

TAXONOMICAL STUDIES OF POLYSACCHARIDES-
PRODUCING BACTERIUM FROM MARINE SPONGE
Xestospongia sp.

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**TAXONOMICAL STUDIES OF POLYSACCHARIDES – PRODUCING
BACTERIUM FROM MARINE SPONGE *Xestospongia* sp.**

By

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TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENT	ii
TABLE OF CONTENTS	iii-iv
LIST OF TABLES	v
LIST OF FIGURES	vi
LIST OF ABBREVIATIONS	vii
LIST OF APPENDICES	viii
ABSTRACK	ix
ABSTRAK	x
CHAPTER I: INTRODUCTION AND OBJECTIVES	1-2
CHAPTER II: LITERATURE REVIEW	3-7
CHAPTER III: METHODOLOGY	8
3.1: Sampling	8
3.2: Bacteria Isolation and Identification	8
3.2.1: Bacteria Culture	8-9
3.2.2: Morphology of Bacteria	9
3.2.3: Gram-Stain	9
3.2.4: Catalase and Oxidase Test	10
3.2.5: Selective Media Agar	10
3.2.6: Anaerobic Agar	10

3.2.7: REMEL Identification Kit	11
3.2.8: Additional Biochemical Test	11-12
3.3: Polysaccharide Producing and Determination of Sugar Components	13
3.3.1: Polysaccharide Producing by Isolated Bacterium	13
3.3.2: Determination of Sugar Components	13-14
CHAPTER IV: RESULT	15
4.1: Bacteria Isolation and Identification	15-16
4.1.1: Morphological of bacteria using gram stain	17-24
4.1.2: Bacteria Identification using REMEL Identification Kit	25-32
4.1.3: Additional Biochemical and Morphological Tests	33
4.2: Polysaccharides Producing	34
4.2.1: Determination of Sugar Components using Paper Chromatography Technique	35-42
CHAPTER V: DISCUSSIONS	43
5.1: Bacteria isolation and identification	43-46
5.2: Polysaccharide Producing	47-49
5.2.1: Determination of Sugar Components	50-52
CHAPTER VI: CONCLUSION	53-54
REFERENCES	55-57
APPENDICES	58-73

LIST OF TABLES

Table

4.1	Morphology of bacteria isolated on the Nutrient Agar 1.5%.	15
4.2	Morphological and Biochemical tested of bacteria isolated.	16
4.3	Biochemical test results for strain X1 using RapID™ ONE Plus System (REMEL, USA).	25
4.4	Biochemical test results for strain X2 using RapID™ NF Plus System (REMEL, USA).	26
4.5	Biochemical test results for strain X3 using RapID™ ANA II Plus System (REMEL, USA).	27
4.6	Biochemical test results for strain X4 using RapID™ ONE Plus System (REMEL, USA).	28
4.7	Biochemical test results for strain X5 using RapID™ ONE Plus System (REMEL, USA).	29
4.8	Biochemical test results for strain X6 using RapID™ NF Plus System (REMEL, USA).	30
4.9	Biochemical test results for strain X7 using RapID™ ONE Plus System (REMEL, USA).	31
4.10	Biochemical test results for strain X1 using RapID™ NF Plus System (REMEL, USA).	32
4.11	Result of additional Biochemical Tests for bacteria strain X1, X2 and X7	33
4.12	Weight of polysaccharides producing bacterium for one batch culture.	34

LIST OF FIGURES

Figure

4.1	Morphological of bacterium strain X1 after gram stain	17
4.2	Morphological of bacterium strain X2 after gram stain	18
4.3	Morphological of bacterium strain X3 after gram stain	19
4.4	Morphological of bacterium strain X4 after gram stain	20
4.5	Morphological of bacterium strain X5 after gram stain	21
4.6	Morphological of bacterium strain X6 after gram stain	22
4.7	Morphological of bacterium strain X7 after gram stain	23
4.8	Morphological of bacterium strain X8 after gram stain	24
4.9	Paper chromatography of the polysaccharide produced by <i>Yersenia frederiksenii</i>	35
4.10	Paper chromatography of the polysaccharide produced by <i>Alcaligenes faecalis</i>	36
4.11	Paper chromatography of the polysaccharide produced by <i>Clostridium innocuum</i>	37
4.12	Paper chromatography of the polysaccharide produced by <i>Enterobacter cloacae</i>	38
4.13	Paper chromatography of the polysaccharide produced by <i>Enterobacter sakazakii</i>	39
4.14	Paper chromatography of the polysaccharide produced by <i>Sphingomonas paucimobilis</i>	40
4.15	Paper chromatography of the polysaccharide produced by <i>Shigella sonnei</i>	41

