

EFFECT OF DIFFERENT SALINITIES ON TRILOBITE  
LARVAE OF MALAYSIAN HORSESHOE CRAB  
(*Tachypleus gigas*; MULLER) FOR THEIR BETTER  
SURVIVAL UNDER CONTROLLED CONDITIONS

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**EFFECT OF DIFFERENT SALINITIES ON TRILOBITE LARVAE OF  
MALAYSIAN HORSESHOE CRAB (*Tachypleus gigas*; Müller) FOR THEIR  
BETTER SURVIVAL UNDER CONTROLLED CONDITIONS**

**By**

**Fatin Nabihah binti Zailani**

**Research Report submitted in partial fulfillment of  
the requirements for the degree of  
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**DEPARTMENT OF MARINE SCIENCE  
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**DECLARATION AND VERIFICATION REPORT  
FINAL YEAR RESEARCH PROJECT**

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

**Effect of different salinities on trilobite larvae of Malaysian horseshoe crab (Tachypleus gigas; Müller) for their better survival under controlled conditions** by **Fatin Nabihah Zailani**, Matric No. **UK22209** 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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## TABLE OF CONTENT

	Page
<b>ACKNOWLEDGEMENT</b>	ii
<b>LIST OF TABLES</b>	v
<b>LIST OF FIGURES</b>	vi
<b>LIST OF PLATES</b>	vii
<b>ABBREVIATIONS</b>	viii
<b>LIST OF APPENDICES</b>	ix
<b>ABSTRACT</b>	x
<b>ABSTRAK</b>	xi
<b>CHAPTER 1: INTRODUCTION</b>	
1.1 Background Study	1
1.2 Justification of the Study	4
1.3 Objectives	5
<b>CHAPTER 2: LITERATURE REVIEW</b>	
2.1 Life Cycle of Horseshoe Crab	6
2.1.1 Eggs	6
2.1.2 Larvae	7
2.1.3 Juveniles	7
2.1.4 Adults	7
2.2 Study on Molting Behaviour of Horseshoe Crabs	8
2.3 Study on Survival and Mortality of Horseshoe Crabs	9
2.4 Study on Effect of Salinity on Horseshoe Crabs	10

<b>CHAPTER 3: METHODOLOGY</b>		
3.1	Sample Collection and Preparation	13
3.2	Experimental Design	15
3.3	Data Collection Method	16
<b>CHAPTER 4: RESULTS</b>		
4.1	Effect of Salinity on Survival of Trilobite Larvae	17
4.2	Effect of Salinity on Molting of Trilobite Larvae	19
<b>CHAPTER 5: DISCUSSIONS</b>		21
<b>CHAPTER 6: CONCLUSIONS</b>		24
<b>REFERENCES</b>		25
<b>APPENDICES</b>		28
<b>CURRICULUM VITAE</b>		29



## LIST OF TABLES

TABLE		PAGE
4.1	The percentage of survival for larvae of horseshoe crab, <i>Tachypleus gigas</i> , in the experimental tank with different salinity (0, 10, 20, 30 and 40 ppt). Values are mean $\pm$ SD (n=3).	17
4.2	The percentage of molting for larvae of horseshoe crab, <i>Tachypleus gigas</i> , in the experimental tank with different salinity (0, 10, 20, 30 and 40 ppt). Values are mean $\pm$ SD (n=3).	19

## LIST OF FIGURES

FIGURE		PAGE
4.1	The percentage of survival for larvae of horseshoe crab, <i>Tachypleus gigas</i> in the experimental tank with different salinity (0, 10, 20, 30 and 40 ppt) within 15 days.	18
4.2	The percentage of molting for larvae of horseshoe crab, <i>Tachypleus gigas</i> in the experimental tank with different salinity (0, 10, 20, 30 and 40 ppt) within 15 days.	20

## LIST OF PLATES

PLATE		PAGE
3.1	Rearing area for the eggs of horseshoe crab at the aquaculture farm.	14
3.2	All eggs being left at laboratory condition	14

## ABBREVIATIONS

<b>SYMBOL</b>		<b>PAGE</b>
ppt	Part per thousand	11
°C	Degree celcius	13
DO	Dissolved oxygen	13
L	Litre	13
mm	Millimeter	7

