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Effect of okara substitution and level of emulsifier on  
physicochemical characteristics and sensory acceptance of  
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**HAK MILIK**  
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**EFFECT OF OKARA SUBSTITUTION AND LEVEL OF EMULSIFIER ON  
PHYSICOCHEMICAL CHARACTERISTICS AND SENSORY ACCEPTANCE OF  
PEANUT BUTTER**

**By  
TUNG MEI YUN**

**Research Report submitted in partial fulfillment of  
the requirements for the degree of  
Bachelor of Food Science (Food Service and Nutrition)**

**DEPARTMENT OF FOOD SCIENCE  
FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE  
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## ENDORSEMENT

This project report entitles **EFFECT OF OKARA SUBSTITUTION AND LEVEL OF EMULSIFIER ON PHYSICO-CHEMICAL CHARACTERISTICS AND SENSORY ACCEPTANCE OF PEANUT BUTTER** by **Tung Mei Yun**, Matric No. **UK 16611** 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 requirement of the degree of Bachelor of Food Science (Food Service and Nutrition), Faculty of Agrotechnology and Food Science, University 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.

Signature : 

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## ABSTRACT

Okara is a by-product in soymilk and tofu manufacturing which is cheap but nutritious. It is low in fat, high level of dietary fiber and good quality protein; thus, making it highly potential to be utilized into healthy snack food. Peanut butter is an alternative product that can be produced from partial substitution of okara. The objectives of this study were to determine effects of okara substitution and level of emulsifier on physicochemical properties and sensory acceptance of peanut butter. Samples were produced with different level of okara substitutions (0%, 5%, 10%, 15%, 20% and 25%) and different level of emulsifier (1.75% and 2.00%). Interaction between level of okara substitution and level of emulsifier significantly affected ( $p < 0.05$ ) texture properties (spreadability and consistency) of peanut-okara butter. Meanwhile, level of okara substitution alone significantly affected ( $p < 0.05$ ) protein content, calorie content, oxidative stability and few sensory acceptance attributes (color, spreadability, mouth feel, taste and overall acceptance) of samples. Level of emulsifier alone does not significantly affected physicochemical characteristics of peanut-okara butter. Better physical properties and sensory acceptance were gained from the sample with 15% okara substitution and 2% of emulsifier. Moreover, this sample was also found to have high protein content. These results showed that peanut-okara butter has potentials to be introduced as a new butter product in order to increase utilization and variety of okara-based products in the market.

## ABSTRAK

*Okara* ialah hasil pelupusan dari susu soya dan pembuatan tahu. Ia berpotensi untuk digunakan dalam pembuatan makanan ringan berkhasiat disebabkan harganya murah dan berkhasiat tinggi. Mentega kacang merupakan produk sampingan yang boleh dikeluarkan dengan penggantian *Okara*. Objektif bagi kajian tersebut adalah untuk mengkaji kesan penggantian okara dan tahap pengemusi dalam fizikokimia dan penerimaan deria mentega kacang. Pengeluaran sampel dengan menggunakan pelbagai tahap penggantian okara (0%, 5%, 10%, 15%, 20% dan 25%) dan tahap pengemusi yang berlainan (1.75% dan 2.00%). Interaksi antara penggantian okara dan tahap penambahan pengemusi membawa perbezaan signifikan ( $p < 0.05$ ) pada tekstur (konsisten dan spreadability). Selain itu, tahap penggantian *okara* sahaja membawa perbezaan signifikan ( $p < 0.05$ ) pada komposisi prosikmat (protein), komposisi kalori, kestabilan oksidatif dan beberapa ciri penerimaan deria (warna, spreadability, rasa mulut, rasa, penerimaan keseluruhan). Sifat fizikal dan penerimaan deria yang terbaik ialah sampel dengan penggantian 15% okara dan 2% pengemusi. Di samping itu, sampel tersebut mengandungi kandungan protein yang tinggi. Keputusan tersebut menunjukkan mentega okara kacang mempunyai potensi untuk dipasarkan bagi meningkatkan penggunaan dalam produk lain.