

IDENTIFICATION AND CHARACTERIZATION OF BACTERIA
FROM FRESHWATER FISH, *Rasbora notura*

MARAN SINTI BRIAHN

FAKULTI SAINS DAN TEKNOLOGI
UNIVERSITI MALAYSIA PENANGAN

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C/N 5807

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Perpustakaan Sultanah Nur Zahirah (UMT)
Universiti Malaysia Terengganu

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

1100057809

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HAK MILIK
PERPUSTAKAAN SULTANAH NUR ZAHIRAH UNT

**IDENTIFICATION AND CHARACTERIZATION OF BACTERIA FROM
FRESHWATER FISH, *Rasbora notura***

By
Hairani bt Ibrahim

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
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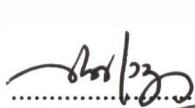


**JABATAN SAINS BIOLOGI
FAKULTI SAINS DAN TEKNOLOGI
UNIVERSITI MALAYSIA TERENGGANU**

**PENGAKUAN DAN PENGESAHAN LAPORAN
PITA I DAN II**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: IDENTIFICATION AND CHARACTERIZATION OF BACTERIA FROM FRESHWATER FISH, *Rasbora notura* oleh HAIRANI BINTI IBRAHIM, No. Matrik UK11131 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperolehi IJAZAH SARJANA MUDA SAINS (SAINS BIOLOGI), Fakulti Sains dan Teknologi, Universiti Malaysia Terengganu.

Disahkan oleh:


.....
Penyelia Utama

Nama: DR. NORAZNAWATI BINTI ISMAIL
Pensyarah
Cop Rasmi: 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
Ketua
Cop Rasmi: Jabatan Sains Biologi
Fakulti Sains dan Teknologi
Universiti Malaysia Terengganu
21030 Kuala Terengganu

15 JUN 2008

Tarikh:

DECLARATION

I hereby declare that this thesis entitled Identification and Characterization of Bacteria from Freshwater Fish, *Rasbora notura* is the result of my own research except as cited in the references.

Signature :
Name : Hairani bt Ibrahim
Matrix No : UK11331
Date : 11/05/08

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ABSTRACT

Some of the pathogenic bacteria in freshwater fish can cause disease in human hence the identification of bacteria from fish will help to prevent contamination in human. Bacteria from fish also could be a potential indicator for environmental pollution and play important roles in the maintenance of water quality. The aims of this study are to isolate the bacteria from freshwater fish, *Rasbora notura* and to identify and characterize the bacteria isolates. Gram-staining and seven biochemical tests were carried out in these study including oxidase, catalase, MR, VP, starch hydrolysis, TSI and SIM. 91 bacteria isolates were successfully isolated from *R. notura* but only 14 different species of bacteria isolates have been identified up to genus and species level which were *Megasphaera* sp., *Veillonella* sp., *Aeromonas* sp., *Bacillus* sp., *Neisseria* sp., *Staphylococcus* sp., *Micrococcus* sp., *Pseudomonas* sp., *Corynebacterium kutscheri*, *Corynebacterium xerosis*, *Enterbacter aerogenes*, *Enterbacter intermedius*, *Klebsiella pneumoniae* and *Serratia liquefaciens*. Gram-negative bacteria were dominant in *R. notura* and in agreement with previous study which almost 90 percent of Gram-negative bacteria were dominant in freshwater animals. The dominance of *Megasphaera* sp. and *Klebsiella pneumoniae* in this study indicates that fecal contamination was occurring in Paya Sungai Udang.

**Pengecaman dan Pengcirian Bakteria daripada Ikan Air Tawar,
*Rasbora notura***

ABSTRAK

Sesetengah daripada patogenik bakteria dalam ikan air tawar boleh mendatangkan penyakit kepada manusia, oleh itu mengenalpasti bakteria daripada ikan akan membantu untuk menghalang jangkitan pada manusia. Bakteria daripada ikan juga boleh menjadi petunjuk kepada pencemaran alam sekitar dan memainkan peranan penting dalam penyelenggaraan kualiti air. Tujuan kajian ini dijalankan adalah untuk memencarkan bakteria daripada ikan air tawar, *Rasbora notura* dan untuk mengenalpasti dan mencirikan pemenciran bakteria. Pewarnaan-Gram and ujian biokimia telah dijalankan di dalam kajian ini termasuklah oksidase, katalase, MR, VP, hidrolisis kanji, TSI dan SIM. 91 penciran bakteria telah berjaya di pencarkan daripada *R. notura* tetapi hanya 14 spesies penciran bakteria sahaja yang dapat dikenalpasti sehingga ke tahap genus dan spesies seperti *Megasphaera* sp., *Veillonella* sp., *Aeromonas* sp., *Bacillus* sp., *Neisseria* sp., *Staphylococcus* sp., *Micrococcus* sp., *Pseudomonas* sp., *Corynebacterium kutsceri*, *Corynebacterium xerosis*, *Enterbacter aerogenes*, *Enterbacter intermedius*, *Klebsiella pneumoniae* dan *Serratia liquefaciens*. Bakteria Gram-negatif merupakan dominan di dalam *R. notura* dan selaras dengan kajian sebelum ini iaitu hampir 90 peratus bakteria Gram-negatif dominan di dalam haiwan air tawar. Penggunaan bakteria *Megasphaera* sp. dan *Klebsiella pneumoniae* dalam kajian ini menunjukkan bahawa pencemaran bahan buangan (tinja) sedang berlaku di kawasan Paya Sungai Udang.