

REPRODUCTION AND DEVELOPMENT OF *Asina macrrocha*
IN RESPONSE TO DIFFERENT AGE OF *Asina macrrocha*

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2009

FAKULTAS KESUKSESAN DAN SAINS ALAM
UNIVERSITI MALAYA PERAK

2009

**EFFECT OF CALCIUM CARBONATE ON GROWTH AND REPRODUCTIVE
PERFORMANCE OF *Moina macrocopa***

**By
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**Research Report submitted in partial fulfillment of
the requirements for the degree of
Bachelor of Science Agrotechnology (Aquaculture)**

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FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE
UNIVERSITI MALAYSIA TERENGGANU
2009**

This project should be cited as:

Siti Khairiah, M.R., 2009. Effect of calcium carbonate on growth and reproductive performance of *Moina macrocopa*. Undergraduate thesis, Bachelor of Agrotechnology Science (Aquaculture), Faculty of Agrotechnology and Food Science, Universiti Malaysia Terengganu. 34p.

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UNIVERSITI MALAYSIA TERENGGANU**

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**EFFECT OF CALCIUM CARBONATE ON GROWTH AND REPRODUCTIVE
PERFORMANVE OF *Moina macropa*** oleh, **SITI KHAIRIAH BINTI MOHD RUSLAN** No.Matrik
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I hereby declare that the work in this thesis is my own except for quotations and summaries which have been duly acknowledged.

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ACKNOWLEDGEMENTS

First and foremost I would like to express my appreciation to my supervisor, Dr Hii Yii Siang for his attentive guidance, supervision and support in assisting me throughout this project.

I would also want to thank freshwater hatchery officers Mr. Aziz and Mr. Roslan for their help and kindness. I would like to forward my thanks to the Faculty of Agrotechnology and Food Science, which had approved of my research.

I am very grateful to my entire family for their continuous moral support, encouragement, patience and love. Especially my Mom, Dad, Along, Acik and Ajah who have always been there for me.

My gratitude also goes to my friends, Fazilah, Nuraini, Ikhwanie and Surzanne in helping me to overcome the barriers in completing this project and their moral support. Last but not least, my appreciation goes to everyone who has contributed to this project, either directly or indirectly.

ABSTRACT

This study aims to investigate the effect of calcium carbonate on life table demography of *Moina macrocopa*. Brooders of *M. macrocopa* was exposed to different concentrations of calcium carbonate, CaCO₃ (40 mg/L CaCO₃, 80 mg/ L CaCO₃, 200 mg/ L CaCO₃, and 500 mg/ L CaCO₃) under optimal condition. Results show that life span of *M. macrocopa* increased as the concentration of calcium carbonate increased in the range 0 mg/ L to 200 mg/ L and if exceed 200 mg/ L the result is reversed. As the concentration increase, the cumulative birth increased during the early reproductive period. 100% of mortality occurs on day 16 for concentration 0, 40, 80, and 200 mg/ L. For higher concentration 500 mg/L, mortality starts on the second day and total mortality was observed at day 11. Different concentration of CaCO₃ gives effect to the size of neonates produced by *M. macrocopa*. The size for neonates produced range from 0.523 mm (at 0 mg/ L) to 0.474mm (at 200 mg/ L). This result suggests that higher concentration will cause long life span of *M. macrocopa* as long as the concentration is not exceed the range 0-200 mg/ L.

ABSTRAK

Kajian yang dijalankan ini adalah untuk mengenalpasti kesan kepekatan kalsium karbonat terhadap demograsi jadual hidup *Moina macrocopa*. Induk *M. macrocopa* telah didedahkan kepada kepekatan kalsium karbonat yang berbeza (40 mg/L CaCO₃, 80 mg/ L CaCO₃, 200 mg/ L CaCO₃, and 500 mg/ L CaCO₃) pada keadaan sekeliling yang optimal. Keputusan menunjukkan jangka hayat *M. macrocopa* bertambah apabila kepekatan bertambah dalam julat 0 mg/ L hingga 200 mg/ L dan jika kepekatan CaCO₃ melebihi 200 mg/ L keputusan yang direkodkan adalah sebaliknya. Apabila kepekatan meningkat, kumulatif kelahiran meningkat pada peringkat awal pembiakan. 100% kematian berlaku pada hari ke 16 untuk kepekatan 0, 40, 80, and 200 mg/ L. Untuk kepekatan yang paling tinggi iaitu 500 mg/L, kematian bermula pada hari kedua dan kematian keseluruhan dapat dilihat pada hari ke 11. Kepekatan CaCO₃ yang berbeza juga memberi kesan kepada saiz neonate yang dihasilkan oleh *M. macrocopa*. Julat saiz bagi neonate yang dihasilkan adalah daripada 0.523 mm (pada 0 mg/ L) hingga 0.474mm (pada 200 mg/ L). Keputusan yang diperoleh mencadangkan kepekatan kalsium karbonat yang tinggi akan menyebabkan jangka hayat *M. macrocopa* bertambah selagi julat kepekatan itu adalah di antara 0 mg/ L hingga 200 mg/ L.