

TOXICITY TEST OF CROWN-OF-THORNS VENOM ON
CELL CULTURE (*Acanthaster planci*)

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2010

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2010



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1100088932
Toxicity test of crown-of-thorns venom on cell culture
(Acanthaster planci) / Amin Zaim Zulkeflee.

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TOXICITY TEST OF CROWN-OF-THORNS VENOM ON CELL CULTURE

(Acanthaster planci)

By

AMIN ZAIM BIN ZULKEFLEE

Research Report submitted in partial fulfillment of

The requirements for the degree of

Bachelor of Science (Marine Science)

Department of Marine Science

Faculty of Maritime Studies and Marine Science

UNIVERSITY MALAYSIA TERENGGANU

Final Research Project Declaration and Verification Form



DEPARTMENT OF MARINE SCIENCE

FACULTY OF MARITIME STUDIES AND MARINE SCIENCE

UNIVERSITI MALAYSIA TERENGGANU

DECLARATION AND VERIFICATION REPORT

FINAL YEAR RESEARCH PROJECT

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

Toxicity Test of Crown-of-Thorns Venom on Cell Culture (*Acanthaster planci*) by

Amin Zaim Zulkeflee, Matric No. **UK 16144** have been examined and all errors

identified have been corrected. This report is submitted to the Department of Marine

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ACKNOWLEDGEMENTS

First of all I would like to express my sincere gratitude and appreciation to Almighty Allah S.W.T for giving me good health, strength and idea to successfully finish this final year project.

My gratitude and special thanks also goes to my only supervisor, Prof. Effendy bin Abdul Wahid and my coordinator, Dr. Antonina binti Abdullah for their advice, help, support and guidance and meaningful comments throughout the project.

I am also very grateful to Mr. Thirukantan dan Miss Eamy for their willingness to spare their time and expertise unselfishly to guide me in laboratory works. Besides that, my sincere thanks also goes to Mr. Julius and Miss Atikah for helping and provide some facilities during my lab work periods. Special thanks goes to Dr. Kamil who gave me the opportunity to join his sampling trip in order to collect my samples to complete this study.

My deepest gratitude goes to my family and Sharifah Raabiatul Adawiyah for their endless love, concern and support all the way. Last but not least, thanks to my entire fellow friends for giving me a magnificent university life.

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LIST OF ABBREVIATIONS

%	- Percentage
°	- Degree
mg	- Milligram
mL	- Mililitre
µg	- Microgram
µL	- Microlitre
Stdv.	- Standard deviation
+	- Plus sign
-	- Minus sign
=	- Equals to sign

ABSTRACT

This project was done to determine the toxicity of Crown-of-Thorn's venom (*Acanthaster planci*) and also to determine its protein concentration in the venom itself. Extracting the venom were done on two methods (Phosphate Buffer Solution and Grinded Spines Extraction) and compared between those two. Tests and assays been done, the result shows that the venom are very potent as it contains high amount of protein (venom) inside when the Bradford assay result were analyzed. As expected, it also prohibits the cells because the venom reacts with the cell lines and mortality happened. So it can be concluded that the venom might be useful for pharmaceutical purposes as to be made for serum, or antivenom or bius. Within the research also, the toxicity level of the venom also are very dangerous so extra precautions should be taken.

ABSTRAK

Projek ini telah dilakukan untuk menentukan tahap toksik racun Crown-of-Thorn's (*Acanthaster planci*) dan juga untuk menentukan kadar protein di dalam racunnya sendiri. Mengekstrak racun tersebut telah dilakukan dengan dua cara (Larutan Fosfat Buffer dan Pengekstrakkan Duri Kisar) dan kedua-duanya telah dibandingkan dengan projek ini. Ujian dan eksperimen telah dilakukan, keputusan menunjukkan bahawa racun tersebut adalah sangat berbisa kerana ia mengandungi kadar protein yang tinggi (racun) di dalamnya apabila Bradford assay telah dianalisis. Seperti yang telah dijangkakan, ia juga membunuh sel-sel kerana ia bertindakbalas dan kematian sel telah mati. Maka secara konklusinya, racun ini berkemungkinan boleh digunakan untuk kegunaan ubat-ubatan dan farmasi sebagai serum atau antiracun atau bius. Di dalam kajian ini juga, tahap toksik racun ini juga sangatlah merbahaya maka langkah berjaga-jaga perlu diambil.