

PHYSICO-CHEMICAL AND SENSORIAL PROPERTIES OF CAKE
MADE WITH SOYBEAN (*Glycine max*) FLOUR AND SELF-
RAISING FLOUR

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PHYSICO-CHEMICAL AND SENSORY PROPERTIES OF CAKE MADE WITH
COCONUT (*Cocos nucifera*) FLOUR AND SELF -RAISING FLOUR

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DECLARATION

I hereby declare that this research project is based on my original work except for quotations and summaries which have been duly acknowledged.

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ABSTRACT

The purpose of this study was to determine the physico-chemical and sensory properties of cake made with self-raising flour and coconut (*Cocos nucifera*) flour. Blends comprising self-raising flour and coconut flour in certain ratios were made in order to determine the maximum acceptable levels of coconut flour into cake-making. Six blends of self-raising flour (SF) and coconut flour (CF) were prepared. SAS programme was used to determine the Analysis of Variance (ANOVA) and Duncan's Multiple Range Test (DMRT). Results in this study indicated that the protein and fiber contents of cakes increased significantly with the incorporation of higher percentage of coconut flour. The chemical analysis showed the percentage of protein of cakes that made with 100 % self-raising flour, 10 %, 20 %, 30 %, 40 % and 50 % of coconut flour increased from 3.15 %, 4.61 %, 5.29 %, 5.43 %, 5.70 %, 5.82 % and for fiber contents, it increased from 0.67 %, 2.37 %, 3.25 %, 5.21 %, 6.75 %, 10.29 % respectively. Formulation C, D, E and F can be claimed as source of protein. Formulation D, E and F which contains 30 %, 40 % and 50 % of coconut flour can be claimed as high fiber product and formulation C which contains 20 % of coconut flour can be claimed as good source of fiber. The results also revealed that coconut flour decreased the moisture content but increased the fat content. The physical analysis revealed that coconut flour increased the index of lightness, index of redness, texture and pH of the cakes but there was no significant difference in formulation A, B and C for index of lightness. However index of yellowness was decreased with the increased level of coconut flour. There were 50 panelists involved in the affective sensory test. Cakes which were made with 100 % of self-raising flour, 10 % of coconut flour and 20 % of coconut flour were more acceptable by the panels and there were no significant difference between these three formulations. However formulation with 30 % of coconut flour and 70 % self raising flour, 40 % of coconut flour and 60 % self raising flour and 50 % of coconut flour and 50 % self raising flour of coconut flour showed significant difference ($p < 0.05$) with the acceptance of cakes. This indicated that coconut flour have the potential of being substituted as much as 20 % with the self-raising flour in cake-making.

FIZIKO-KIMIA DAN SENSORI KEK YANG DIHASILKAN DARIPADA TEPUNG KELAPA (*Cocos nucifera*) DAN TEPUNG NAIK SENDIRI

ABSTRAK

Kajian ini dilakukan untuk menentukan fiziko-kimia dan penerimaan sensori kek yang dibuat dengan gabungan tepung naik sendiri dan tepung kelapa (*Cocos nucifera*). Gabungan tepung yang terdiri daripada tepung naik sendiri dan tepung kelapa dibuat dalam nisbah yang tertentu untuk menentukan penerimaan tahap tepung kelapa dalam pembuatan kek yang maksimum. Enam formulasi kek daripada gabungan tepung ini disediakan. Program SAS digunakan untuk melakukan analisis varians (ANOVA) dan *Duncan's Multiple Range Test (DMRT)*. Hasil kajian ini menunjukkan kandungan protein dan gantian meningkat secara signifikan dengan penambahan peratus tepung kelapa. Data analisis kimia menunjukkan peratusan bagi protein dalam kek yang diperbuat daripada 100 % tepung naik sendiri, 10 %, 20 %, 30 %, 40 % dan 50 % tepung kelapa meningkat daripada 3.15 %, 4.61 %, 5.29 %, 5.43 %, 5.70 %, 5.82 % manakala bagi kandungan gantian pula, ia masing-masing meningkat daripada 0.67 %, 2.37 %, 3.25 %, 5.21 %, 6.75 %, 10.29 %. Formulasi C, D, E dan F boleh dikelaskan sebagai produk sumber protein. Formulasi D, E dan F yang mengandungi 30 %, 40 % and 50 % tepung kelapa boleh dikelaskan sebagai produk tinggi gantian manakala formulasi C yang mengandungi 20 % tepung kelapa boleh dikelaskan sebagai sumber gantian. Selain itu, penambahan tepung kelapa menurunkan kandungan kelembapan kek tetapi meningkatkan kandungan lemak dalam kek. Hasil kajian juga menunjukkan penambahan tepung kelapa dalam penghasilan kek meningkatkan indeks kecerahan dan kemerahan kek, tekstur dan pH kek tetapi tiada perbezaan signifikan dalam formulasi A, B dan C bagi indeks kecerahan. Walau bagaimana pun, indeks kekuningan kek berkurangan dengan penambahan tepung kelapa. Terdapat 50 panel yang terlibat dalam ujian afektif bagi penilaian sensori. Kek yang disediakan dengan 100 % tepung naik sendiri, 10 % tepung kelapa dan 20 % tepung kelapa boleh diterima oleh panel di mana ketiga-tiga formulasi ini tidak menunjukkan perbezaan yang signifikan. Walau bagaimana pun, formulasi yang diperbuat daripada 30 % tepung kelapa dan 70 % tepung naik sendiri, 40 % tepung kelapa dan 60 % tepung naik sendiri dan 50 % tepung kelapa dan 50 % tepung naik sendiri menunjukkan perbezaan yang signifikan ($p < 0.05$) dengan penerimaan kek. Ini menunjukkan tepung kelapa berpotensi untuk menggantikan sebanyak 20 % daripada tepung naik sendiri dalam pembuatan kek.