

SCREENING FOR ANTIMICROBIAL ACTIVITIES FROM
MARINE BACTERIA ASSOCIATED WITH KEMAMAN
MANGROVE SOILS, TERENGGANU

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BACTERIA ASSOCIATED WITH KEMAMAN MANGROVE SOILS,
TERENGGANU**

By

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TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	iii
LIST OF TABLES	viii
LIST OF FIGURES	ix
LIST OF ABBREVIATIONS	x
LIST OF APPENDICES	xi
ABSTRACT	xii
ABSTRAK	xiii
CHAPTER 1: INTRODUCTION	1
1.1 Introduction	1
1.2 Objectives of Study	3
CHAPTER 2: LITERATURE REVIEW	4
2.1 Mangrove	5
2.2 Antimicrobial Agent	6
2.3 Antimicrobial Resistant	7
2.4 Discover of Drug from Microbes	9
2.5 Studies on Bioactive Compound from Mangrove	10

CHAPTER 3: METHODOLOGY	13
3.1 Phase One: Isolation of Marine Bacteria	13
3.1.1 Sampling Area	13
3.1.2 Isolation of Marine Bacteria	14
3.2 Phase Two: Screening of Antimicrobial Properties	14
3.2.1 Procedure of Modified Disk Diffusion Method	15
3.2.1a Muller-Hinton Susceptibility Test Agar	15
3.2.1b McFarland Turbidity Standard	15
3.2.1c Preparation of Target Bacteria	15
3.2.1d Inoculation Procedure	17
3.2.1e Preparation of Marine Bacteria Samples Disc	17
3.2.1f Recording Results	18
3.3 Phase Three: Characterization of Selected Marine Bacteria which Showed Positive Bioactivities	18
CHAPTER 4: RESULTS	19
4.1 Isolation of Marine bacteria	19
4.2 Screening of Antimicrobial Activities	19
4.3 Characterization of Selected Marine Bacteria which Showed Positive Bioactivities	25
4.3.1 Characterization of Selected Marine Bacteria using Biochemical Test	25
4.3.2 Characterization of Selected Marine Bacteria using API Kits	28
4.3.2a API Kit 20 NE for Strains N6 and M17	28
4.3.2b API Kit 20 E for Strain N8	30

4.3.2c API Kit STAPH for Strain M16	32
CHAPTER 5: DISCUSSION	34
CHAPTER 6: CONCLUSION AND RECOMMENDATIONS	41
6.1 Conclusion	41
6.2 Recommendations	42
REFERENCES	43
APPENDICES	54
CURRICULUM VITAE	61

LIST OF TABLES

Table		Page
4.1	List of bacteria isolated from KMM1 and KMM2 sample.	20
4.2	Inhibitions zone of positive antimicrobial activities of isolates from KMM1.	21
4.3	Inhibitions zone of positive antimicrobial activities of isolates from KMM2.	22
4.4	Results on gram stain, spore stain, catalase, oxidase and NaOH test	26
4.5	Results on selected medium agar test	26
4.6	Results on selected medium agar test (cont)	27
4.7	Identifications based on coded for API kit 20 NE	28
4.8	Results on API Kits for strain N6 and M 17	29
4.9	Identifications based on coded for API Kit 20 E	30
4.10	Results on API kit for strain N8	31
4.11	Identifications based on coded for API Kit STAPH	32
4.12	Results on API Kit for strain M16	51

LIST OF FIGURES

Figure		Page
3.1	Comparison of McFarland 0.5 with inoculum suspension	16
4.1	The proportion of the antibacterial and non-antibacterial activity from all isolated marine bacteria	23
4.2	The proportion of the antibacterial and non-antibacterial activity from isolated marine bacteria of KMM1 sample	24
4.3	The proportion of the antibacterial and non-antibacterial activity from isolated marine bacteria of KMM2 sample	24

LIST OF ABBREVIATIONS

°	-	degree
°C	-	degree celcius
%	-	percent
g	-	gram
nm	-	nanometer
ml	-	mililiter

