

THE EFFECT OF THE EXPOSURE HISTORY ON
STRENGTH AND DURABILITY RESISTANCE OF
Magnesium Oxide Concrete (De Mar, 1911)

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**THE EFFECT OF PRE-EXPOSURE AMMONIA ON SURVIVAL AND
AMMONIA RESISTANT OF *Macrobrachium lanchesteri* (De Man, 1911)**

**By
Siti Katijah Bt Mohamad Amin**

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

**Department of Fishery and Aquaculture
FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE
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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: The effect of pre-exposure ammonia on survival and ammonia resistant of *Macrobrachium lanchesteri* (De Man, 1911), oleh Siti Katijah Bt Mohamad Amin, No.Matrik UK13102 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.

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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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Date : 14 May 2009

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ABSTRACT

This study was conducted in a lab at University Malaysia Terengganu. Acute toxicity test and pre-exposure test with the ammonia were conducted to examine the effect on survival of *Macrobrachium lanchesteri*. Shrimp were submitted for various concentration of ammonia for 96 h on acute toxicity test. 96 h LC₅₀ is 13.5 mg.l⁻¹ and the safety level for *Macrobrachium lanchesteri* is 1.35mg.l⁻¹. Mortality increase with the ammonia concentration in acute toxicity test. Pre-exposure test was conducted by exposing the shrimps to low concentration of ammonia (0.5 mg.l⁻¹, 1.0 mg.l⁻¹ and a control test for 7days before increasing into 20 mg.l⁻¹ ammonia concentrations for 96 h. Shrimp that was exposed under low concentration ammonia (0.5 mg.l⁻¹ and 1.0 mg.l⁻¹) sensitive to higher concentration of ammonia rather than shrimp in the control test. The shrimp were stressed due to the pre-exposure ammonia compared to the control test that has higher survival rate than the pre-exposure test.

ABSTRAK

Kajian dijalankan dalam makmal di Universiti Malaysia Terengganu. Ujian ketoksikan akute dan pendedahan awal kepada ammonia dilakukan untuk mengkaji kadar kemandirian *Macrobrachium lanchesteri*. *Macrobrachium lanchesteri* diletakkan dalam kepekatan ammonia yang berbeza selama 96 jam bagi ujian ketoksikan. Keputusan untuk 96 h LC₅₀ ammonia ialah 13.5 mg.l⁻¹ manakala paras selamat bagi spesis ini ialah 1.35 mg.l⁻¹. Ujian pendedahan awal dijalankan dengan mendedahkan udang pada kepekatan rendah (0.5 mg.l⁻¹, 1.0 mg.l⁻¹ dan ujian kawalan) selama 7 hari sebelum dipindahkan kepada kepekatan yang lebih tinggi iaitu 20 mg.l⁻¹ selama 96 jam. Udang yang didedahkan kepada 0.5 mg.l⁻¹ dan 1.0 mg.l⁻¹ lebih sensitif terhadap kepekatan ammonia yang lebih tinggi berbanding udang yang berada dalam ujian kawalan. Udang menjadi stress disebabkan pendedahan kepada ammonia. Kadar kemandirian udang yang berada dalam ujian kawalan lebih tinggi berbanding udang yang didedahkan kepada 0.5 mg.l⁻¹ dan 1.0 mg.l⁻¹.