

**DEVELOPMENT AND FORMULATION OF MEAL  
REPLACEMENT BREAKFAST BAR- ON THE GO  
FOR SEDENTARY LIFE STYLED ADULTS IN**

**SRI LANKA**



By

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This Thesis submitted in partial fulfillment of the requirements  
for the Degree of Masters of Food Science and Technology,

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2012

## DECLARATION

The work described in this thesis was carried by me, under the supervision of Prof. Arthur Bamunuarachchi and the report on this thesis has not been submitted in whole or in part of any University or any other institution for another Degree/ Diploma.

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DEDICATED TOMY LOVING FAMILY MEMBERS

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## **ACKNOWLEDGEMENT**

I wish to express my sincere thanks and heart felt gratitude to my supervisor Prof. Arthur Bamunuarachchi, Consultant Food Science and Technology of University of Sri Jayawardenepura.

Also I am thankful to Prof. K.K.D.S Ranaweera who given me the fullest support to complete this thesis.

I would like to give my special thanks to Ms. Kaushalya of Medical Research Institute, Colombo 08 for the special support given me to do this study.

I would like to thank Mr. Keppetigoda of National Institute of Education, Maharagama for the guidance and assistance given to me in several ways during the period of the survey.

I wish to express my sincere gratitude with deep appreciation to my husband, daughter and my parents for their encouragement given me to pursue this study.

## ABBREVIATIONS

TPC	Total Plate Count
SLS	Sri Lanka Standard
App.	Appendix
BMR	Basal Metabolic Rate
TVP	Textured Vegetable Protein
NCD	Non Communicable Diseases
TAG	TriAcylGlyceride
RNI	Recommended Nutrient Intakes
RDA	Recommended Dietary Allowances
WHO	World Health Organization
GI	Glycemic Index
CHD	Coronary Heart Disease



## ABSTRACT

Major health problems in Sri Lanka are associated with unhealthy dietary habits. The present study was conducted to develop a meal replacement breakfast bar on the go stored under refrigeration condition to provide balanced diet and convenience to the sedentary life styled adults in Sri Lanka who do not prepare their own food.

Preliminary nutri survey was conducted to asses breakfast consumption of hundred sedentary life styled adults selecting five organizations in Colombo district by using standard methods. Meal replacement breakfast bar was made with aggregation of 117°C heated syrup (Liquid glucose, crystal sugar, coconut oil, lecithin, salt, citric acid, fruit cocktail and water), mixture of cereals (puffed rice, rice flakes and popcorn), grains (roasted cowpeas, roasted mung beans, roasted chickpeas, roasted chana dhal and textured soya meat), nuts and seeds (peanuts, cashewnuts, sesame seeds), fruits (dried pineapple) and vitamin mineral premix to the proportion of 48:52 syrup to the dry mixture, cooling, cutting to 50g net weight of a bar. Packing was done in low density polyethylene wrappers. Proximate analysis was done to the formulated bar sample. Determination of most preferred variety was done with mango, papaya, pineapple and raisin bars. Shelf life evaluation and cost analysis was done to select the most preferred sample.

The results revealed that study population failed to achieve one third nutrients of RDA. Two (100g) meal replacement breakfast bars should be consumed to get one third of nutrients in RDA. Meal replacement breakfast bar with pineapple is the most preferred sample. Moisture (4.3%) and PH (5.75) did not effect to the product quality after three months of refrigeration storage. It is safe for consumption and it has  $8.0 \times 10^1$  bacteria and no yeast, molds and coliforms were detected after three months of refrigeration storage. Retail price of a 50g meal replacement breakfast bar with pineapple was valued at Rs.100.00 in the local market.