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Extraction of *Derris elliptica* as potential anesthetic agent on hybrid red tilapia *Oreochromis* sp. / Johnny Ajang.

PERPUSTAKAAN SULTANAH NUR ZAHIRAH
UNIVERSITI MALAYSIA TERENGGANU (UMT)
21030 KUALA TERENGGANU

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PERPUSTAKAAN SULTANAH NUR ZAHIRAH UMT

EXTRACTION OF *Derris elliptica* AS POTENTIAL ANESTHETIC AGENT ON
HYBRID RED TILAPIA *Oreochromis* sp.

JOHNNY ANAK AJANG

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

Department of Fisheries Science 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:

Pengextrakkan *Derris elliptica* sebagai Agen Anesthetic yang Berpotensi sebagai Pelali Ikan Tilapia Merah Hibrid *Oreochromis sp.* (Extraction of *Derris elliptica* as Potential Anesthetic Agent on Hybrid Red Tilapia *Oreochromis sp.*)

oleh Johnny anak Ajang, No.Matrik UK 14442 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Perikanan dan Akuakultur sebagai memenuhi sebahagian daripada keperluan memperoleh ijazah Sarjana Muda Sains Agroteknologi (Akuakultur) Fakulti Agroteknologi dan Sains Makanan, Universiti Malaysia Terengganu.

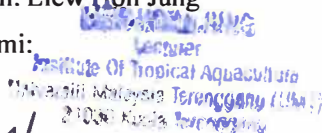
Disahkan oleh:



Penyelia Utama

Nama: En. Liew Hon Jung

Cop Rasmi:


Lecturer
Institute Of Tropical Aquaculture
Universiti Malaysia Terengganu (UMT)
21030 Kuala Terengganu

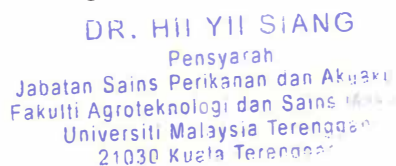


Tarikh: 29 April 2009

Penyelia Kedua (jika ada)

Nama: Dr. Hii Yii Siang


Cop Rasmi


DR. HII YII SIANG
Pensyarah
Jabatan Sains Perikanan dan Akuaku
Fakulti Agroteknologi dan Sains
Universiti Malaysia Terengganu
21030 Kuala Terengganu

Tarikh: 29 APR. 2009...

DECLARATION

*I hereby declare that the work in this thesis is my own except
for quotation and summaries which have been duly
acknowledgement.*

Signature : 

Name : Johnny anak Ajang

Matric No. : UK 14442

Date : 03th May 2009

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ABSTRACT

The purpose of this study was to determine the potential of *Derris elliptica* root extract or Tuba vine as an anesthetic agent for hybrid red tilapia, *Oreochromis* sp. precisely for transportation and general handling. *Derris elliptica* was collected from Sarawak and extracted by using crushing method which then was squeezed to obtain the extract. The extracts were used to induce anesthetic on hybrid red tilapia and results as induction time, recovery time, survival rate, induction behavior and recovery behavior were observed and compared with the fish induced by commercial anesthetic tricaine methanesulfonate, MS222. *Derris elliptica* root extract showed anesthetic efficiency with low concentration at 0.1 ml/L and 0.3 ml/L. Hybrid red tilapia induced by 0.1 ml/L and 0.3 ml/L of *D. elliptica* root extract achieved anesthesia stage almost rapidly and recovered behaviorally more quickly than at higher concentrations but longer than fish induced by 80 mg/L of MS222. Besides that, hybrid red tilapia induced with low concentration of *D. elliptica* root extract produced anesthesia stages same as the effect produced by commercial anesthetic MS222 and most of the time showed that the fish induced achieved stage 4 and 5. Those hybrid red tilapia exposed to higher concentration at 0.5 ml/L, 0.7 ml/L and 1.0 ml/L of *D. elliptica* root extract achieved anesthesia stage more faster and recovered obviously longer than low concentration. However higher concentration resulted low survival rate compared to lower concentration of *D. elliptica* root extract. The result of this study could be useful for aquaculturist and other handling related husbandry practices that required sedation of fish.

ABSTRAK

Tujuan kajian ini adalah untuk menentukan potensi ekstrak akar *Derris elliptica* juga dikenali sebagai akar Tuba sebagai agen pelali untuk ikan tilapia merah hibrid, *Oreochromis* sp. dan lebih tepat untuk tujuan pengangkutan dan pengurusan am ikan tilapia. *Derris elliptica* diperolehi dari Sarawak dan diekstrak dengan menggunakan kaedah penghacuran yang kemudiannya di perah untuk mendapatkan ekstraknya. Ekstrak ini digunakan untuk mengaruh pelalian ikan tilapia merah hibrid dan masa aruhan, masa pemulihan, kadar kelangsungan hidup ikan, tingkah laku semasa aruhan dan pemulihan diperhatikan dan dibandingkan dengan ikan yang dilalikan menggunakan pelali komersial tricaine methanesulfonate, MS222. Ekstrak *D. elliptica* menunjukkan kesan pelalian pada kepekatan rendah iaitu 0.1 ml/L dan 0.3 ml/L. Ikan tilapia merah hybrid yang dirawat dengan 0.1 ml/L dan 0.3 ml/L ekstrak akar *D. elliptica* mencapai peringkat anaesthesia hampir serta merta dan pulih sepenuhnya lebih cepat berbanding dengan rawatan menggunakan kepekatan yang lebih tinggi tetapi lebih lama daripada ikan yang dirawat dengan 80 mg/L MS222. Selain itu, ikan tilapia yang dirawat dengan extract yang berkepekatan rendah juga menunjukkan kesan yang sama seperti yang dihasilkan oleh pelali komersial MS222 dan pada kebanyakan masa ikan berada didalam peringkat 4 dan 5. Ikan tilapia yang didedahkan pada ekstrak berkepekatan tinggi iaitu 0.5 ml/L, 0.7 ml/L dan 1.0 ml/L mencapai peringkat pelalian lebih cepat dan pemulihan yang lebih lama berbanding dengan rawatan dengan ekstrak berkepekatan rendah. Walau bagaimanapun, kepekatan yang tinggi mencatat kadar kemandirian yang lebih rendah berbanding dengan kepekatan yang rendah. Keputusan kajian ini mungkin bermanfaat kepada para penternak dan pengendalian lain yang memerlukan pelalian ikan.