THE PRODUCTION OF POLISACCHARIDE AND DETERMINATION OF ITS CHEMICAL COMPOSITION FROM MARINE BACTERIA, *Acinetobacter* sp. SAMPLED AT BIDONG ISLAND

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The production of polisaccharide and determination of its chemical composition from marine bacteria, Acinetobacter sp. sampled at Bidong Island / Norfazarihah Ishak.

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DEPARTMENT OF MARINE SCIENCE
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE

DECLARATION AND VERIFICATION REPORT

FINAL YEAR RESEARCH PROJECT

It is hereby declared and verified that this research report entitled:
The production of polysaccharide and determination of its chemical composition from marine bacteria, *Acinetobacter* sp. sampled at Bidong Island by Norfazarihah bt Ishak, Matric No. UK 16805 have been examined and all errors identified have been corrected. This report is submitted to the Department of Marine Science as partial fulfillment towards obtaining the Degree of marine biology, Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.

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LIST OF ABBREVIATIONS

PAH	-	Polycyclics aromatic hydrocarbons
EPS	-	Extracellular polysaccharide
TSA	-	Tryptic soy agar
MR	-	Methyl red
SIM	-	Sulphate- Indole Motility
HPLC	-	High performance liquid chromatography
PC	-	Paper chromatography
^0C	-	degree calcius
%	-	percentage
mL	-	Milliliter
Rpm	-	Revolution per minute
Cm	-	Centimeter
G	-	Gram
Mm	-	Millimeter
NaOH	-	Natrium Hydroxide
H_20	-	Water

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ABSTRACT

Isolation of bacteria that collected from the marine environment at Bidong Island was carried out. The pure cultured bacteria used for this study were provided by Institute Marine Biotechnology from University Malaysia Terengganu. The purpose of this study is to identify the bacterium culture on crude oil and analysis the chemical composition from polysaccharide that contain in the bacterium. From the study that has been conducted, the isolated bacteria were identified by using different type of methods. The method that had been used is gram staining, biochemical test, and REMEL identification kits. The bacterium was identified as *Acinetobacter* through RapID^{TM} NF Plus (REMEL identification kits). The bacterium, *Acinetobacter* yield 345.16 mg/L of crude polysaccharide from the three batch of culture medium. The analysis of chemical polysaccharide was conducted by using High Performance Liquid Chromatography (HPLC) and Paper Chromatography (PC) and its show the sugar composition obtained were glucose and mannose.

PENGHASILAN POLISAKARIDA DAN PENGENALPASTIAN KOMPOSISI KIMIA DARIPADA BAKTERIA MARIN, *Acinetobacter* sp. DARI PULAU BIDONG

ABSTRAK

Pemencilan bakteria yang di pungut dari persekitaran marin di Pulau Bidong telah dijalankan. Kultur tulen bakteria yang digunakan dalam kajian ini disediakan oleh Institut Marin Bioteknologi, Universiti Malaysia Terengganu. Tujuan kajian ini adalah untuk mengenal pasti jenis bacteria dan menganalisis komposisi kimia dari polisakarida yang terdapat dari bacteria tersebut. Daripada kajian yang dijalankan, bacteria tersebut telah dikenal pasti dengan menggunakan pelbagai kaedah. Bacteria tersebut telah dikenal pasti sebagai *Acinetobacter* hasil daripada ujian dengan menggunakan REMEL Identification Kits, RapID NF Plus. Pengenalpastian ini dicapai hasil daripada gabungan keputusan sifat biokimia bacteria tersebut. Jumlah pengeluaran polisakarida yang terhasil ialah sebanyak 345.16 mg/L dari bacteria *Acinetobacter*. Analisis mengenai komposisi kimia dalam polisakarida telah dikenal pasti dengan menggunakan kertas kromatografi dan High Performance Liquid Chromatography (HPLC) dan kandunagn gula yang hadir dalam kedua-dua kaedah tersebut adalah glukosa dan mannose.