

FUNCTIONAL STUDIES OF POLYSACCHARIDE-PRODUCING
BACTERIUM FROM SEA ANEMONE[®]. *Halobacterium salinarum*

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Taxonomical studies of polysaccharide-producing bacterium
from sea cucumber (holothuria edulis).



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**TAXONOMICAL STUDIES OF POLYSACCHARIDE-PRODUCING
BACTERIUM FROM SEA CUCUMBER, *Holothuria edulis***

By

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**Research report submitted in partial fulfillment of
the requirements for the degree of
Bachelor of Science (Marine Biology)**

**Department of Marine Sciences
Faculty Science and Technology
Kolej Universiti Sains dan Teknologi Malaysia
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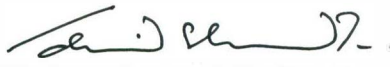
**JABATAN SAINS SAMUDERA
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**PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:

Taxonomical Studies of Polysaccharides-Producing Bacterium from Sea Cucumber, *Holothuria edulis* oleh Siti Masayu Bt Md Shahroon, UK 6620 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Samudera sebagai memenuhi sebahagian daripada keperluan memperoleh Ijazah Sarjana Muda Sains (Biologi Marin), Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia.

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LIST OF ABBREVIATIONS AND SYMBOLS

μm	Mikronmeter
$^{\circ}\text{C}$	Degree of celcius
α	alpha
β	beta
γ	gamma
Na	Natrium
NaCl	Natrium Chloride
H_2O	water
H_2O_2	Hydrogen Peroxide
O_2	Oxygen
rpm	rotate per minute

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ABSTRACT

This study was carried out to isolate and identify bacteria associated with sea cucumber, *Holothuria edulis*, to produce polysaccharide from the identified bacteria and to determine the sugar component in the polysaccharides. The *Holothuria edulis* was collected from Bidong's island, Terengganu. *Brevundimonas diminuta*, *Enterobacter cloacae*, *Acinetobacter calcoaceticus* and one gram positive bacteria, *Streptococcus constellatus* were dominantly inhibit several parts of *Holothuria edulis* body. Identification of bacteria was done by using the Remel Identification Kit. All species of bacteria were successfully produce polysaccharides with amount of weight that range from 83 mg to 170 mg per 600 ml. Paper Chromatography method was performed to determine the basic sugar component in the polysaccharide-producing bacterium. From 10 standards of sugar monomers, 6 had been detected which were glucose, galactose, raffinose, rhamnose, mannose and lactose.

**KAJIAN TAKSONOMI KEATAS BAKTERIA PENGHASIL POLISAKARIDA
DARIPADA GAMAT, *Holothuria edulis***

ABSTRAK

Kajian ini dijalankan untuk memencil dan mengenalpasti bakteria pada *Holothuria edulis*, menghasilkan polisakarida daripada bakteria yang dipencil dan mengenalpasti komponen gula dalam polisakarida. *Holothuria edulis* telah di ambil dari Pulau Bidong, Terengganu. *Brevundimonas diminuta*, *Enterobacter cloacae*, *Acinetobacter calcoaceticus*, dan satu bakteria gram positif iaitu *Streptococcus constellatus* mendiami beberapa bahagian pada *Holothuria edulis* secara dominan. Semua spesis bakteria berjaya menghasilkan polisakarida pada amaun antara 83 mg hingga 170 mg per 600 ml. Kaedah Kertas Kromatografi dijalankan untuk mengenalpasti sebatian gula asas yang terkandung di dalam polisakarida yang diekstrak. Daripada 10 standard gula yang digunakan, 6 gula monomer telah dikenalpasti iaitu glukosa, galaktosa, raffinosa, rhamnosa, mannosida dan laktosa.