## LIST OF APPENDICES

APPENDIX		PAGE
1	The mean and SD of parameter collected	28
2	ANOVA statistics for number of individual that survive and molting between salinity	28

## ABSTRACT

A Malaysian horseshoe crab, *Tachyplues gigas* (Müller, 1785) are commercially harvested for production of Tachypleus Amoebocyte Lysate (TAL) and food other than being exported to Thailand. However, there is no legislation or harvest regulations have been implemented to protect the horseshoe crab in Malaysia. Therefore, successful cultures of horseshoe crab are highly desirable and will depend on the basic information for their better survival. Laboratory experiments were carried out to study the effect of different salinity on the survival of trilobite larvae and their successful molting into juvenile stage. The trilobite larvae were obtained in February, 2012 from The Horseshoe Crab Aquaculture Farm at Sedili Kecil, Kota Tinggi, Johor. Triplicates of five different salinities (0, 10, 20, 30 and 40 ppt) were chosen for the experiments under laboratory conditions ( $28\pm 1$  °C). 30 ppt treatment was conducted as control. All larvae were fed with *Artemia* cysts. The number of survival and molting larvae during the 15 days of observations were recorded. Highest percentage of survival was found at 20 and 30 ppt ( $100\pm 0\%$ ) followed by 10 and 40 ppt ( $98\pm 2\%$ ). The lowest survival occurred at 0 ppt ( $60\pm 30\%$ ). Molting frequency of trilobite larvae into juvenile is influenced by salinity. The larvae maintained at 20 and 30 ppt shows a high number of molting, but no molting larvae were observed at 0 and 40 ppt. Salinity may affected the early larval development of Malaysian horseshoe crab, but its seemed tolerable.

Kesan Saliniti yang Berbeza Pada Larva Belangkas (*Tachypleus Gigas*; Müller) untuk Kelangsungan Hidup di Bawah Keadaan Terkawal

**ABSTRAK**

Belangkas Malaysia, *Tachypleus gigas* (Müller, 1785) telah dituai secara komersial untuk penghasilan *Tachypleus* Amoebocyte Lysate (TAL) dan makanan selain dieksport ke Thailand. Walau bagaimanapun, tidak ada undang-undang atau peraturan yang telah dilaksanakan untuk melindungi belangkas di Malaysia. Oleh itu, penternakan belangkas yang berjaya amatlah diperlukan dan akan bergantung kepada maklumat asas bagi kelangsungan hidupnya. Kajian makmal telah dijalankan pada larva belangkas untuk mengkaji kesan saliniti yang berbeza pada kelangsungan hidup dan keupayaan berganti kulit untuk ke peringkat hidup yang seterusnya. Kesemua larva diperolehi dalam bentuk telur pada bulan Februari, 2012 dari Pusat Penternakan dan Penetasan Belangngkas di Sedili Kecil, Kota Tinggi, Johor. Tiga replikasi kepada lima tahap saliniti yang berbeza (0, 10, 20, 30 dan 40 ppt) telah dipilih untuk kajian di bawah keadaan terkawal ( $28 \pm 1$  ° C). 30 ppt digunakan sebagai kawalan. Semua larva diberi makan dengan sista *Artemia*. Bilangan larva yang hidup dan berganti kulit sepanjang 15 hari kajian direkodkan. Peratusan tertinggi larva yang berjaya melangsungkan hidup ditemui pada 20 dan 30 ppt ( $100 \pm 0\%$ ) diikuti oleh 10 dan 40 ppt ( $98 \pm 2\%$ ). Kelangsungan hidup terendah berlaku pada 0 ppt ( $60 \pm 30\%$ ). Keupayaan larva berganti kulit uuntuk ke peringkat hidup seterusnya dipengaruhi oleh saliniti. Larva yang dikekalkan pada 20 dan 30 ppt menunjukkan keupayaan yang tinggi, tetapi tiada larva yang berupaya mengganti kulit diperhatikan pada 0 dan 40 ppt. Saliniti boleh menjejaskan perkembangan awal larva belangkas di Malaysia, tetapi ia masih boleh diterima.