

THE EFFECT OF GUAR GUM AND XANTHAN GUM TO THE HARDNESS OF
CINCALUK CUBE

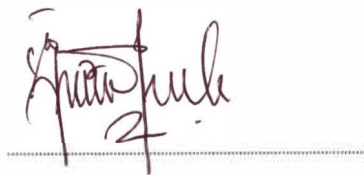
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Research Report submitted in partial fulfillment of
the requirement for degree of
Bachelor of Food Science (Food Technology)

Department of Food Science
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ENDORSEMENT

The project report entitled **Development of Cincaluk Cube and the Effect of Guar Gum and Xanthan Gum to the Texture of the Cube** by **Nadiana Bt Abdul Nasil**, Matric No. **UK16836** has been reviewed and corrections have been made according to the recommendation by examiners. This report is submitted to the Department of Food Science in partial fulfillment of the requirement of the degree of the 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 quotations and summaries which have been duly
acknowledge.

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ABSTRACT

The effect of guar gum and xanthan gum to the cinaluk cube texture at different ratio (guar gum:xanthan gum) (10:0, 2:8, 4:6, 6:4, 8:2, 0:10) were investigated. Prepared cinaluk was dried at 50°C into 10% moisture content by using hot air drying method. The hardness, color, water solubility index, sensory and proximate analysis (moisture, protein, fat, ash and carbohydrate) of cinaluk cubes produced were examined. Hardness determination was measured by using texture analyzer and sensory analysis was conducted by 30 untrained panelists. Sample ratio 8:2 present the highest hardness value (783.01 ± 3.18 g) and the hardness of cinaluk cubes were increased with the increases of guar gum. However, sample with guar gum only (10:0) showed lower hardness value (644.74 ± 1.50 g) than the mixture of guar gum and xanthan gum. There were significantly difference ($p < 0.05$) on the hardness values between samples at different ratio. There were no significance different ($p > 0.05$) on color different ΔE , between samples at different ratio but the value was consider high. Sample ratio 6:4 showed the highest solubility index (4.45 ± 0.05 %) while sample with xanthan gum only (0:10) showed the lowest solubility index (2.22 ± 0.12 %). Overall acceptance showed that there were significance different ($p < 0.05$) between all samples and commercial cinaluk. The proximate values for the cinaluk cubes with different formulation were not significantly different ($p > 0.05$) for protein, fat, moisture, ash, and carbohydrate respectively. This study found that ratio 6:4 of guar gum and xanthan gum was the best combination to produce a good texture of cinaluk cube.

ABSTRAK

Kesan penambahan guar gum dan xanthan gum kepada tekstur kiub cinaluk dikaji. Kiub cinaluk dihasilkan dengan mengeringkan cinaluk kepada 10 peratus kandungan air dengan menggunakan pemanasan udara. Kekerasan, warna, indeks kelarutan air, analisis deria dan komposisi (kandungan air, protein, lemak, karbohidrat dan abu) dalam kiub cinaluk dikaji. Kekerasan kiub diukur dengan menggunakan Texture Analyzer dan analisis deria dijalankan ke atas 30 orang panel. Sampel dengan ratio 8:2 menunjukkan nilai kekerasan yang paling tinggi (783.01 ± 3.18 g) dan kekerasan kiub cinaluk didapati meningkat dengan penambahan guar gum tetapi sampel dengan penambahan guar gum sahaja (10:0) mempunyai nilai yang lebih rendah (644.74 ± 1.50 g) berbanding dengan penambahan bersama xanthan gum. perbezaan yang ketara ($p < 0.05$) bagi kekerasan kiub. Disamping itu, perubahan warna, ΔE dikaji dan didapati tidak berbeza dengan ketara ($p > 0.05$) antara sampel tetapi nilai perubahan warna kiub adalah tinggi menunjukkan warna kiub berbeza dengan cinaluk komersial. Sampel dengan nisbah 6:4 mempunyai index kelarutan air yang paling tinggi (4.45 ± 0.05 %) sementara sampel dengan xanthan gum sahaja menunjukkan nilai paling rendah (2.22 ± 0.12 %). Bagi penilaian deria untuk penerimaan secara keseluruhan menunjukkan perbezaan yang ketara antara kiub dan cinaluk komersial dan purata skor penerimaan masih dalam lingkungan diterima. Komposisi dalam kiub adalah 21.44 ± 0.17 , 0.30 ± 0.1 , 15.65 ± 1.76 , 21.01 ± 0.06 and 39.01 ± 2.23 peratus bagi protein, lemak, kandungan air, abu dan karbohidrat. Kajian ini mendapati bahawa sampel dengan nisbah guar gum dan xanthan gum (6:4) merupakan kombinasi terbaik dalam penghasilan kiub yang mempunyai tekstur yang terbaik.