

ANTIBACTERIAL ACTIVITY FROM BACTERIA ISOLATED
FROM MARINE RESOURCES

NUR ANIZA BINTI ABD. JABAR

FAKULTI SAINS DAN TEKNOLOGI
UNIVERSITI MALAYSIA TERENGGANU

2006

c/w 5841

1100057842

Perpustakaan Sultanah Nur Zahirah (UMT)
Universiti Malaysia Terengganu



LP 46 FST 1 2008



1100057842
Antibacterial activity from bacteria isolate from marine
resources. / Nur Amiza Abd. Jabar.

PERPUSTAKAAN SULTANAH NUR ZAHIRAH
UNIVERSITI MALAYSIA TERENGGANU (UMT)
21030 KUALA TERENGGANU

1100057842		

Lihat sebelah

HAK MILIK
PERPUSTAKAAN SULTANAH NUR ZAHIRAH UMT

**ANTIBACTERIAL ACTIVITY FROM BACTERIA ISOLATED FROM
MARINE RESOURCES**

By

Nur Amiza Binti Abd. Jabar

A thesis submitted in partial fulfillment of
the requirements for the award of the degree of
Bachelor of Science (Biological Sciences)


**DEPARTMENT OF BIOLOGICAL SCIENCES
FACULTY OF SCIENCE AND TECHNOLOGY
UNIVERSITI MALAYSIA TERENGGANU**

2008

1100057842

DECLARATION

I hereby declare that this thesis entitled Antibacterial Activity From Bacteria Isolated From Marine Resources is the result of my own research except as cited in the references.

Singnature : 
Name : Nur Amiza Binti Abd. Jabar
Matrix No : UK11773
Date : 11 May 2008

ACKNOWLEDGEMENTS

Firstly, I would like to convey my high grateful to the God, for bless and give me strength to finish this project smoothly and safely. Greatest appreciation and sincere gratitude to my supervisor Associate Professor Dr. Mohd. Effendy bin Abd. Wahid for his kindness, advises and meaningful guidance. I had learned a lot of new experience and gain a meaningful knowledge during accomplish this project.

Uncountable gratefulness and thanks to Institute Marine of Biotechnology (IMB) Academic Fellow, Mr. Jasnizad bin Saidin for his guidance along the project. Thanks to IMB Research Assistant Miss Rawaidah for her meaningful help. I would like to convey my sincere gratitude to Laboratory Assistant of Microbiology Laboratory, Madam Mahidawati and Mr. Mohd Reduan who helped during material preparation procedures. I also would like to thank to all lecturers, Science Officer and Lab Assistants of Department of Biological Science that give a best cooperation during running this project.

Million thanks to my lovely mother Madam Junainah binti Hasim for her support and care to the success of this project. My appreciate to my entire course mate and all my friends as they have keep on supporting my study and giving me courage to continue the study although there are obstacles and difficulties along it.

Lastly, but not least to everyone who advise and support during the beginning of the project until the end of it. Thank you.

ABSTRACT

The important of this study is to determine antibacterial activity for marine bacteria which isolated from marine resources such as marine sediments, corals, sea cucumbers, sponges, drift woods, sea water, decayed leaf and mollusks. Culture of marine bacteria which stocked at Institute Marine of Biotechnology was used as inoculums. The modification of agar disc diffusion method were used to screen antibacterial activity against six pathogenic bacteria which are *Aeromonas hydrophila*, *Bacillus subtilis*, *Escherichia coli*, *Klebsiella pneumoniae*, *Staphylococcus aureus* and *Streptococcus agalactiae*, also one fungi which is *Saccharomyces cervisiae*. From total 153 marine bacteria which had been screened, 92 of them were shown antibacterial activities towards at least one pathogenic bacteria which act as target bacteria. Marine bacteria which encoded PLW 3 shown the largest inhibition zone against *Bacillus subtilis*, which was 13 mm. It was classified as intermediate classification, based on interpretation of antibiogram inhibition zones of Gentamicin (10 mcg), which act as positive control. Gram stained procedure were shown that 96 % of marine bacteria was Gram-negative, while only 4 % of them was Gram-positive. Few marine bacteria had bioactive compound with antibacterial activity towards pathogenic bacteria.

AKTIVITI ANTIBAKTERIA PADA BAKTERIA YANG DIPENCILKAN DARIPADA SUMBER-SUMBER MARIN

ABSTRAK

Kepentingan kajian ini adalah untuk menentukan kewujudan aktiviti antibakteria bagi bakteria marin yang dipencilkan daripada pelbagai sumber seperti sedimen laut, batu karang, gamat, kayu hanyut, air laut, daun yang telah reput di dasar laut dan molluska. Kultur bagi bakteria marin tersebut diperolehi dari Institut Bioteknologi Marin. Kaedah pengubahsuaian kepada penyerapan disk agar digunakan bagi menyaring aktiviti antibakteria bagi bakteria marin terhadap tujuh bakteria patogenik yang bertindak sebagai bakteria target iaitu *Aeromonas hydrophila*, *Bacillus subtilis*, *Escherichia coli*, *Klebsiella pneumoniae*, *Staphylococcus aureus* dan *Streptococcus agalactiae*, juga satu fungi iaitu *Saccharomyces cerevisiae*. Daripada 153 bakteria marin yang telah disaring, 92 daripadanya menunjukkan aktiviti antibakteria terhadap sekurang-kurangnya satu bakteria target. Bacteria marin yang telah dikodkan sebagai PLW 3 telah menunjukkan zon nyahbakteria terbesar dalam menyahbakteria *Bacillus subtilis*, iaitu 13 mm. Ia diklasifikasikan sebagai aktiviti sederhana berdasarkan pentafsiran antibiogram zon nyahbakteria bagi Gentamicin (10 mcg), yang bertindak sebagai pengawal positif. Prosedur penandaan gram menunjukkan terdapat 96 peratus bakteria marin yang mempunyai jenis Gram-negatif, manakala hanya 4 peratus daripadanya adalah Gram-positif. Terdapat bakteria marin yang mempunyai kompaun bioaktif dengan aktiviti antibakteria terhadap bakteria patogenik.