

DEVELOPMENT OF INSTANT 'KEROPOK LEKOR' POWDER FROM DIFFERENT
RATIO OF TAPIOCA AND SAGO FLOUR

By

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Research Report submitted in partial fulfilment of
the requirements for the degree of
Bachelor of Food Science (Food Technology)

DEPARTMENT OF FOOD SCIENCE
FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE
UNIVERSITI MALAYSIA TERENGGANU

2012

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ENDORSEMENT

The project report entitled **Development of Instant ‘Keropok Lekor’ Powder from Different Ratio of Tapioca and Sago Flour** by **Chong Yew Siong**, Matric No. **UK 17900** has been reviewed and corrections have been made according to the recommendations by examiners. This report is submitted to the Department of Food Science in partial fulfilment of the requirement of the degree 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 quotations and summaries which have been duly acknowledged.

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ACKNOWLEDGEMENT

First of all, I would like to thank my family for giving me the reason and strength to complete this thesis. I would like to dedicate my appreciation to all especially my parents who keeps on supporting me along the journey of completing this thesis. Without them, there are no way I can make this far.

I would also like to record a special thanks to my beloved and most respected supervisor, DR YUSNITA HAMZAH for her encouragement, suggestion, advises as well as guidance along the time of study and the whole journey of completing this thesis. I would also like to thank her for all the patience she gave me when she was guiding me through. Lastly I would like to thank her for not giving up on an imperfect student like me.

Besides, I would also like to thank the Department of Food Science for giving me this opportunity and provide me with the laboratory facilities needed to complete the lab work for my thesis. Not to forget all lecturers, laboratory officer and staff who help me finishing my thesis either directly or indirectly.

Last but not least, I would like to say thank you to all my friends who are very helpful and supportive in assisting me to finish my thesis. Your help will not be forgotten and I will remember it for the rest of my life. Thank you so much.

Finally, I would like to apologize to everyone for my bad attitude and rude manners whether it is intentionally or not.

ABSTRACT

The objective of this study was to develop instant 'Keropok Lekor' powder and to examine the effect of different ratios of tapioca flour to sago flour on physical, chemical and sensory characteristic of fried 'Keropok Lekor' made using the developed instant 'Keropok Lekor' powder. Five different ratios of tapioca to sago starch were used in the formulation of instant 'Keropok Lekor' powder which are 80:20, 60:40, 50:50 (Control), 40:60 and 20:80 respectively. In order to study the physical properties of instant 'Keropok Lekor' powder, color analysis, water activity test and cold water solubility test were carried out. Next to study the physical properties of fried 'Keropok Lekor' made from the developed instant 'Keropok Lekor' powder, percentage of expansion, texture profile analysis and color analysis were carried out. Other than that, chemical properties like protein content, fat content, ash content, moisture content and carbohydrate content were also carried out. Lastly sensory testing (acceptance test) was carried to investigate the sensory acceptance of fried 'Keropok Lekor'. Color analysis done on instant 'Keropok Lekor' powder revealed that the L^* , a^* and b^* value were 81.49-85.98, (-0.26)-(-0.55), and 16.87- 19.24 respectively. Water activity and cold water solubility were found to be 0.22-0.23 and 6.22-13.99 respectively. As for the physical analysis of fried 'Keropok Lekor', the L^* , a^* and b^* value were 37.52-46.68, 6.05-8.45 and 20.98-31.59 respectively. Percentage of expansion was in the range of 4.73% to 16.03%. For texture profile analysis, only hardness show most significant value in the range of 2500g-11000g. The results of chemical analysis showed that ash, protein and fat were significantly different among samples. They are 1.41% to 3.25% for ash content, 7.88% to 10.44% for protein and 9.37% to 12.87% for fat content. As for sensory evaluation, formulation B (60% tapioca flour: 40% sago flour ratio) have the highest score among all formulation although only moderate acceptance was obtained from the panel.

ABSTRAK

Objektif kajian ini adalah untuk menghasilkan serbuk keropok lekor segera dan mengkaji kesan nisbah tepung ubi kayu kepada tepung sagu terhadap sifat fizikal, kimia dan ujian deria rasa keropok lekor goreng yang dibuat daripada serbuk keropok lekor segera yang telah dihasilkan. Lima nisbah tepung ubi kayu kepada tepung sagu yang berbeza telah digunakan dalam peformulasian serbuk keropok lekor segera iaitu nisbah 80:20, 60:40, 50:50 (Sebagai kawalan), 40:60 dan 20:80 masing –masing. Untuk mengkaji sifat fizikal serbuk keropok lekor segera, analisis warna, ujian aktiviti air dan ujian kelarutan air sejuk telah dijalankan. Seterusnya, ujian pembangan linear, analisis profil tekstur dan analisis warna telah dijalankan untuk mengkaji sifat fizikal keropok lekor yang digoreng daripada serbuk keropok lekor segera. Selain daripada itu, sifat-sifat kimia seperti protein, lemak, abu, air dan karbohidrat juga dijalankan. Akhir sekali, ujian deria rasa juga telah dijalankan untuk mengkaji penerimaan deria rasa keropok lekor yang digoreng. Analisis warna yang dijalankan menunjukkan nilai L^* , a^* dan b^* adalah 81.49-85.98, (-0.26)-(-0.55), dan 16.87- 19.24 masing-masing. Aktiviti air dan kelarutan air sejuk masing masing menunjukkan nilai 0.22-0.23 dan 6.22-13.99. Untuk analisis fizikal bagi keropok lekor goreng, nilai L^* , a^* dan b^* adalah 37.52-46.68, 6.05-8.45 dan 20.98-31.59 masing masing. Untuk ujian daya pengembangan, 4.73%-16.03% pengembangan didapati. Untuk analisis profil tekstur, hanya nilai kekerasan yang menunjukkan perbezaan yang signifikan iaitu di antara 2500g hingga 11000g. Keputusan ujian kimia menunjukkan hanya keputusan untuk abu, protein dan lemak yang menunjuk perbezaan yang signifikan. Masing –masing adalah 1.41% hingga 3.25%, 7.88% hingga 10.44% dan 9.37 hingga 12.87%. Untuk ujian deria rasa, formulasi B (60% tepung ubi kayu: 40% tepung sagu) mempunyai nilai skor yang tertinggi tetapi product ini hanya mendapat penerimaan yang sederhana dari panel.