

**PHYSICO-CHEMICAL AND SENSORY
CHARACTERISTICS OF SPONGE CAKE MADE WITH
BANANA (*Musa sapientum*) PEEL FLOUR AND SELF-
RAISING FLOUR**

By

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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.

21st June 2007



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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 banana (*Musa sapientum*) peel flour. Two types of banana peel flour that have been used which are *pisang abu* peel flour and *pisang nangka* peel flour. Blends comprising self-raising flour and banana peel flour in certain ratio and types were made in order to determine the maximum acceptable levels of banana peel flour into sponge cake making. One control sponge cake and eight blends of self-raising flour (SF) and banana peel flour (BF) was prepared. SAS programmed was used to determine the Analysis of Variance (ANOVA) and Duncan's Multiple Range Test (DMRT). The chemical analysis which are moisture content and fiber content were evaluated. The moisture content does not have significant difference between all formulations while for the fiber content the cake made from 100% self-raising flour is significantly different at $p < 0.05$ with all formulations. Results in this study indicated that fiber contents of cakes increased with the incorporation of higher percentage of banana peel flour. The physical analysis revealed, the values for pH, 'L', 'b' and firmness were decreased while for the 'a' value was increased. Sensory evaluation show that the cakes that were made by 5% and 10% of *pisang abu* peel flour and *pisang nangka* peel flour were respectively palatable and can be accepted. It is believed that cakes made with these four formulations have the potential to be commercialized in the market.

FIZIKO-KIMIA DAN SENSORI KEK SPAN YANG DIHASILKAN DARIPADA TEPUNG KULIT PISANG (*Musa sapientum*) DAN TEPUNG NAIK SENDIRI

ABSTRAK

Kajian ini dilakukan untuk menentukan fiziko-kimia dan penerimaan sensori kek span yang dihasilkan dengan gabungan tepung naik sendiri dan tepung kulit pisang (*Musa sapientum*). Dua jenis kulit pisang yang digunakan untuk dihasilkan menjadi tepung iaitu kulit pisang abu dan kulit pisang nangka. Gabungan tepung yang terdiri daripada tepung naik sendiri dan tepung kulit pisang dalam nisbah yang tertentu untuk menentukan penerimaan maksimum terhadap tepung kulit pisang dalam pembuatan kek span. Satu kek span kontrol dan lapan formulasi kek span daripada gabungan tepung naik sendiri dan tepung kulit pisang disediakan. Program SAS digunakan bagi menentukan analisis varians (ANOVA) dan *Duncan's Multiple Range Test* (DMRT). Analisis kimia yang dilakukan adalah analisis kandungan kelembapan dan kandungan serat. Hasil kajian ini menunjukkan kandungan kelembapan adalah tidak perbezaan yang signifikan ($p < 0.05$) diantara semua formulasi manakala kandungan fiber pula terdapat perbezaan diantara kek span yang menggunakan 100% tepung naik sendiri dengan semua formulasi yang lain. Kandungan serat akan meningkat apabila peratus kandungan tepung kulit pisang ditambah. Bagi analisis fizikal kek span pula, apabila peningkatan kandungan tepung kulit pisang, akan merendahkan nilai 'L', nilai 'b', pH, serta kek span menjadi semakin lembut manakala nilai 'a' akan meningkat. Terdapat 50 orang panel yang terlibat dalam ujian afektif penilaian sensori bagi kek span kulit pisang. Analisis sensori menunjukkan bahawa kek yang dihasilkan dengan menggunakan 5% dan 10% tepung kulit pisang abu dan kulit pisang nangka. Empat formulasi kek span yang telah dihasilkan dijangka berpotensi untuk dikomersialkan di pasaran.