

PHYSICOCHEMICAL PROPERTIES AND AMINO ACID  
PROFILE OF EEL (*Monopterus albus*), CATFISH  
(*Clarias gariepinus*) AND SHAMFELD FISH  
(*Channa striata*) ESSENCES

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**PHYSICOCHEMICAL PROPERTIES AND FATTY ACID PROFILE OF EEL  
(*Monopterus albus*), CATFISH (*Clarias gariepinus*), SNAKEHEAD FISH  
(*Channa striata*) ESSENCES**

**By**

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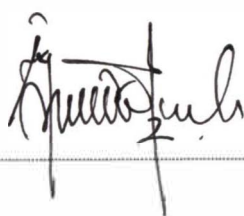
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## ENDORSEMENT

The project report entitled **Physicochemical Properties and Fatty Acid Profile of Eel (*Monopterus Albus*), Catfish (*Claria gariepinus*) and Snakehead fish (*Channa striata*) Essences** by **Khairunnisa binti Khalid**, Matric No. **UK 16788** has been reviewed and corrections have been made according to the recommendations by examiners. This report is submitted for the Department of Food Science in partial fulfilment of the requirement of the degree of Bachelor of Food Science (Food Technology), Faculty of Agrotechnology and Food Science, Universiti Malaysia Terengganu.



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## DECLARATION

I hereby declare that work in this thesis is my own except  
for quotations and summaries which have been duly  
acknowledged.

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## ABSTRACT

This study was carried to investigate the physicochemical properties of fish extracted from (swamp eel, catfish and snakehead) and to study their fatty acid composition. The fish essences were extracted by using aqueous extraction method where water was added depend on weighed of fish flesh at ratio 1:1 to get the 50% (w/v) concentration of essences. The evaluations of fatty acid composition were done by using GC method and were identified by using retention time. The physicochemical of fish essences were determine by several analysis (color, viscosity, total soluble solid, pH and proximate composition). The results indicated that the swamp eel essence was significantly different ( $L^*=65.53$ ,  $a^*=-7.65$ ,  $b^*=22.82$ ) with catfish ( $L^*=51.14$ ,  $a^*=-2.33$ ,  $b^*=6.56$ ) and snakehead essences ( $L^*=42.88$ ,  $a^*=-1.18$ ,  $b^*=5.78$ ). Swamp eel essence recorded the maximum viscosity (2.73 Cp), high total soluble solid (1.8°Brix) and lowest pH (5.89). Meanwhile catfish showed the viscosity (1.73), lowest total soluble solid (1.6°Brix) and pH (7.14). Snakehead essence showed the lowest value of viscosity (0.7 Cp), highest total soluble solid (1.87°Brix) and pH (7.29). The proximate composition of swamp eel essence were: moisture content 97.16%, crude protein 1.97%, ash 0.89% and crude fat 4.01% while catfish essence has moisture content 96.83%, crude protein 1.32%, ash 0.78% and crude fat 1.47%. Meanwhile a snakehead essence has moisture content 95.53%, crude protein 2.59%, ash 0.93% and crude fat 5.14%. Catfish and snakehead essence contained high amount of SFA compared to UFA. Meanwhile swamp eel essence contained high amount of UFA than SFA. Palmitoleic acid was the highest UFA contained (40.363) in swamp eel. Stearic acid was the major component of FA in catfish essences (55.26) while heptadecanoic acid was the major component in snakehead essence. Due to this study, swamp eel essence was the most acceptable compared to others.

## ABSTRAK

Kajian ini dijalankan untuk mengkaji ciri-ciri fizikokimia pati ikan yang diekstrak dari (belut, keli dan haruan) dan mengkaji komposisi asid lemak. Pati ikan diekstrak dengan menggunakan kaedah pengekstrakan akueous dimana air digunakan bergantung kepada berat isi ikan pada nisbah 1:1 untuk mencapai 50% kepekatan pati. Penilaian komposisi asid lemak dilakukan dengan menggunakan kaedah GC dan dikenalpasti berdasarkan masa penahanan. Ciri-ciri fizikokimia pati ikan dikenalpasti melalui beberapa analisis (warna, kelikatan, jumlah pepejal larut, pH dan komposisi proksimat). Hasil kajian menunjukkan terdapat perbezaan beerti bagi warna pati belut sawah ( $L^*=65.53$ ,  $a^*=-7.65$ ,  $b^*=22.82$ ) dengan pati keli ( $L^*=51.14$ ,  $a^*=-2.33$ ,  $b^*=6.56$ ) dan pati haruan ( $L^*=42.88$ ,  $a^*=-1.18$ ,  $b^*=5.78$ ). Pati belut mencatatkan kelikatan maksimum (2.73 Cp), jumlah pepejal larut yang tinggi (1.8°Brix) dan pH yang rendah (5.89). Sementara itu, pati keli menunjukkan kelikatan (1.73 Cp), rendah jumlah pepejal larut (1.6°Brix) dan pH (7.14). Pati haruan menunjukkan nilai kelikatan yang rendah (0.7 Cp), tinggi jumlah pepejal larut (1.87°Brix) dan pH (7.29). Analisis proksimat bagi pati belut sawah adalah: kandungan lembapan 97.16%, protein 1.97%, abu 0.89% dan lemak 4.01% manakala pati keli mengandungi lembapan 96.83%, protein 1.32%, abu 0.78% dan lemak 1.47%. Sementara itu, pati haruan mengandungi lembapan 95.53%, protein 2.59%, abu 0.93% dan lemak 5.14%. Pati keli dan haruan mengandungi jumlah asid lemak tepu yang tinggi berbanding asid lemak tak tepu. Sementara itu, pati belut sawah mengandungi jumlah sid lemak tak tepu yang tinggi berbanding asid lemak tepu. Asid Palmitoleik adalah asid lemak tak tepu yang tinggi terkandung dalam pati belut sawah. Adalah 55.26 manakala asid heptadekanoik adalah komponen utama dalam pati haruan. Pati belut sawah adalah antara pati yang paling diterima berbandind pati haruan dan keli.