DEVELOPMENT AND PHYSICOCHEMICAL ANALYSIS OF SAUCE FROM ASIAN MOON SCALLOP (*Amusium pleuronectes*)

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FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE
UNIVERSITI MALAYSIA TERENGGANU
2012

cfn: 9253

Development and physicochemical analysis of sauce from asian moon scallop (Amusium pleuronectes) / Chan Kin Wah.

DEVELOPMENT AND PHYSICOCHEMICAL ANALYSIS OF SAUCE FROM ASIAN MOON SCALLOP (*Amusium pleuronectes*)

By
Chan Kin Wah

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
UNIVERSITY MALAYSIA TERENGGANU
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ENDORSEMENT

This project report entitled **DEVELOPMENT AND PHYSICOCHEMICAL ANALYSIS OF SAUCE FROM ASIAN MOON SCALLOP (*Amusium pleuronectes*)** by **Chan Kin Wah**, Matric No. **UK 16487** 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 fulfillment of the requirement of the degree of Bachelor of Food Science (Food Technology), Faculty of Agrotechnology and Food Science, University 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 supervisor, Pn. Nizaha and my co-supervisor, Dr. Amir Izzwan for their guidance, suggestions, patience and available knowledge in helping me to accomplish my final year project.

Secondly, I want to thank to all panels who involved in proposal, progress and final presentation for my final year project. Thank to them for pointed out my mistakes and gave me suggestions during presentations.

I would also like to extend my warmest gratitude and appreciation to all Food Science Department staff and lab assistants for their continuous help, guidance and invaluable advices.

Last but not least, I wish to thank my parent, friends and course mates, who gave me supports and encouragements that enable me to accomplish this project. Especially thanks to my friends who were helping me in the project sensory evaluation.

ABSTRACT

Asian moon scallop (*Amusium pleuronectes*) is a mollusc that widely distributed commercially in the tropical and subtropical waters of the Indo-Pacific, Indian Ocean, South China Sea, Indo-China, Japan, Philippines, New Guinea, Indonesia, Java and Australia. In order to diversify the usage of the scallop, a sauce was developed in this study. The sauce produced was evaluated through its physicochemical properties, besides sensory evaluation to see its acceptability in terms of panelists' acceptance. Consumers have less choice for shellfish sauces, commonly seen in the market are oyster and abalone sauces. This study gives consumers a chance to try other sauce in order to create variability of mollusc sauce in cooking. The sample was bought from Pulau Kambing, Kuala Terengganu, Terengganu. Blended scallop meat was cooked in water to obtain extract. Extract, water, sugar, HVP, salt, modified corn starch, MSG, wheat flour, caramel and citric acid were mixed well then heated and simmered until sauce thickened. Sauce produced was then bottled with hot-filling method. Physicochemical analyses had done on Asian moon scallop sauce included total soluble solid, pH, viscosity, colour and water activity. Proximate analyses had done on produced sauce included moisture content, protein, fat, ash and total carbohydrate. Sensory evaluation was then carried out by using quantitative acceptance affective test, involving 30 untrained panellists. Attributes tested were colour, aroma, taste and overall acceptance. Seven points hedonic scale was used to evaluate these attributes. Statistical analysis was carried out by one-way ANOVA test for physicochemical, proximate and sensory analysis, and Kruskal-Wallis test for sensory analysis which the data distribution was not normal. Different percentages of Asian moon scallop extract did affect physicochemical, proximate and sensory characteristics of the produced sauce. The produced sauce has generally good acceptance for all formulations, and the most acceptable sauce was the sauce with 30% extract. Increasing of scallop extracts in the production of sauce had increased the total soluble solid, viscosity, fat, protein and ash content of the sauce.

ABSTRAK

Kekapis (*Amusium pleuronectes*) adalah moluska yang luas diedarkan secara komersial di perairan tropika dan subtropika Indo-Pasifik, Lautan Hindi, Laut China Selatan, Indo-China, Jepun, Filipina, New Guinea, Indonesia, Jawa dan Australia. Dalam usaha untuk mempelbagaikan penggunaan kapis, sos telah dihasilkan dalam kajian ini. Sos yang dihasilkan adalah dinilai melalui sifat-sifat fizikokimia, selain penilaian deria untuk melihat penerimaan dari segi penerimaan ahli-ahli panel. Pengguna kekurangan pilihan bagi sos jenis kerang-kerangan, kebiasaannya dilihat dalam pasaran adalah sos tiram dan sos abalone. Kajian ini memberikan pengguna peluang untuk mencuba sos yang lain selain mewujudkan kepelbagaian sos moluska dalam masakan. Sampel telah dibeli dari Pulau Kambing, Kuala Terengganu, Terengganu. Isi Kekapis yang telah dikisar dimasak dengan air untuk mendapatkan ekstrak. Ekstrak, air, gula, HVP, garam, kanji jagung yang telah diubahsuai, MSG, tepung gandum, karamel dan asid sitrik dicampur rata dan kemudian dipanaskan sehingga sos menjadi pekat. Sos yang dihasilkan diisi ke dalam botol dengan kaedah "hot-filling". Analisis fizikokimia yang telah dilakukan pada sos Kekapis termasuk jumlah pepejal larut, pH, kepekatan, warna dan aktiviti air. Analisis proksimat yang telah dilakukan pada sos yang dihasilkan termasuk kandungan lembapan, protein, lemak, abu dan jumlah karbohidrat. Penilaian deria telah dijalankan dengan menggunakan ujian kuantitatif penerimaan afektif yang melibatkan 30 ahli panel yang tidak terlatih. Sifat-sifat yang diuji adalah warna, aroma, rasa dan penerimaan keseluruhan. Kertas markah berskala 7 markah telah digunakan untuk menilai sifat-sifat ini. Analisis statistik telah dijalankan dengan ujian one-way ANOVA untuk analisis fizikokimia, proksimat dan deria, dan ujian Kruskal-Wallis bagi analisis deria yang taburan data tidak normal. Peratusan ekstrak Kekapis yang berlainan memberi kesan terhadap ciri-ciri fizikokimia, proksimat dan deria bagi sos yang dihasilkan. Sos yang dihasilkan mempunyai penerimaan yang baik untuk semua rumusan, dan penerimaan yang tertinggi adalah sos dengan ekstrak 30%. Peningkatan penggunaan ekstrak kapis dalam penbuatan sos telah meningkatkan jumlah pepejal larut, kepekatan, lemak, protein dan kandungan abu sos.