ABBREVIATIONS

NaCl	Natrium Chloride
HCL	Hydrochloric Acid
KOH	Potassium Hydroxide
H ₂ S	Hydrogen Sulfide
H ₂ O ₂	Hydrogen Peroxide
VP	Voges-Proskauer
SIM	Sulfide-Indole-Motality
TSI	Triple Sugar Iron
MR	Methyl Red
LPS	Lipopolysaccharides
EPS	Exopolysacchariddes
PC	Paper Chromatography

LIST OF APPENDICES

Appendix

1	<i>Xestospongia</i> sp.	58
2	Sketch-map of Pulau Bidong	59
3	Sample of sponge <i>Xestospongia</i> sp.	60
4	Samples of Selective Media agar	61-62
5	RapID™ NF Plus System (REMEL, USA)	63
6	REMEL Test Code	64-66
7	Mass culture of bacteria	67
8	PC chamber	68
9	Anaerocult Jar (MERCK, Germany)	69
10	Function of Selective Media agar	70
11	Produce polysaccharides	71
12	Sample for PC technique	72

ABSTRACT

Polysaccharides-producing bacteria were isolated from marine sponge, *Xestospongia* sp. collected from coastal area of Pulau Bidong. Seven Gram negative bacteria group; X1, X2, X4, X5, X6, X7 and X8 were isolated. Only one Gram positive bacteria group, X3 was isolated. REMEL Identification Kit biochemical test and characteristic were used to identify the isolated bacteria. The Gram negative bacteria were identified as *Yersenia frederiksenii*, *Alcaligenes faecalis*, *Enterobacter cloacae*, *Enterobacter sakazakii*, *Sphingomonas paucimobilis*, *Shigella sonnei* and *Brevundimonas diminuta*. The Gram positive bacterium was identified as *Clostridium innocuum*. All the isolated species could produce the crude polysaccharides the chemical components contained in the polysaccharides were determined using the Paper Chromatography Technique by using ten monosaccharide standards, Glucose, Galactose, Mannose, Raffinose, Xylose, Trehalose, Lactose, Rhamnose, Arabinose and Maltose. More than three monosaccharides were determined in the crude polysaccharides produced by each isolated bacteria. The more complex of polysaccharides structure and the usefulness of polysaccharides are able to determine in the next research.

**KAJIAN TAKSONOMI KE ATAS BACTERIA PENGHASIL POLISAKARIDA
DARIPADA SPAN MARIN, *Xestospongia sp.***

ABSTRAK

Marin bakteri yang menghasilkan polisakarida telah berjaya dipencilkan daripada marin span, *Xestospongia sp.* yang diperolehi di Pulau Bidong. Tujuh bakteri gram negatif X1, X2, X4, X5, X6, X7 dan X8 berjaya dipencilkan. Hanya satu bakteri gram positif X3 diperolehi. Ujian biokimia ciri-ciri morfologi dan 'REMEL Identification Kit' telah digunakan untuk pengesanan. Bakteri telah dikenalpasti sebagai, *Yersenia frederiksenii*, *Alcaligenes faecalis*, *Enterobacter cloacae*, *Enterobacter sakazakii*, *Sphingomonas paucimobilis*, *Shigella sonnei* dan *Brevundimonas diminuta*. Bakteri gram positif telah dikenalpasti sebagai *Clostridium innocuum*. Semua spesies bakteri yang dipencilkan telah menghasilkan polisakarida mentah dan gula ringkas yang terkandung dalam struktur polisakarida telah ditentukan dengan menggunakan Teknik Kertas Kromatografi dengan menggunakan 10 monosakarida piawai iaitu Glukosa, Galaktosa, Manosa, Raffinosa, Xylosa, Trehalosa, Laktosa, Rhamnosa, Arabinosa dan Maltosa. Lebih daripada tiga monosakarida telah dapat ditentukan dalam polisakarida mentah yang dihasilkan oleh setiap bakteri yang dipencilkan. Struktur polisakarida yang lebih kompleks dan kegunaan lain bakteri polisakarida boleh dijalankan dalam kajian-kajian yang akan datang.