LIST OF APPENDICES

Figure		Page
Appendix 1	Methodology Flowchart	54
Appendix 2	Modified Agar Diffusion Method for Screening	55
Appendix 3	Kemaman Mangrove soils samples, KMM1 and KMM2	56
Appendix 4	Mother plate for isolation of marine bacteria	56
Appendix 5	Marine bacteria isolates which showed positive antimicrobial activity	57
Appendix 6	Gram stain results on positive antimicrobial isolate	58
Appendix 7	API kit 20 E, 20 NE and STAPH	59
Appendix 8	Example of API Kit Reading Table	60
Appendix 9	Example of API Kit result sheet	60

ABSTRACT

The marine bacteria were isolated from Kemaman Mangrove soils in searching for the antimicrobial properties. Out of 34 marine bacteria isolated from two mangrove samples namely KMM1 and KMM2 respectively, only five isolates or fifteen percent of all isolate were shown to have positive antimicrobial activity. The isolates M4, M16, M17, N6 and N8 showed moderate positive antimicrobial activities against six target bacteria and one yeast target using modified agar diffusion method. Target bacteria that were used for screening were obtained from Sultanah Nur Zahirah Hospital. Isolates M4 showed the highest antimicrobial activity on *Klebsiella pneumonia* target bacteria with 22.5 mm inhibition zone susceptibility. All positive isolates were characterized by biochemical tests and identified using API kits except for isolate M4 which characterized by biochemical tests. Furthermore, isolates N6 and M17 were identified as *Aeromonas hydrophila/caviae* at 99.7 % confidence level and possible to be *Vibrio fluvialis*. Isolate N8 was identified as *Serratia sp* at 99.5% confident level. The isolate M16 was identified as *Micrococcus spp* at 99.9% confident level. From this study, there is potential on antimicrobial activity showed from marine bacteria isolated from mangrove soil in order to develop new antimicrobial compound. Results suggest that marine bacterium isolates particularly gram positive bacteria, believe to produce antimicrobial compound and are potentially useful for novel bioactive compound discovery.

PENYARINGAN ANTIMIKROBIAL DARIPADA BAKTERIA MARIN DARI TANAH BAKAU DI KEMAMAN, TERENGGANU

ABSTRAK

Bakteria marin dipencilkan dari tanah bakau Kemaman dalam pencarian kebolehan antimicrobial. Dari 34 bakteria marin yang berjaya disaringkan dari dua sampel tanah yang dinamakan KMM1 dan KMM 2, hanya lima bakteria marin atau lima belas peratus dari semua bakteria marin yang disaring menunjukkan keputusan positif dalam aktiviti antimicrobial. Bakteria marin M4, M16, M17, N6 dan N8 menunjukkan keputusan positif yang sederhana dalam kebolehan antimikrob terhadap enam target bakteria dan satu target yis menggunakan kaedah agar difusi yang diubahsuai. Target yang telah digunakan untuk penyaringan diperolehi dari Hospital Sultanah Nur Zahirah. Bakteria Marin M4 menunjukkan kebolehan antimikrob yang tertinggi ke atas target bakteria *Klebsiella pneumonia* dengan dengan zon rintangan sebesar 22.5 mm. Kesemua marin bakteria yang menunjukkan keputusan positif dicirikan dengan menggunakan ujian biokimia dan dikenalpasti menggunakan Kit API kecuali bakteria marin M4 yang menggunakan ujian biokimia. Marin bakteria N6 dan M17 dikenalpasti sebagai *Aeromonas hydrophila/caviae* pada tahap keyakinan 99.7%. Marin bakteria N8 dikenalpasti sebagai *Serratia sp.* Pada tahap keyakinan 99.5%. Marin Bakteria M16 dikenalpasti sebagai *Micrococcus sp* pada tahap keyakinan 99.9%. Dari kajian yang dijalankan, bakteria marin yang disaring dari tanah bakau berpotensi dalam aktiviti antimikrob dalam pencarian sebatian antimikrob yang baru. Keputusan menunjukkan bakteria marin yang disaring kebanyakan gram

positif dipercayai dapat menghasilkan sebatian antimikrob dan menunjukkan potensi dalam pencarian sebatian antimikrob yang baru.