

DEVELOPMENT AND PHYSICOCHEMICAL ANALYSIS
OF HIGH FIBER BREAD INCORPORATED WITH COCOA POD
HUSK (*Theobroma cacao sp.*) POWDER

By

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Research Report submitted in partial fulfillment of
the requirements for the degree of
Bachelor of Food Science (Food Technology)

DEPARTMENT OF FOOD SCIENCE
FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE
UNIVERSITI MALAYSIA TERENGGANU
2012

ENDORSEMENT

The project report entitled **Development and Physicochemical Analysis of High Fiber Bread incorporated with Cocoa Pod Husk (*Theobroma cacao sp.*) Powder** by **Hanida Hanim bt Saiman, UK18186** has been reviewed and corrections have been made according to the recommendations by examiners. This report is submitted to the Department of Food Science in partial fulfillment of the Degree of Food Science (Food Technology), Faculty of Agrotechnology and Food Science, Universiti Malaysia Terengganu.



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DECLARATION

I hereby declare that the work in this thesis is my own except for quotations and summaries which have been duly acknowledged.

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ACKNOWLEDGEMENT

This thesis is the end of my long journey in obtaining my degree in Food Science (Food Technology). I have not traveled in a vacuum in this journey but they are some people willing to help me and made this journey easier with words and encouragement. First and foremost, I would like to give a special thanks to my supervisor, Dr Amir Izzwan bin Zamri who guided and advised me during my study. Besides, I would like to thank to my lecturers that also help me my giving suggestions and improvement for this study.

Not to be forgotten, I would like to express my deepest gratitude to my family for their constant support and contribution for my final year project. I would like to thanks also to my fellow friends for helping me during my laboratory works and thesis writing.

Besides, I would like to thank to the laboratory assistant of Food Science Laboratory, Food Technology laboratory, Food Service laboratory and staff from aquaculture Tropical Laboratory for helping me during this study. To those who indirectly contributed in this study, your kindness means a lot to me. Thank you very much.

ABSTRACT

The main approach of this study is to use the cocoa-by products which is cocoa pod husk and incorporated into wholemeal bread, developing high fiber bread. The cocoa pod husk can be classified as one of the source of high fiber. The cocoa pod husk was dried and milled in order to produce the cocoa pod husk powder (CPHP). There were five different percentage of CPHP incorporated into the high fiber bread which were formulation A (0% CPHP), formulation B (5% CPHP), formulation C (10% CPHP), formulation D (15% CPHP) and formulation E (20% CPHP). All of them were undergone proximate analysis, physical analysis and sensory evaluation. The crude fiber, moisture content and ash were significantly increased as the CPHP increase while decreased significantly in fat. For protein and calory, the content was decreased. The incorporation of CPHP give a significant effects towards bread volume and hardness in which the bread became denser and slightly harder texture compare to control. The colour of bread crumb and crust also change to darker clour. For the overall acceptance, the formulation B has the highest score among the composite breads.

ABSTRAK

Kajian ini bertujuan untuk menggunakan produk sampingan koko yaitu kulit koko dan dimasukkan ke dalam roti diperkaya dengan serat (roti mil penuh). Kulit koko merupakan salah satu sumber yang tinggi dengan serat. Kulit koko telah dikeringkan dan dihancurkan sehingga menjadi serbuk. Terdapat lima peratusan serbuk kulit koko (SKK) yang dapat dimasukkan ke dalam roti tersebut seperti formulasi A (0% SKK), formulasi B (5% SKK), formulasi C (10% SKK), formulasi D (15% SKK) dan formulasi E (20% SKK). Analisis kimia, analisis fizikal dan penilaian deria dilakukan kepada semua formulasi tersebut. Serat, kandungan lembapan dan abu meningkat dengan ketara apabila SKK meningkat dalam roti. Walau bagaimanapun, kandungan lemak kasar menurun secara ketara manakala protein dan kalori menurun dengan tidak ketara. Penambahan SKK ke dalam roti member perubahan ketara terhadap isipadu dan kekerasan roti di mana roti menjadi lebih padat dan teksturnya sedikit lebih keras berbanding kawalan. Warna roti turut berubah menjadi lebih gelap. Bagi penerimaan keseluruhan, formulasi B mempunyai skor yang tertinggi dalam kalangan roti komposit.