

EFFECTS OF SURVIVAL, GROWTH AND
DEVELOPMENT RATE ON *Macrobrachium*
rosenbergii (de mann, 1879) LARVAE REARED
IN GREEN WATER SYSTEM

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Macrobrachium rosenbergii (de Mann, 1879) LARVAE REARED IN
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Giant freshwater prawn, *Macrobrachium rosenbergii* is one of the freshwater prawn species that have high economic value in aquaculture. Lack of information in application of microalgae culture in larval rearing and optimizing larvae production using microalgae in larval rearing is important to increase post-larvae production in freshwater prawn culture. The objective of this study is to determine the effect of microalgae on survival, growth and development rate of *M. rosenbergii* larvae. Five day after hatching (DAH) larvae of *M. rosenbergii* was stock in 1 tonnes of fiberglass rearing tank. The experiment was run in triplicate and the sample of *M. rosenbergii* was collected at day 35. Thirty samples have been taken for growth observation, survival and larvae stage index (LSI). The TL and SGR at the end of the experiment of larvae in green water tank were 9.893 ± 0.559 mm and 5.598 ± 0.469 mm day⁻¹, despite in the control or clear water system the total length and growth rate were 7.997 ± 0.760 mm and 4.872 ± 0.671 mm day⁻¹, respectively. There was significant different in total length between larvae reared in green water system and control. The total length and growth rate of larvae reared green water higher than clear water (control). Larvae of *M. rosenbergii* reared in green water system showed the highest survival rate at day 35 compared to clear water system (control). The survival rate at the end of the experiment of larvae in green water tank was 42.5 %, respectively. Whereas in the control or clear water system the survival rate at day 35 was 32.8 %, respectively.. The survival rate of larvae reared in green water is higher than clear water (control). Larvae stage index for larvae has been reared in green water system showed the highest value compared to LSI on control. The LSI for larvae reared in green water has value 11.83 ± 0.10 and for larvae reared in control condition has value 9.24 ± 0.09 . The different between two treatments is 2.59 ± 0.01 which are significant higher on green water treatment. Base on the result of the study; it can be concluded that green water system have effects on early stage of giant freshwater prawn *M. rosenbergii* on increasing survival, growth rate and faster growth development.

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

KESAN KEATAS KADAR HIDUP, PERTUMBUHAN DAN KADAR TUMBESARAN *Macrobrachium rosenbergii* (de Mann, 1879) LARVA DIPELIHARA DIDALAM SISTEM AIR HIJAU

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Udang galah atau *Macrobrachium rosenbergii* merupakan salah satu spesis udang air tawar yang mempunyai nilai ekonomi yang tinggi dalam akuakultur. Kekurangan maklumat tentang pengkulturan larva menggunakan mikroalga dalam pemeliharaan larva menunjukkan bahawa kajian ini sangat diperlukan. Tujuan mikroalga untuk pemeliharaan larva adalah jalan alternatif untuk mengoptimumkan pengeluaran larva udang galah.. Objektif kajian ini adalah untuk menentukan kesan mikroalga pada kelangsungan hidup, pertumbuhan dan pembangunan larva *M.rosenbergii*. Eksperimen telah dijalankan dalam tiga replikasi dan sampel *M.rosenbergii* telah dikumpulkan pada hari ke 35. Tiga puluh sampel telah diambil untuk pemerhatian pertumbuhan, kadar survival dan pemerhatian larva peringkat indeks (LSI). Larva *M.rosenbergii* ditenak dalam sistem air hijau menunjukkan jumlah panjang tertinggi (TL) dan kadar pertumbuhan spesifik (SGR) pada hari ke 35 berbanding larva di dalam tangki kawalan. TL dan SGR pada akhir eksperimen larva di dalam tangki air hijau adalah $9,893 \pm 0,559$ mm dan $5,598 \pm 0,469$ mm hari⁻¹, masing-masing. Manakala dalam tangki kawalan jumlah panjang dan kadar pertumbuhan adalah $7,997 \pm 0,760$ mm dan $4,872 \pm 0,671$ mm hari⁻¹. Kadar panjang dan pertumbuhan jumlah larva di dalam air hijau yang lebih tinggi daripada tangki kawalan. Manakala dalam tangki kawalan kadar survival pada hari ke-35 adalah 32.8%. Kadar survival larva yang ditenak di dalam air hijau adalah lebih tinggi daripada air jernih tangki kawalan. LSI bagi larva ditenak di dalam air hijau mempunyai nilai $11,83 \pm 0,10$ dan bagi larva dipelihara dalam keadaan kawalan mempunyai nilai $9,24 \pm 0,09$. Perbezaan antara dua rawatan adalah $2,59 \pm 0,01$ yang ketara lebih tinggi pada rawatan air hijau. Berdasarkan hasil kajian, dapat disimpulkan bahawa sistem air hijau mempunyai kesan pada peringkat awal udang galah *M. rosenbergii* pada kelangsungan hidup yang semakin meningkat, kadar pertumbuhan dan pembangunan pertumbuhan yang lebih pantas.