# STUDY OF STRESS RESISTANCE TESTS ON BLUE SWIMMING CRAB, *Portunus pelagicus* LARVAE

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Study of stress resistance tests on blue swimming crab, Portunus pelagicus larvae / Syazreen Sophia Abdul Halim.



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# STUDY OF STRESS RESISTANCE TESTS ON BLUE SWIMMING CRAB, *Portunus pelagicus* LARVAE

By

**Syazreen Sophia bt. Abdul Halim**

**Research Report submitted in partial fulfillment of**

**the requirements for the degree of**

**Bachelor of Science (Marine Biology)**

**Department of Marine Science**

**Faculty of Maritime Studies and Marine Science**

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**DEPARTMENT OF MARINE SCIENCE**
**FACULTY OF MARITIME STUDIES AND 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:

**STUDY OF STRESS RESISTANCE TESTS ON BLUE SWIMMING CRAB,** *Portunus pelagicus* **LARVAE** by **Syazreen Sophia Bt. Abdul Halim,** Matric No. **UK 22569** 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 **Bachelor of Science (Marine Biology)**, Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.

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| | |
|---|---|
| °C | Degree Celsius |
| ppt | Part per thousand |
| Z1 | Zoea 1 |
| µm | Micrometre |
| DO | Dissolved oxygen |
| mg/L | Milligram per litre |
| ml | Millilitre |
| h | Hour |
| % | Percent |
| > | more than |
| < | less than |

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## ABSTRACT

Blue swimming crab, *Portunus pelagicus* is well-known as a source of protein for human worldwide. Stress resistance tests done in conjunction to determine the preferable range of salinity, temperature, pH, ammonia, maximum period of starvation and dissolved oxygen for optimum *P. pelagicus* larvae survival. Larvae were exposed to various treatments such as mentioned above to examine larvae competency against the stressor. In starvation test, at 12 h, more than 50 percent of larvae was observed dead, hence no survival achieved in this treatment. Low survival rate at elevated temperature while at ambient temperature 30°C, highest survival was observed. No survival recorded at 0 ppt, 10 ppt and 50 ppt respectively. The optimum salinity range is 30-34 ppt. Salinity 30 ppt did produce better survival rate compared to the others. pH below 8 did produce low survival rate, as acidic pH significantly influenced the larval survival. Low ammonia level did not provide significant effect that might adversely affect the larvae.

## ABSTRAK

**Kajian mengenai ujian ketahanan ke atas larva ketam renjong, *Portunus pelagicus*.**

Ketam renjong, *Portunus pelagicus* terkenal sebagai sumber protein bagi manusia di seluruh dunia. Ujian ketahanan tekanan dilakukan untuk menentukan tahap optimum larva ini terhadap kemasinan air , suhu, pH, ammonia, tempoh maksimum kebuluran dan oksigen terlarut. Larva didedahkan dengan pelbagai rawatan seperti yang dinyatakan di atas untuk memeriksa kecekapan larva terhadap tekanan itu. Dalam ujian kebuluran, pada 12 jam, lebih daripada 50 peratus daripada larva didapati mati, dengan itu tiada larva yang hidup dalam rawatan ini. Kadar kelangsungan hidup yang rendah pada suhu yang tinggi dan larva didapati hidup dengan baik pada suhu ambien 30 °C. Tiada larva hidup yang dicatatkan pada 0 ppt, ppt 10 dan 50 ppt. Julat kemasinan optimum bagi larva ialah 30-34 ppt. Kemasinan 30 ppt menghasilkan kadar kelangsungan hidup yang lebih baik berbanding dengan yang lain. pH di bawah 8 menyebabkan kadar kelangsungan hidup rendah, kerana pH berasid ketara mempengaruhi larva. Tahap ammonia yang rendah tidak memberi kesan buruk yang ketara namun mempunyai kemungkinan yang tinggi untuk menjejaskan kelangsungan hidup larva.