

INDUCED MATING AND EARLY EMBRYONIC DEVELOPMENT  
OF ORANGE MUD CRAB , *Scylla olivacea* ( HERBST , 1796 )

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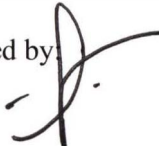
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**DECLARATION AND VERIFICATION REPORT  
 FINAL YEAR RESEARCH PROJECT**

It is hereby declared and verified that this research report entitled:

**Induced mating and early embryonic development of orange mud crab, *Scylla olivacea* (Herbst, 1796) by Shew Sou Luan, Matric No. UK 16936** have been examined and all errors identified have been corrected. This report is submitted to the Department of Marine Science as partial fulfillment towards obtaining the Degree of Bachelor of Science (Marine Biology), Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.

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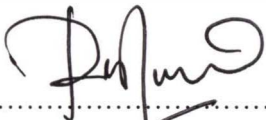
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**INDUCED MATING AND EARLY EMBRYONIC DEVELOPMENT OF  
ORANGE MUD CRAB, *Scylla olivacea* (HERBST, 1796)**

**By  
Shew Sou Luan**

**Research Report submitted in partial fulfillment of  
the requirements for the degree of  
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## ABSTRACT

This study was carried out to investigate the mating behavior and success of the commercially important orange mud crab, *Scylla olivacea* through limb autotomy technique. This technique was applied on five mature females by removing all the walking legs and chelae to shorten the molting process and subsequent mating. After  $32.40 \pm 15.70$  days, all female crabs had successfully molted and entered the post-molt (soft-shell) stage. The post-molt females were then transferred to the mating tank, the mean precopulation duration was  $5.00 \pm 5.20$  minutes and mean copulation duration was  $16.10 \pm 3.43$  hours.

Early embryonic development of the mud crab, *S. olivacea* was studied. The period taken by the eggs to hatch was 8 days with temperature ranging from  $24.5^{\circ}\text{C}$  –  $28^{\circ}\text{C}$ . The colour of the eggs was initially orange and it gradually changed to brown, grey and then dark grey. Embryo development defined in this study was based on daily morphological changes. The mean diameter of the egg on the first day was  $0.33 \pm 6.62$  mm and it increased to  $0.38 \pm 11.50$  mm on the day before hatching, increasing about 15.15%. The mean fertilization rate and hatching rate were  $88.22\% \pm 7.17$  and  $92.56\% \pm 3.72$ , respectively.

## ABSTRAK

Penyelidikan ini dilakukan untuk mengaji tingkah laku pengawanan dan kejayaan ketam nipah, *Scylla olivacea* komersil penting melalui teknik autotomi kaki. Teknik ini telah dilaksanakan pada lima betina dewasa dengan menyingkirkan semua kaki berjalan dan penyepit untuk memendekkan proses persalinan kulit supaya mengawan selepas itu. Setelah  $32.40 \pm 15.70$  hari, semua ketam betina telah berjaya bersalin kulit dan memasuki tahap kulit lembut. Ketam betina yang berkulit lembut kemudian dipindahkan ke tangki mangawan, min tempoh pra-pengawanan adalah  $5.00 \pm 5.20$  minutes dan min tempoh pengawanan adalah  $16.10 \pm 3.43$  jam.

Awal perkembangan embrio pada ketam bakau, *S. olivacea* dipelajari. Tempoh yang diambil oleh telur menetas adalah 8 hari dengan suhu berkisar antara  $24.5^{\circ}\text{C}$  –  $28^{\circ}\text{C}$ . Telur pada peringkat awal adalah berwarna oren dan kemudian berubah menjadi coklat, kelabu dan kelabu kehitaman akhirnya. Perkembangan embrio ditakrifkan dalam kajian ini adalah berdasarkan perkembangan harian. Min diameter telur pada hari pertama adalah  $0.33 \pm 6.62$  mm dan bertambah menjadi  $0.38 \pm 11.50$  mm pada hari sebelum zoea menetas, bertambah sebanyak 15.15%. Min peratusan persenyawaan dan penetasan masing-masing adalah  $88.22\% \pm 7.17$  dan  $92.56\% \pm 3.72$ .