 Method	27
3.4.2 Chemical analysis of fish	28
3.4.2.1 Moisture content	28
3.4.2.1.1 Materials	28
3.4.2.1.2 Method	28
3.4.2.1.3 Readings	29
3.4.2.1.4 Calculation	29
3.4.2.2 pH	29
3.4.2.2.1 Materials	29
3.4.2.2.2 Method	29
3.4.2.3. Ash content	30

3.4.2.3.1	Materials	30
3.4.2.3.2	Method	30
3.4.2.3.3	Calculations	30
3.4.2.4	Crude Fat	30
3.4.2.4.1	Materials	30
3.4.2.4.2	Method	31
3.4.2.4.3	Calculation	31
3.4.2.5	Protein content	31
3.4.2.5.1	Materials	31
3.4.2.5.2	Method	32
3.4.2.5.2.1	Digestion	32
3.4.2.5.2.2	Distillation	32
3.4.2.5.2.3	Titration	32
3.4.2.5.3	Calculation	32
3.5	Experiment 2 Storage study of colombo cured fish	33
3.5.1	Storage of colombo cured fish	33
3.5.2	Organoleptic evaluation of stored colombo cured fish	33
3.5.3	Chemical analysis of stored cured fish	33
3.6	Microbial evaluation of stored colombo cured fish	34
3.6.1	Preparation of Potato Dextrose Agar medium (PDA)	34
3.6.1.1	Materials	34
3.6.1.2	Method	34
3.6.1.3	Sterilization of glass wares and needles	35
3.6.1.4	Inoculation of sample	35
3.6.1.5	Identification of pathogen	35

