

**DEVELOPMENT OF A VALUE ADDED  
FISH PRODUCT FROM TUNA**  
*(Thunnus albacares)*

**By**

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## **Declaration of Candidate**

The work described in this thesis was carried out by me under the supervision of Professor 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 :- 18-08-2008

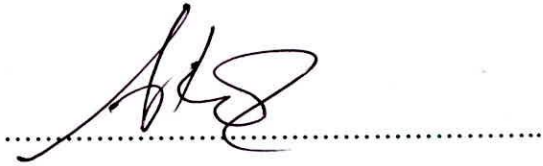


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## **Abbreviations**

APC	- Aerobic plate counts
CFU	- Colony forming units
DNIA	-Dimethylamine
PLFA	- Polyunsaturated Fatty acids
TBC	-Total bacterial count
TNIA	-Trimethylamine
TMAO	-Trimethylamine oxide
TVC	-Total. Viable count

# **DEVELOPMENT OF A VALUE ADDED FISH PRODUCT FROM TUNA(*Thunnus albacares*)**

**D. H. K Bambarandage.**

## **ABSTRACT**

Fish is a cheap protein source available but it is perishable, hence proper preservation and processing have to be applied. Wide varieties of methods are available for preservation and processing. Each of these methods creates a new value added product but very few tuna products are available in the local market. Hence there is a high potential for value added tuna products.

Objective of this study was to develop a healthy, nutritional tasty marinated dried tuna fish, to ascertain the description of nutritional and sensory qualities of the product and investigate aspects of marketing.

Raw sliced fish were marinated in a two different marinades for two hours and followed by 5 hours in cool room. Then the products were dried at 65<sup>0</sup> centigrade for 24 hours and packed in polyethylene and polypropylene. The products were stored for 12 weeks to study the changers in the moisture, microbial activity, and trimethyl amine and histamine levels. Furthermore, crude protein, ash, free fat and total fat contents were determined for the products. Total bacterial counts, trimethyl levels, moisture levels and histamine levels were within the accepted quality level. Total bacterial levels and the trimethyl amine levels of both products were in between 10<sup>2</sup>-10<sup>3</sup> and 9-17.69 mg/100 g respectively. The moisture levels and histamine levels for both products were in between 9% - 10.9% and 20 - 51

mg/kg respectively. Moreover the average nutrition level of both products were found as crude protein 62%, moisture 10%, total fat 6.4% -6.8% and ash 10.1%- 10.3%. Sensory evaluation proved that both marinated products were superior to the tuna dry fish available in the market.

Results shown that, the two products which were manufactured are healthy, nutritional, tasty products and can be stored for at least 12 weeks without deterioration.

# CHAPTER 01

## Introduction

Sri Lanka is a small tropical island situated in the south east of the Indian peninsula. It is surrounded by the Indian Ocean. Land area of Sri Lanka is 62705 km<sup>2</sup> and sea area [exclusive economic zone] is ten times larger than land area.

The total labor force of 678090 in the fisheries sector represented about 30 percent of the total employed in the agriculture sector and 9 percent of the total employed in the country in 2005.

The population actively in fishing has increased by 32 percent between 1989 and 1996 and by 107 percent between 1996 and 2005. This shows that the fisheries sector is developing in to an important source of employment in the country.

Although the fisheries sector contributes only 2 percent to the gross national production of the country, fish and fishery products provide nearly 60 percent of the animal protein requirement of the country.

Due to cultural and religious reasons people do not like to eat meat and is relatively more expensive than fish. More over consumer prefer fish since it is tender than meat. Therefore fish is the best solution for the problem of protein deficiency, and the fulfillment of essential amino acid requirement.