

# **DEVELOPMENT OF SOY BASED VEGETARIAN SAUSAGE**

By

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Thesis submitted to the University of Sri Jayewardenepura as the partial fulfillment requirement for the award of the degree of Masters of Science in Food Science and Technology.

## DECLARATION

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

22/08/2008

Date



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“We certify that above statement made by the candidate is true and that thesis is suitable for submission to the University of Sri Jayewardenepura for the purpose of evaluation.”



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**DEDICATION**

*To*

*all I love ... ..*

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## DEVELOPMENT OF SOY BASED VEGETARIAN SAUSAGE

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### ABSTRACT

This study is an investigation on development of Soy based Kohila (*Lasia spinosa*) added Vegetarian Sausage. In one hand Vegetarianism is a traditional ethical stance and practice that has been influenced around the turn of the twenty-first century by Science and Technology. On the other hand so many disorders occur in human intestinal track like, constipation, hemorrhoids or anal fissures can be cured by adding a dietary- fiber rich food like Kohila to the diet.

Meat or fish sausages have animal protein that coagulate with the temperature and it act as the binder of those sausages. When producing this new sausage it was a challenge to find a replacing binder of meat or fish protein. After so many trials and errors a successful binder could be made out of a combination of Soy Protein extract, Kiri Ala (*Colocasia esculenta*), and flour of Jack Seed (*Artocarpus hetarophyllus*).

The produced new sausage was analyzed and it was found to contain, average fiber 3.08 % which is a significant amount. Then average moisture was 49.04%, average Protein was 7.13 %, average Free Fat was 5.05 % and average Ash was 4.04 %.

When determining the shelf life for six months by Total Plate Count (TPC) and coliform test Microbial content hasn't exceeded the danger zones.

Peroxide value (PV) gave a zero value.

At sensory evaluation this new Soy based Kohila added Vegetarian Sausage showed a high level of acceptance than the vegetarian soy sausage available in the local market.

## Chapter 01

### INTRODUCTION

In this 21<sup>st</sup> century peoples are shifting their diet to a vegetarian trend. Meat Sausages and fish Sausages are available in local market. Today the development of a sausage specification starts while a new product is still in the planning stages.

If we can develop a plant based sausage with a fiber rich ingredient like Kohila that will be a great introduction to the vegetarians. On the other hand by adding Kohila (*Lasia spinosa*) it can be increased the level of dietary fiber intake<sup>3, 8</sup>

This study was carried out to develop a vegetarian sausage using main ingredients as, Kohila (*Lasia spinosa*), Kiri Ala (*Colocasia esculenta*), Jack seeds (*Artocarpus heterophyllus*), and Soy protein (*Glycine max*) as ingredients. Then minor ingredients like salt, ascorbic acid, sugar, parsley (*Petroselinum crispum*), big onion (*Allium cepa*), kankun (*Ipomoea aquatica*), black pepper (*piper nigrum*), garlic (*Allium sativum*), chili (*Capsicum annum*) and vegetable fat.

After development of this sausage further studies were carried out to investigate the following.

- 01) Acceptability by a Sensory Panel
- 02) Nutritional compositions by Proximate Analysis
- 03) Determination of shelf life by Peroxide value (PV)
- 04) Determination of Microbial Content by Total Plate Count (TPC) and Coliform Test

## Chapter 02

### LITERATURE REVIEW

#### 2.1 Vegetarianism

Vegetarians are people who do not eat animal based food and may also not consume dairy products or eggs. They may do so for health reasons or for philosophical and moral reasons. Some people, such as Seventh Day Adventists, are vegetarians because of their religious beliefs. Many people eat plant foods simply because they are cheaper than animal products.

There are three main types of vegetarians:

Lacto-ovo-vegetarians- who eat dairy foods and eggs

Lacto-vegetarians- who eat dairy foods, but no eggs

Vegans -who consume no animal foods of any type

According to registered dietitian Johanna Dwyer of Tufts University Medical School and the New England Medical Center Hospital in Boston, data is strong that vegetarians are at lesser risk of:

- Obesity
- Lung cancer
- Alcoholism
- Atonic (reduced muscle tone) constipation

Dwyer also says evidence is good for lower risks for:

- Hypertension
- Coronary artery disease