

*Studies on gelled, pasteurized & Sterilized  
Kolakenda (Ayurvedic Herbal Porridge)*

By

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## Declaration

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

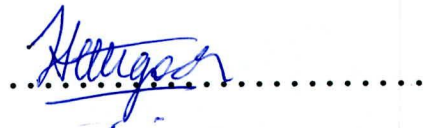
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“We certify that the above statement made by the candidate is true and this thesis is suitable for submission to University for evaluation”



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To my loving parents, husband and two sisters, for the cooperation,  
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# Studies on gelled, pasteurized & sterilized **Kolakenda (Ayurvedic Herbal Porridge)**

## **Abstract**

This project envisages the prospects of introducing as a user-friendly instant product, an ayurvedic herbal porridge using rice and coconut as the main base where the main herbal ingredients used separately or in combination are Gotukola (*Centella asiatica*), Hathavariya (*Asparagus falcatus*), Wel-penela (*Cardiospermum halicacabum*) and Karapincha (*Murraya koniegi*).

The Range of products to be offered are Bottled kolakenda, Set kolakenda/Set Porridge, and Sachets.

The main ingredients used were Herbal extract, Rice, Other value- added ingredients (rice flakes, de-fatted Soya flour, mung bean etc...), Coconut milk powder, Salt, Setting- agent (for set-kolakenda), and Preservatives.

Using the herb “Gotukola”, the proportions/percentages of the above for the best porridge were determined by using the “Trial and error” method. Subsequently, different combinations of the above four herbs were tried in that porridge to determine the best ‘customer appeal’ using the internal and external sensory evaluation panels. Of the two panels, the internal sensory evaluation panel was selected as they were a trained ‘evaluation panel’ with much reliability.

In terms of the findings of the above two panels, the combination of Gotukola and Hathavariya was found to be the most acceptable ayurvedic herbal porridge. Therefore, it was selected for further studies. However, it must be noted that this does not mean that other herbal porridge combinations are not to be presented to the market.

The designed ayurvedic herbal porridge is incidentally the first of its kind to be introduced to the market and is without a similar product for comparison.

The Proximate Analysis for the product was done for Protein, Total Fat, Energy, Crude Fibre, Carbohydrate, Moisture and Total Ash at three week intervals, for a period of three months which was expected to be the 'shelf life of the product under refrigeration'. One redeeming feature of the results thus obtained was that the values during different readings did not differ much from the initial values thus leading to the conclusion, that the product did not degenerate much with time.

The results of Microbiological Analysis of the product were encouraging too. The Total Plate Counts; Bacterial & Fungal, were found to be negligible and the coliform count was zero for the 3 month period. These facts suggest the fine storability-attributes of the product.

May it be mentioned here, that the product is not a final product but is expected to be a base-product which may be nutritionally changed/enhanced with the addition of other ingredients (such as vitamin premixes) at the will of the consumer.



## CHAPTER 1

### Introduction

Kolakenda, a traditional Sri Lankan ayurvedic preparation, which may be best described as porridge is made mainly of rice, coconut milk and the juice of herbs which are generally considered to be of high therapeutic value.

This is highly nutritious, very palatable, cheap and easily available. It is very popular as a health food and forms an important part of the breakfast as a common day-starter of most rural Sri Lankans.

In Sri Lanka, plants such as *Centella asiatica* (Gotukola), *Alternanthera sessilis* (Mukunuwenna), *Aerva lanata* (Polpala), *Asparagus falcatus* (Hathavariya), *Cardiospermum halicacabum* (Wel-penela) and *Murraya koniegi* (Karapincha), are used to make nutritious herbal porridge to be taken for breakfast with a piece of “Juggery”, a crystallized sugary secretion of *Caryota urens* (Kitul) palm inflorescence.

The modern society being one where, the trend is instant and ready-to-consume food, this effort envisages the production of gelled/set porridge and, pasteurized & sterilized herbal porridge packed in bottles and sachets which can be bought over the counter and consumed then and there.

The necessity and the significance of introducing instant herbal foods to present Sri Lankan society

1. It may be mentioned that the rural folk in oriental countries, particularly in Sri Lanka are extremely fortunate to have numerous herbs of established therapeutic value like those given above growing freely in their gardens. Thus, it seems that for oriental-people, there is no better way of adhering to the exhortation of Hippocrates, the father of western medicine “ Make your food your medicine and your medicine your food” than by popularizing foods reinforced with local herbal extracts. It is also a sure way of adhering to the age old maxim “Prevention is better than cure”

because these oriental herbs which are extremely rich in vitamins and have a tremendous prophylactic effect, as observed through the generations.

2. These herbs are an extremely cheap and a very palatable source of food. As mentioned before not much effort and expense is necessary for the growth of the above herbs, as they simply grow in most areas of Sri Lanka. However, commercial production may require systematic and large scale cultivation of the herbs, at not much expenditure.

A very attractive and a beneficial feature of these herbs is their palatability, particularly in combination with its established base, rice and coconuts. This along with its accepted therapeutic values would go a long way in popularizing the product.

3. One basic health problem facing Sri Lanka is child malnutrition. If the potential of those herbs on food is fully utilized, it could be a one positive solution to the malnutrition problem of our children.
4. The problems of our rural folk are intertwined. For instance they suffer from malnutrition and are also stricken with poverty. Popularizing indigenous foods like herbal porridge would give an economic value to their inadequately exploited food-source, there by enhancing their income while raising their nutrition levels substantially.
5. Another major problem facing our society is 'Drug addiction' which in this context refers not to the addiction to drugs like marijuana, hashish and LSD (which undoubtedly is a very grave problem facing the youth of our country) but the addiction of the General Public to western drugs. There are certain drugs which are advertised freely by mass media and which have become household drugs, taken without prescription and indiscriminately, at the onset of a slight fever or pain. The same is true of some antibiotics and certain sedatives.



All medicines are strong drugs which are poisons; and are as a rule, administered in small doses. Though, taken in for their therapeutic effect in bringing relief for agonizing malfunctions of the body, drugs always leave behind a trail of side effects and after effects which justifies the saying “Remedy is worse than the disease” in respect of every drug. Unlike in the past, environmental pollution and complicated modern living require every one to face a multitude of ailments and diseases that necessitate the use of drugs by the time he reaches adulthood. Therefore, drug-use appears to be the norm of the modern society. Thus, rationality demands modern man to quit these addictive drugs and turn to our traditional non-addictive remedies devoid of side-effects and after-effects.

Therefore, it would be worth while for any one to know the specific therapeutic values and the known therapeutic uses of these herbs which are found in abundance in our environment.

Summarizing the above, the specific objectives of the project may be outlined as;

- To develop a range of different presentations of kolakenda
- To further develop the existing products as ‘instant foods’ ready for consumption
- Value addition to locally available under - utilized herbs
- To popularize traditional foods in local and international markets.