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Development and physicochemical analysis of mantis shrimp
(Harpiosquilla harpax) sauce / Engku Hanisah Engku Ubaidillah

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Lihat Sebeih

**DEVELOPMENT AND PHYSICOCHEMICAL ANALYSIS OF MANTIS SHRIMP
(*Harpiosquilla harpax*) SAUCE**

By

Engku Hanisah binti Engku Ubaidillah

**Research Report submitted in partial fulfillment 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**

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ENDORSEMENT

This project report entitle **DEVELOPMENT AND PHYSICOCHEMICAL ANALYSIS OF MANTIS SHRIMP (*Harpiosquilla harpax*) SAUCE** by **Engku Hanisah binti Engku Ubaidillah**, Matric No. **UK18295** has been reviewed and corrections have been made according to the reccomendations by examiners. This report is submitted to Department of Fod 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 excepts for quotations and summaries which have been duly acknowledged.

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ABSTRACT

This project was to develop sauce from mantis shrimp (*Harpiosquilla harpax*), to determine the acceptability of the sauce produced and to determine the physicochemical properties of developed mantis shrimp sauce. This project was important as the commercial oyster sauces contain less oyster extract and oyster is expensive (RM40-50 per kg). Consumer do not have much choice other than oyster and abalone sauce. Oyster culture in Malaysia is not well developed. The sample was obtained at Segari, Manjung, Perak. The mantis shrimp was cooked in water to obtain stock. Stock, water, sugar, salt, MSG, citric acid, HVP, wheat flour, modified corn starch and caramel were heated and simmered until sauce thickened. Sauce produce was then bottled with “hot-filling” method. Physicochemical analyses done on mantis shrimp sauce included total soluble solid, pH, viscosity, color and water activity. Proximate analysis has done on sauce produce included moisture content, protein, fat, ash and total carbohydrate. Sensory evaluation was then carried out by using quantitative acceptance affective test that involved 30 untrained panelists. Attributes tested were color, viscosity, aroma, taste, after taste and overall acceptance. 7 points scaling score sheet was used. Statistical analysis was carried out by CRD (complete randomized design), One-Way ANOVA test for physicochemical and proximate analysis, and Kruskal-Wallis test for sensory analysis. Different percentage of mantis shrimp stock did affect physicochemical, and proximate and sensory characteristic of the sauce produced but there was only significant different in viscosity and color (a* and b*) for physicochemical, significant different in protein and carbohydrate for proximate. Sauce produce had generally good acceptance for all formulation and highest acceptance for sample with 50% stock. Increase of stock, increase the total soluble solid, viscosity, fat, protein, ash, aroma, taste and overall acceptance of the sauce.

ABSTRAK

Kajian ini telah dilakukan untuk menghasilkan sos daripada udang lipan (*Harpiosquilla harpax*), menentukan tahap penerimaan terhadap sos yang telah dihasilkan dan menentukan ciri-ciri fisikokimia pada sos udang lipan yang dihasilkan. Kajian ini sangat penting kerana sos tiram komersial mengandungi kandungan ekstrak yang sangat sedikit dan harga tiram yang tinggi (RM40-50 per kg). Pengguna tidak mempunyai pilihan lain selain daripada sos tiram dan sos abalone dan juga kultur tiram di Malaysia tidak berkembang dengan baik. Sampel didapati di Segari, Manjung, Perak. Udang lipan yang telah dikisar dimasak dengan air untuk mendapatkan stok. Stok, air, gula, garam, MSG, asid sitrik, HVP, tepung gandum, kanji jagung yang telah diubahsuai dan caramel dipanaskan sehingga sos menjadi pekat. Sos yang dihasilkan telah diisi ke dalam botol dengan cara pengisian panas. Analisis fisikokimia yang telah dilakukan kepada sos udang lipan termasuk jumlah pepejal larut, pH, kepekatan, warna dan aktiviti air. Analisis proksimat yang dilakukan keatas sos yang dihasilkan termasuk kandungan air, protein, lemak, abu dan jumlah karbohidrat. Penilaian sensori telah dilakukan dengan menggunakan unian kualitatif penerimaan afektif yang melibatkan 30 orang ahli panel tak terlatih. Atribut-atribut yang diuji adalah warna, kepekatan, aroma, rasa, rasa asing dan penerimaan keseluruhan. Kertas markah berskala 7 poin telah digunakan. Analisis statistic telah dijalankan dengan rekabentuk rawak lengkap, ujian One-Way ANOVA untuk analisis fisikokimia dan proksimat, dan unian Kruskal-Wallis untuk analisis sensori. Peratusan stok udang lipan yang berlainan akan member kesan terhadap ciri-ciri fisikokimia, proksimat dan sensori dalam sos, tetapi ada perbezaan ketara hanya terdapat pada kepekatan dan warna (a^* dan b^*) untuk fisikokimia dan ada perbezaan ketara pada protein dan karbohidrat untuk proksimat. Sos yang dihasilkan keseluruhan dapat diterima dengan baik dan penerimaan yang tertinggi adalah sos yang mempunyai 50% stok. Peningkatan penggunaan stok meningkatkan jumlah pepejal larut, kepekatan, lemak, protein, abu, aroma, rasa dan penerimaan keseluruhan sos.