

A STUDY ON THE MINIMUM OPTIMAL SALINITY LEVELS FOR  
THE LARVAL REARING OF GIANT FRESHWATER  
PRAWN, *Macrobrachium rosenbergii*  
(de Man, 1879) LARVAE.

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MASTER OF SCIENCE (AQUACULTURE)  
UNIVERSITI MALAYSIA TERENGGANU  
MALAYSIA

2010

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1100079135

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Universiti Malaysia Terengganu

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TD 427 .S24 M6 2010



1100079135  
A study on the minimum optimal salinity levels for the larval rearing of giant freshwater prawn, *Macrobrachium rosenbergii* (de Man, 1879) larvae / Mohd Mukriz Mohd Kasim.



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Thesis submitted in Fulfillment of the Requirement for the Degree of Master of  
Science (Aquaculture) in the Institute of Tropical Aquaculture Universiti Malaysia  
Terengganu

NOVEMBER 2010

Abstract of thesis is presented to the Senate of Universiti Malaysia Terengganu in fulfillment of the requirement for the degree of Master of Science.

**A STUDY ON THE MINIMUM OPTIMAL SALINITY LEVELS FOR THE LARVAL REARING OF GIANT FRESHWATER PRAWN, *Macrobrachium rosenbergii* (de Man, 1879) LARVAE.**

This study was carried out to determine the best minimum optimal salinity, survival rate and metamorphosis rate of the larvae rearing of Giant Freshwater Prawn, *M. rosenbergii* in different water salinity level, i.e., 3ppt, 6ppt, 9ppt and 12 ppt. The results showed that the larvae took 25-26 days to reach postlarvae in tank treated with salinity 3ppt, 27-29 days in water salinity 6 and 9ppt, while it took 31-33 days for larvae to reach postlarvae in tank treated with water salinity 12ppt. The metamorphosis rate showed that there were no significant differences from all the treatments. The number of day to reach larvae stage IV for all water salinity is almost similar which takes 7 – 14 day to reach stage IV. However, the next stage shows that larvae in water salinity 3ppt have a faster metamorphosis rate compare to larvae in higher salinity. In this study, only *Artemia* nauplii, is fed to the larvae of *M. rosenbergii*. The mean survival rate of larvae till postlarvae stage for larvae treated with water salinity 3ppt is 11.7% ± 1.5 (range = 10.2-13.2%; n = 3), 27.3% ± 3.0 (range = 24.3-30.3%; n=3) for water salinity 6 ppt and 36.1% ± 3.4 (range = 32.7-39.5%; n=3) for water salinity 9 ppt. The mean survival rate of larvae till postlarvae stage for larvae treated with water salinity 12 ppt is 43.8% ± 3.2 (range = 40.6-47.0% ; n = 3). All the treatments were significantly different from each other. This clearly demonstrates that larvae reared in 9ppt salinity produce higher survival rate than those reared in lower salinity and optimal metamorphosis rate to become postlarvae compared to higher salinity levels.

Abstrak tesis yang dikemukakan kepada senat Universiti Malaysia Terengganu sebagai memenuhi keperluan untuk ijazah Master Sains.

**KAJIAN MENGENAI SALINITI MINIMUM OPTIMAL UNTUK PENJAGAAN LARVA UDANG GALAH *Macrobrachium rosenbergii* (de Man, 1879).**

Kajian ini dijalankan adalah untuk mengenalpasti saliniti minimum optimal yang terbaik di samping kadar hidup dan kadar metamorfosis penternakan larva udang galah, *M. rosenbergii* dalam saliniti yang berlainan iaitu 3ppt, 6ppt, 9ppt and 12 ppt. Keputusan menunjukkan larva mengambil masa 25-26 hari untuk mencapai peringkat postlarva dalam tangki yang mempunyai saliniti 3ppt, 27-29 hari dalam saliniti 6ppt dan 9ppt, manakala manakala ia mengambil masa 31-33 hari untuk larva mencapai peringkat postlarva dalam tangki yang mempunyai salinity 12ppt. Kadar metamorfosis menunjukkan tiada perbezaan yang signifikan antara semua saliniti. Bilangan hari untuk larva mencapai tahap IV adalah tidak berbeza pada kesemua rawatan saliniti iaitu 7-14 hari. Walaubagaimanapun, tahap berikutnya menunjukkan larva dalam saliniti 3ppt mempunyai kadar metamorfosis yang lebih cepat berbanding larva dalam saliniti yang lebih tinggi. Dalam kajian ini, hanya *Artemia* nauplii, salah satu jenis makanan hidup yang diberikan kepada larva udang galah. Purata kadar hidup untuk larva sampai ke peringkat postlarva dalam tangki yang mempunyai saliniti air 3ppt ialah  $11.7\% \pm 1.5$  (julat = 10.2-13.2%; n = 3),  $27.3\% \pm 3.0$  (julat = 24.3-30.3%; n=3) untuk saliniti air 6 ppt dan  $36.1\% \pm 3.4$  (julat = 32.7-39.5%; n=3) untuk saliniti air 9 ppt. Manakala, purata kadar hidup untuk larva sampai ke peringkat postlarva dalam tangki yang mempunyai saliniti air 12ppt ialah  $43.8\% \pm 3.2$  (range = 40.6-47.0% ; n = 3). Semua kadar hidup adalah berbeza antara satu dengan yang lain. Kajian ini jelas menunjukkan bahawa larva yang ditenak dalam saliniti 9ppt menghasilkan kadar hidup yang tinggi berbanding larva dalam saliniti air yang lain dan mempunyai kadar metamorphosis yang optimum berbanding larva yang ditenak dalam saliniti yang lebih tinggi.