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FORMULATION OF RICE FLOUR BABY RUSK

By

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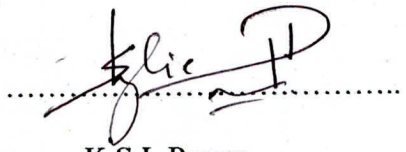
Thesis submitted in partial fulfillment of the requirement for the degree of Master in food science and technology, Faculty of Graduate Studies , University of Sri Jaywardenepura , Sri Lanka

Declaration

The work described in this thesis was carried out by me at the laboratory of Food science and technology of University of Sri Jayawardenapura under the supervision of Prof. K.K.D.S. Ranaweera and Dr. Indira Wicramasinghe and a report on this thesis has not been submitted to any university for another degree and has not been presented or accepted in any previous application for a degree.



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We, Prof. K.K.D.S. Ranaweera and Dr. Indira Wicramasinghe certify that the statement in preceding page made by the candidate is true and this thesis is suitable for submission to the university for the purpose of evaluation.

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Dedicated to my loving husband and little daughter.

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Formulation of Rice flour BaBy rusk

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ABSTRACT

The aim of this study was to produce a baby rusk by completely replacing wheat flour by rice flour in order to eliminate the health hazards brought by the consumption of wheat flour as well as to add more value to our locally produced rice. Natural banana was used in place of water and flavour substance in this product.

Rice flour, banana, margarine, eggs, sugar, full cream milk powder, vanilla flavour and baking powder were used as the ingredients in the production of the baby rusk.

The product was evaluated for Chemical composition, keeping quality, microbial quality as well as for sensory properties such as colour, mouth feel, taste and overall acceptability. Sensory evaluation was done by using un trained panelists. All chemical and microbiological parameters were found to be in acceptable levels.

Development of flavour variations, addition of vitamin formulas could be done as further research.

Chapter 01

1.0 Introduction

Wheat flour is the most commonly used type of flour in the bakery industry. This is mainly due to its high molding ability which is given by the high content of gluten. Although it contains these acceptable qualities, it also contains certain health hazards. Certain components in wheat flour tend to destroy 'Beta cells' that are responsible for the secretion of Insulin hormone which controls the sugar level of blood. This condition could eventually lead to diabetes which is now becoming common among children as well among infants. Also due to Gluten intolerance disease some people have to depend on gluten free diets. A gluten free diet means avoiding all products that contain wheat, rye and barley, or any of their derivatives. Since rice flour is free of components that destroy 'Beta cells' as well as gluten it becomes a healthy solution for both these conditions.

Rice is rich in lysine which is the first limiting amino acid. It also contains a much higher content of protein compared to wheat flour. It is also richer in B vitamins and mineral content compared to wheat flour.

Banana is a comparatively cheap and abundant fruit in Sri Lanka. Banana starch is easily digestible. This property makes it highly suitable as an ingredient in an infant food. Banana also adds pleasant flavour while providing the food product with useful minerals.

Since this product is prepared by mainly using locally available cheap ingredients, it becomes a nutritious as well as a cost effective product.

1.2 Aim of the product Development

The intended purpose of the development of this product was to provide our people a healthy and cost effective infant food which is rich in nutrients gained by our own local material.

1.2.1 Overall objectives of the new product development

- Development of an infant food which is free of health hazards produced by wheat flour.
- Development of an infant food which is richer in proteins.
- Value addition to locally available ingredients
- Development of a product which is affordable to a wide range of consumer classes.

1.2.2 Specific objectives

- Determination of chemical composition of the product
- Determination of microbiological aspects regarding the shelf life of the product
- Determination of the shelf life of the product.

Chapter 02

2.0 Literature survey

2.1Biscuit Technology

The word biscuit derived from Latin words panis *biscoctus*, for twice-baked. Biscuit industry was started in Briton and first biscuits were dried out rusks which were used for sea journeys.

The biscuit industry today is a well-developed industry which automated machinery from dough mixtures to packaging.

2.1.1 Dough Mixer

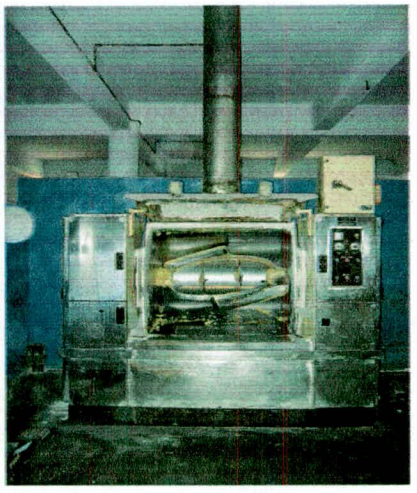

Fig 2.1.1 Dough Mixer

The machine is used for mixing various ingredients such as flour, sugar, fat, water, and other chemicals for making hard, soft or fermented dough for making biscuits.

A base plate over which two side frames are fitted for taking the load of mixing chamber which is fitted on side frames. In the mixing chamber two Z/sigma type-mixing blades are fitted which rotate at different speeds in opposite direction to mix various types of soft/hard dough for achieving required glutton of dough.