The production of exopolysaccaride from marine bacteria associated with marine sponge (Aaptos spp.) using sponge medium / Gunaseelan Munusamy.

THE PRODUCTION OF EXOPOLYSACCHARIDE FROM MARINE BACTERIA ASSOCIATED WITH MARINE SPONGE (*AAPTOS* SPP.) USING SPONGE MEDIUM

By

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

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This report should be sited as;

Gunaseelan, M. 2007. The Production of Exopolysaccharide from Marine Bacteria Associated with Marine Sponge (*Aaptos* spp.) using Sponge Medium. Undergraduate thesis Bachelor of Science in Marine Science, Faculty of Maritime Studies and Marine Science, University Malaysia Terengganu, Terengganu.pp46.

JABATAN SAINS MARIN
FAKULTI PENGAJIAN MARITIM DAN SAINS

UNIVERSITI MALAYSIA TERENGGANU (UMT)

PENGAKUAN DAN PENGESAHAN LAPORAN PROJEK PROJEK PENYELIDIKAN I DAN II

Adalah diakui dan disahkan bahawa laporan penyelidikan bertajuk:

The Production of Exopolysaccharide from Marine Bacteria Associated with Marine Sponge, *Aaptos*. spp using Sponge Medium oleh Gunaseelan A/L Munusamy, No. Matrik UK 9535 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan sains Marin sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah Sarjana Muda Sains (Sains Samudera) Fakulti Pengajian maritim dan Sains Marin.

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ACKNOWLEDGEMENT

First of all, I like to thank the Almighty for His wonderful blessings on me to complete this thesis. I also want to express my deepest appreciation and grateful to my supervisor Dr. Ahmad Shamsuddin bin Ahmad for his guideline and supervision for making this thesis possible.

My appreciation also goes to En. Lukman, for his precious time and guidance for making my final year project running smoothly. I would like to thank my friends for their advice and criticism towards making my project a success. I really appreciate it.

I would like to dedicate this project to my family who had been supporting me throughout the years in UMT. Their love and encouragement make me stronger to carry on towards my goals.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS AND SYMBOLS

α	alpha
β	beta
γ	gamma
l	liter
g	gram
ml	milliliters
rpm	rote per minutes
NaCl	sodium chloride
HCL	hydrochloride acid
Glc	glucose
Gal	galactose

LIST OF APPENDICES

ABSTRACT

The production of exoploysaccharide from the marine sponge using the sponge medium is one of the new research which is carried out. The objective of this study is to isolate and purified polysaccharide from gram negative bacteria associated with marine sponge *Aaptos spp* using both SSW medium and *Aaptos spp*. sponge medium. The study was also to identify isolated bacterium and the chemical analysis of the purified polysaccharide. The sponges were taken from Bidong Island and the samples were isolated from the outer layer of sponge. There are two bacteria which were isolated from this sponge which were labeled as bacteria AO-1 and bacteria AI-1. These isolated bacteria have been put for further analyses such as morphological characteristics, biochemical test and RapID^{TM} NF Plus and ONE System. Bacteria AO-1 and bacteria AI-1 is a gram negative, straight rod and identified as *Pseudomonas stutzeri* and *Alcaligenes faecalis*. The production of crude polysaccharide from bacteria *Pseudomonas stutzeri* was 156 mg/l. The production of crude polysaccharide from this bacteria *Alcaligenes faecalis* was 240 mg/l. The analysis of sugars in this both bacteria was done by using Paper Chromatography (PC) and High Perfomance Liquid Chromatography (HPLC). From PC results, Bacteria AO-1 and Bacteria AI-1 showed the presence of maltose and glucose in SSW medium while trehalose and glucose in sponge medium.

PENGHASILAN EKSOPLOSAKARIDA DARIPADA BAKTERIA MARIN YANG ADA HUBUNGAN DENGAN SPAN MARIN, (AAPTOS SPP). DENGAN MENGGUNAKAN MEDIUM SPAN.

ABSTRAK

Penghasilan eksopolisakarida daripada bakteria yang ada hubungan dengan span marin, Aaptos spp. dengan menggunakan medium span merupakan satu kaedah penyelidikan yang baru. Biasanya, kaedah penyelidika dilakukan dengan menggunakan medium SSW (Sucrose Sea Water Medium). Objektif kajian ini adalah untuk memperoleh sampel polisakarida yang bersih untuk tujuan analisis seterusnya. Sampel span yang diperoleh dari Pulau Bidong, diekstrak untuk mendapatkan bahagian luar span. Terdapat dua bakteria yang diekstrak iaitu bakteria AO-1 dan bakteria AI-1 yang masing-masing dikenali sebagai *Pseudomonas stutzeri* dan *Alcaligenes faecalis*. Bakteria tersebut dikaji dan diselidik untuk analisis sifat, bentuk, ujian biokimia dan nama bakteria seperti di atas. Nama bakteria diperoleh dengan menggunakan Sistem RapID^{TM} NF Plus and ONE. Bakteria AO-1 dan bakteria AI-1 merupakan bakteria gram-negatif dan berbentuk rod panjang. Sampel polisakarida yang diperolehi daripada bakteria AO-1 dan bakteria AI-1 masing-masing mempunyai berat 156 mg/L dan 240 mg/L. Analisa seterusnya dengan kertas kromatografi dan (High Performance Liquid Chromatography, HPLC) menunjukkan kehadiran gula maltosa dan glukosa dalam bakteria AO-1 dan bakteria AI-1 daripada medium SSW manakala kehadiran gula trehalosa dan glukosa dalam bakteria AO-1 dan bakteria AI-1 daripada medium span.