EFFECT OF SOYMILK SUBSTITUTION ON PHYSICOCHEMICAL PROPERTIES AND SENSORY PREFERENCE OF INSTANT MASI LEMAK

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ENDORSEMENT

The project report entitled **Effect of Soymilk Substitution on Physicochemical Properties and Sensory Preference of Instant *Nasi Lemak*** by **KU POH LING**, Matric No. **UK17081** has been reviewed and corrections have been made according to the recommendations by examiners. This report is submitted to the Department Food Science of in partial fulfillment of the requirement of the degree of Bachelor 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 quotation and summaries which have been duly acknowledged

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ABSTRACT

Coconut milk contains high content of saturated fat and soy milk substitution in food brings new trend of healthy lifestyle. Meanwhile, instant *nasi lemak* provided convenient version of *nasi lemak*. Five formulations of instant *nasi lemak* were prepared with the ratio between coconut milk and soy milk ranged from 100:0, 75:25, 50:50, 25:75, and 0:100. Substitution of soy milk in instant *nasi lemak* caused the changes of physical, chemical characteristics and sensory preference of *nasi lemak*. Physical properties examined including colour, density, water activity, microstructure, rehydration ratio, volume increase and texture analysis; while chemical tests included proximate composition, fatty acid profile and calorie content as well as sensory preference test of instant *nasi lemak*. This study shows soy milk substitution in instant *nasi lemak* give better characteristics. Soy milk incorporated in instant *nasi lemak* caused significant increased ($p<0.05$) in hardness, springiness, gumminess, cohesiveness, resilience, greenness, yellowness and density. However, this substitution resulted in significant decrease ($p<0.05$) in adhesiveness, lightness, whiteness, water activity, pores size, rehydration ratio and volume increase of instant *nasi lemak*. For chemical characteristics, increasing level of soy milk substitution had significantly increased ($p<0.05$) protein content, fiber content, ash content and carbohydrate content while decreasing fat content and calorie content of instant *nasi lemak*. In addition, increased soy milk substitution had decreased the percentage of saturated fatty acid and increased unsaturated fatty acid percentage in instant *nasi lemak*. However, it did not significantly affected ($p>0.05$) moisture content and greenness of instant *nasi lemak*, as well as springiness, lightness and whiteness of rehydrated *nasi lemak*. The highest scores of sensory preferences for both fresh and rehydrated *nasi lemak* were attained by samples produced with the ratio of coconut milk to soy milk of 75:25. This sample had higher sensory preference, higher protein content, lower fat content, higher unsaturated fatty acid percentage, and lower calorie content compared to control sample. This study shows that soy milk has potentials to be incorporated in instant *nasi lemak* with satisfying sensory preference.

ABSTRAK

Santan mengandungi kandungan lemak tepu yang tinggi dan penggantian susu soya dalam makanan membawa kepada trend baru dengan gaya hidup yang sihat. Sementara itu, nasi lemak segera memudahkan penyediaannya. Lima fomulasi nasi lemak disediakan dengan nisbah antara santan dan susu soya adalah antara 100:0, 75:25, 50:50, 25:75, dan 0:100. Penggantian susu soya dalam nasi lemak menyebabkan perubahan fizikal, ciri-ciri kimia dan keutamaan deria nasi lemak. Sifat-sifat fizikal diperiksa termasuk warna, ketumpatan, aktiviti air, mikrostruktur, nisbah rehidrasi, isipadu tambahan dan analisis tekstur, manakala ujian kimia termasuk kimia komposisi, profil asid lemak dan kandungan kalori dan juga nasi lemak keutamaan deria. Kajian ini menunjukkan penggantian susu soya dalam nasi lemak memberikan ciri-ciri yang lebih baik. Nasi lemak yang ditambahkan dengan susu soya menyebabkan peningkatan yang ketara ($p < 0.05$) dalam kekerasan, elastik, "gumminess", kelikatan, daya tahanan, warna kehijauan, kekuningan dan ketumpatan. Walau bagaimanapun, penggantian ini menyababkan penurunan yang ketara ($p<0.05$) dalam kelekatan, keterangan warna, keputihan, aktiviti air, saiz liang, nisbah rehidrasi dan isipadu tambahan nasi lemak. Untuk ciri-ciri kimia, peningkatan jumlah penggantian susu soya menyebabkan peningkatan yang ketara ($p < 0.05$) dalam kandungan protein, kandungan serat, kandungan abu dan kandungan karbohidrat manakala mengurangkan kandungan lemak dan kandungan kalori. Di samping itu, peningkatan jumlah susu soya mengurangkan jumlah asid lemak tepu dan peningkatan jumlah asid lemak tak tepu dalam nasi lemak. Walau bagaimanapun, ia tidak memberi kesan yang ketara ($p > 0.05$) dalam. kandungan lembapan dan warna kehijauan nasi lemak segera, elastik, keterangan warna, dan keputihan nasi lemak yang dihidratkan semula. Markah tertinggi keutamaan deria untuk nasi lemak yang segar dan dihidratkan semula adalah sampel yang dihasilkan dengan nisbah 75:25. Sampel ini mempunyai keutamaan deria yang lebih tinggi, kandungan protein yang lebih tinggi, kandungan lemak yang rendah, lebih banyak asid lemak tak tepu, kandungan kalori yang lebih rendah berbanding dengan sampel kawalan. Kajian ini menunjukkan bahawa susu soya mempunyai potensi untuk menggantikan santan dalam nasi lemak dengan keutamaan deria yang memuaskan.