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Sekian, terima kasih.

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**DEVELOPMENT OF CREAM CRACKERS
CONTAINING COCONUT PALM SUGAR:
NUTRITIONAL COMPOSITION AND SENSORY
ANALYSIS**

by

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A dissertation submitted in partial fulfillment of the requirements for the degree of
Bachelor of Technology (B.Tech) in the field of Food Technology
School of Industrial Technology
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DECLARATION BY AUTHOR

This dissertation is composed of my original work and contains no material previously published or written by another person except where due reference has been made in the text. The content of my dissertation is the result of work I have carried out since the commencement of my research project and does not include a substantial part of work that has been submitted to qualify for the award of any other degree or diploma in any university or other tertiary institute.

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June 2020

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LIST OF ABBREVIATIONS

Abbreviation	Caption
CPS50	50% Coconut palm sugar + 50% White sugar
CPS100	100% Coconut palm sugar
GI	Glycemic index
L*	Lightness
a*	Red/green coordinate
b*	Yellow/blue coordinate
g	Gram
min	Minute
sec	Second

ABSTRAK

Gula kelapa sebagai pemanis semula jadi boleh digunakan dalam pelbagai makanan. Kajian ini bertujuan untuk menghasilkan biskut krim dengan penggunaan gula kelapa asli. Selain itu, kajian ini juga menentukan kesan gula kelapa pada komposisi makanan, profil tekstur dan penerimaan pengguna terhadap biskut krim yang dihasilkan. Dalam kajian ini, penggunaan gula putih telah digantikan oleh gula kelapa asli pada nisbah 0% (kawalan), 50% dan 100% dalam formulasi biskut krim. Biskuit krim telah ditambahkan dengan gula kelapa asli bagi kajian komposisi pemakanan, sifat fizikal dan sifat sensori. Keputusan analisis telah menunjukkan bahawa biskut krim yang dihasilkan dengan 100% gula kelapa mempunyai kelembapan (3.23%), protein (12.08%), abu (2.84%) dan karbohidrat (70.30%) yang lebih tinggi ($p < 0.05$) berbanding dengan sampel kawalan. Manakala, kandungan lemak (12.55%) adalah lebih rendah berbanding formulasi biskut krim yang lain. Dari segi ciri fizikal, biskut krim yang ditambahkan dengan 100% gula kelapa menunjukkan nilai yang paling rendah dalam keterangan (L^*) dan nilai tertinggi dalam a^* dan b^* . Selain itu, penggunaan 100% gula kelapa juga merendahkan kekerasan biskut krim ($p < 0.05$). Hasil penilaian sensori menunjukkan bahawa biskut krim yang diformulasikan (100% gula kelapa) menerima nilai skor tertinggi dari segi aroma, rasa, tekstur dan penerimaan keseluruhan, tetapi nilai skor terendah dari segi warna. Oleh itu, gula kelapa boleh digunakan sebagai bahan mentah untuk mengembangkan biskut krim.

ABSTRACT

Coconut palm sugar can be used as a natural sweetener in various food. This study aimed at developing cream cracker using genuine coconut palm sugar. Besides, this study also determined the effect of coconut palm sugar on the proximate, texture profile and consumer acceptability of developed cream cracker. In this study, genuine coconut palm sugar was used to substitute the usage of white sugar at 0% (control), 50% and 100% ratio in the formulation of cream crackers. Cream crackers incorporated with coconut palm sugar were investigated for their nutritional composition, physical properties and sensory properties. Proximate analysis of cream crackers was carried out, and cream crackers with 100% coconut palm sugar substitution showed significantly higher ($p < 0.05$) moisture (3.23%), protein (12.08%), ash (2.84%) and carbohydrates content (70.30%) with lower fat (12.55%) than control. In terms of physical characteristics, incorporation of 100% coconut palm sugar into cream crackers showed lowest value in lightness (L^*) and highest value in a^* and b^* . Besides, 100% substitution levels of coconut palm sugar also decreased the hardness of cream crackers ($p < 0.05$). Sensory evaluation revealed that formulated cream crackers (100% coconut palm sugar) received the highest score values in terms of aroma, taste, texture and overall acceptability, but lowest score values in terms of colour. Coconut palm sugar could be used as a raw ingredient for developing cream crackers.