

SCREENING OF BIOACTIVE COMPOUNDS FROM BACTERIA  
ASSOCIATED WITH MARINE AND AQUATIC ORGANISMS

KHAIROL MAHMUD BINI MOHD MASIR

FAKULTI SAINS DAN TEKNOLOGI  
UNIVERSITI MALAYSIA TERENGGANU

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Perpustakaan Sultanah Nur Zahirah (UMT)  
Universiti Malaysia Terengganu



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

1100057814


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PERPUSTAKAAN SULTANAH NUR ZAHIRAH UMT

**SCREENING OF BIOACTIVE COMPOUNDS FROM BACTERIA  
ASSOCIATED WITH MARINE AND AQUATIC ORGANISMS**

By  
Khairol Naaim binti Mohd Nasir

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JABATAN SAINS BIOLOGI  
FAKULTI SAINS DAN TEKNOLOGI  
UNIVERSITI MALAYSIA TERENGGANU

## PENGAKUAN DAN PENGESAHAN LAPORAN PITA I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: **SCREENING OF BIOACTIVE COMPOUNDS FROM BACTERIA ASSOCIATED WITH MARINE AND AQUATIC ORGANISMS** oleh **KHAIROL NAAIM BINTI MOHD NASIR**, no. matrik: **UK 12449** telah diperiksa dan semua pembedaan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperoleh ijazah **SARJANA MUDA SAINS (SAINS BIOLOGI)**., Fakulti Sains dan Teknologi, Universiti Malaysia Terengganu.

Disahkan oleh:

Penyelia Utama

Nama: **DR. NORAZNAWATI BINTI ISMAIL**

Cop Rasmi: **DR. NORAZNAWATI BINTI ISMAIL**

Pensyarah  
Jabatan Sains Biologi  
Fakulti Sains dan Teknologi  
Universiti Malaysia Terengganu  
21030 Kuala Terengganu

Tarikh: **21/5/08**

Ketua Jabatan Sains Biologi

Nama: **PROF MADYA DR. AZIZ BIN AHMAD**

Cop Rasmi: **PROF. MADYA DR. AZIZ BIN AHMAD**

Ketua  
Jabatan Sains Biologi  
Fakulti Sains dan Teknologi  
Universiti Malaysia Terengganu  
21030 Kuala Terengganu

Tarikh: .....  
**15 JUN 2008**

## DECLARATION

I hereby declare that this thesis entitled **Screening of bioactive compounds from bacteria associated with marine and aquatic organisms** is the result of my own research except as cited in the references.

Signature :   
Name : Khairol Naaim binti Mohd Nasir  
Matric. No: UK 12449  
Date : 13<sup>th</sup> May 2008.

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## ABSTRACT

Bacteria are well known associated with marine and aquatic organisms that produced valuable compounds that can be used worldwide. The aim of this study is to screen the bioactive compounds from bacteria associated with marine and aquatic organisms. This project was conducted based on air-membrane surface cultivation (AMS) and Planctonic suspension shake flask culture (PSS) method to produce bioactive compounds. Cell free supernatant (CFS) was obtained by using sterile filter syringe and impregnated onto 6mm Whatman paper disc. Disc Diffusion Test (DDT) carried out, with all discs impregnated with CFS. Test strain for DDT was *Micrococcus luteus*. There were 196 isolates cultivated, 32 from sponges and 164 from freshwater fishes. The results showed that 14 out of 196 from isolates cultivated, were screen with the inhibition zone ranging from 7mm to 15mm, with all 14 from bacteria isolates from freshwater fishes and no activity revealed from bacteria associated with sponges. Results indicated that media selective and surrounding environment might influence the production of bioactive compounds. As conclusion, AMS cultivation method seems to be the best technique for producing bioactive compounds compared to PSS flask culture. Bacteria associated with freshwater fish seemed to produce useful compounds.



## ABSTRAK

Bakteria telah diketahui bersimbiosis dengan organisma marin dan akuatik lain untuk menghasilkan sebatian yang berguna kepada dunia . Tujuan kajian ini adalah untuk mencari sebatian bioaktif daripada bakteria yang berkaitan dengan organisma marin dan akuatik. Projek penghasilan sebatian bioaktif ini dijalankan dengan menggunakan teknik “air-membrane surface” (AMS) dan teknik “planctonic suspension shakes flask culture” (PSS). Dalam kajian ini, supernatan dihasilkan dan disaring dengan menggunakan picagari khas dan dititikan diatas ”whatman paper disc” bersaiz 6mm. Selepas itu, di ikuti oleh ujian ”Disc Diffusion Test” ke atas *Micrococcus luteus*. Terdapat 196 sampel ujian yang mana 32 daripadanya ialah bakteria dari sampel sponges dan selebihnya ialah dari sampel ikan air tawar. Keputusan menunjukkan 14 daripada 196 sampel mempunyai zon antibiotik iaitu diantara 7mm ke 15mm dan kesemua sampel itu ialah sampel ikan air tawar. Keputusan ini mungkin dipengaruhi oleh media tertentu dan yang juga berkaitan dengan persekitarannya. Kesimpulannya, teknik AMS adalah teknik terbaik dalam penghasilan sebatian bioaktif berbanding teknik PSS. Bakteria yang mempunyai perkaitan dengan ikan air tawar menunjukkan penghasilan kompoun yang berguna.