

SCREENING OF ANTIMICROBIAL ACTIVITY IN THREE SPECIES OF SEA
URCHINS FROM BIDONG ISLAND

KUMARI GEETHA D/O MUNIANDY

FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU
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URCHINS FROM BIDONG ISLAND**

By

Kumari Geetha D/O Muniandy

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JABATAN SAINS MARIN
FAKULTI PENGAJIAN MARITIM DAN SAINS MARIN
UNIVERSITI MALAYSIA TERENGGANU

PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: **Screening of Antimicrobial Activity in three species of Sea urchins From Bidong Island**, oleh **Kumari Geetha A/P Muniandy No.Matrik UK12820** telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Marin sebagai memenuhi sebahagian daripada keperluan memperoleh Ijazah Sarjana Muda Sains (Biologi Marin), Fakulti Pengajian Maritim dan Sains Marin, Universiti Malaysia Terengganu.

Disahkan oleh:

Penyelia Utama **DR. AHMAD SHAMSUDDIN BIN AHMAD**
Lecturer
Department of Marine Science
Faculty of Maritime Studies and Marine Science
Universiti Malaysia Terengganu (UMT)
21030 Kuala Terengganu.

Cop Rasmi:

Tarikh: 5.5.2008

Penyelia Kedua **DR. ZAINUDDIN BACHOK**
Lecturer
Department of Marine Science
Faculty of Maritime Studies and Marine Science
Universiti Malaysia Terengganu (UMT)
21030 Kuala Terengganu.

Cop Rasmi:

Tarikh: 5.5.2008

Ketua Jabatan Sains Marin

Nama: DR. RAZAK ZAKARIYA

Cop Rasmi: **DR. RAZAK ZAKARIYA**
Ketua Jabatan Sains Marin
Fakulti Pengajian Maritim dan Sains Marin
Universiti Malaysia Terengganu
(UMT)

Tarikh: 11/5/08

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LIST OF ABBREVIATIONS

NaCl	Sodium Chloride
TSB	Trypticase soy broth
NA	Nutrient agar
GF/F	Whatman glass microfiber filter
μL	microliter
μm	micrometer
ml	milliliter
CFU	colony forming unit
Mgml-1	miligram per milliliter
μg	microgram
PBS	Phosphate buffer solution

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ABSTRACT

In this study, the screening of the antibacterial activity of sea urchins species on selected bacteria, both the Gram positive and Gram negative bacteria were used because besides being commonly found, they were also pathogenic. Three methods of extraction were utilized: methanol solvent, ethanol extraction and extraction of water soluble substance PBS, with inner tissues and outer layer were study. The aim is to ascertain the most suitable and effective extraction method and solvent used to yield the active antibacterial substances from the respective three species of sea urchin *Diadema setosum*, *Diadema savignyi* dan *Echinothrix calamaris* found in Bidong Island. It were evidenced that, the methanol and ethanol extract from two out of three species of sea urchins shown positive effect which is *D. setosum* and *D. savignyi*. Besides that, inner tissues revealed more promising antimicrobial activity compared to outer layer of all sea urchins species. PBS extraction revealed with no positive activities in any species proved that being not a better solvent to extract compounds from sea urchin in this particular species study. However, the exact class of the active antibacterial substance that was detected in the extract is not known and needs further research.

KAJIAN ANTIMICROBIAL DALAM TIGA SPESIS LANDAK LAUT DARI PULAU BIDONG

ABSTRAK

Kajian antibakteria telah dijalankan keatas bakteria Gram positif dan bakteria Gram negatif yang dipilih. Kesemua bakteria yang dipilih merupakan mikroorganisma penyebab penyakit. Tiga kaedah pengestrakkan digunakan: pengestrakkan menggunakan methanol, ethanol dan PBS dengan kajian dijalan menggunakan dua bahagian badan landak laut. Objektif ujikaji ini adalah untuk melihat keberkesanan bahan kimia dalam proses pengestrakkan kompaun antibakteria daripada tiga spesis landak laut *Diadema setosum*, *Diadema savignyi* dan *Echinothrix calamaris* yang diambil dari Pulau Bidong. Daripada kajian yang dijalankan, telah dibuktikan bahawa hasil ekstrak menggunakan methanol dan ethanol daripada dua specis landak laut *D.setosum* dan *D.savigny* menunjukkan kesan positif terhadap bakteria yang dikaji. Selain itu, bahagian tisu organisma menunjukkan kesan yang lebih memberansangkan berbanding bahagian luar. Penggunaan PBS tidak menunjukkan kesan negatif terhadap kesemua bakteria yang dikaji. Walaubagaimanapun, kajian selanjutnya disarankan agar maklumat lebih lanjut mengenai bahan yang diekstrak dapat diketahui.