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CLONING AND CHARACTERIZATION OF 300bp PARTIAL EXPRESSED GENE  
FRAGMENT FROM MUSCLE TISSUE OF FRESHWATER CULTURED HYBRID  
TILAPIA, *Oreochromis* sp.

By  
‘Abdah Azzuhdina Bt.Amin

Research Report submitted in partial fulfillment of  
the requirement for the degree of  
Bachelor of Agrotechnology Science (Aquaculture)

Department of Fisheries and Aquaculture  
FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE  
UNIVERSITI MALAYSIA TERENGGANU  
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**FAKULTI AGROTEKNOLOGI DAN SAINS MAKANAN  
UNIVERSITI MALAYSIA TERENGGANU**

**PENGAKUAN DAN PENGESAHAN LAPORAN  
PROJEK ILMIAH I DAN II**

Adalah ini diakui dan disahkan bahawa laporan ilmiah bertajuk:

Cloning and identification of 300bp partial gene fragments amplified from muscle tissue of freshwater cultured hybrid tilapia (*Oreochromis* sp.) oleh 'Abdah Azzuhdina Bt. Amin, no.matrik UK13500 telah diperiksa dan semua pembedaan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Perikanan dan Akuakultur sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah Sarjana Muda Sains Agrotekologi (Akuakultur), Fakulti Agroteknologi dan Sains Makanan, 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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## ABSTRACT

This study was done to clone and characterized a 300bp partial gene fragment from muscle tissue of freshwater cultured hybrid tilapia, *Oreochromis* sp. This study was conducted in Anatomy and Physiology Laboratory of University Malaysia Terengganu. RNA was extracted from fish muscle tissue of freshwater cultured hybrid tilapia, *Oreochromis* sp. The RNA was subjected to DD RT-PCR to transcribe into cDNA and was amplified using arbitrary primer 5. The result of the amplification produced three fragments with a size of 150bp, 300bp and 400bp. Fragment from sample A2 (300bp) was successfully cloned into pTZ57R/T vector and the fragment was sequenced. Analysis of fragment A2 showed that there was no significant match with any genes available in GenBank. Due to this, it can be concluded that fragment A2 is a novel gene or an unknown gene which has not been reported yet. This study has enable researcher to identify new genes in muscle tissue of *Oreochromis* sp. As a suggestion, more study is needed to obtain the full length of the gene fragment and characterize the expressed gene.



## ABSTRAK

Kajian ini dijalankan untuk mengklon dan mencirikan 300 pasangan bes sebahagian pengekspresan gen daripada tisu otot ikan tilapia air tawar hibrid, *Oreochromis* sp. Kajian ini dijalankan di Makmal Anatomi dan Fisiologi, Universiti Malaysia Terengganu. RNA diekstrak daripada tisu otot ikan tilapia air tawar hibrid, *Oreochromis* sp. Kemudian, RNA yang diperolehi digunakan di dalam teknik DD RT-PCR untuk ditanskrip kepada cDNA dan bilangannya diperbanyak menggunakan oligonukleotida arbitrari nombor 5. Keputusan daripada amplifikasi cDNA menghasilkan tiga fragmen yang bersaiz 150 pasang bes, 300 pasang bes dan 400 pasang bes. Fragmen daripada sampel A2 (300 pasang bes) telah berjaya diklon ke dalam vector pTZ57R/T dan fragment tersebut dihantar untuk diujukan. Analisis bagi sampel A2 menunjukkan tiada persamaan yang nyata dengan gen yang terkumpul di dalam GenBank. Oleh itu, kesimpulan dapat dibuat bahawa fragmen A2 adalah gen novel atau gen yang tidak diketahui yang belum dilaporkan lagi. Kajian ini membolehkan penyelidik untuk mengenalpasti gen-gen baru di dalam tisu otot bagi *Oreochromis* sp. Sebagai cadangan, kajian lanjut perlu dilakukan untuk mendapatkan jujukan penuh bagi fragmen gen dan mencirikan pengekspresan gen tersebut.