

IDENTIFICATION AND CHARACTERIZATION OF BACTERIA
FROM FRESHWATER FISH, *Oxygaster aromakura*

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**IDENTIFICATION AND CHARACTERIZATION OF BACTERIA FROM
FRESHWATER FISH, *Oxygaster anomalura***

By
Siti Nor Huda Binti Abd. Ghani

Research Report submitted in partial fulfillment of
the requirements for the degree of
Bachelor of Science (Biological Sciences)

**DEPARTMENT OF BIOLOGICAL SCIENCES
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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, *Oxygaster anomalura*** oleh **SITI NOR HUDA BINTI ABD. GHANI**, No. Matrik: **UK 12294** telah diperiksa dan semua pembetulan 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.

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DECLARATION

I hereby declare that this thesis entitled **IDENTIFICATION AND CHARACTERIZATION OF BACTERIA FROM FRESHWATER FISH, *Oxygaster anomalura*** is the result of my own research except as cited in the references.

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ABSTRACT

Identification of bacteria from polluted areas including freshwater environment are important especially for health development to mankind. To date, bacteria are used for bio-indicator and proven to be the fastest method of identifying polluted area. The aims of this study are to isolate, to identify and to characterize bacteria from freshwater fish, *O. anomalura*. A hundred of bacteria isolates were cultured on MacConkey and Nutrient agar. Biochemical tests were used to identify bacteria isolates at genus and species level. The genus and species that had been identified were *Serratia fonticola*, *Aeromonas* sp., *Aeromonas salmonicida*, *Citrobacter freundii*, *Klebsiella pneumoniae*, *Serratia* sp., *Neisseria flavescens*, *Neisseria* sp., *Serratia liquefaciens*, *Enterobacter aerogenes*, *Staphylococcus* sp., *Corynebacterium xerosis*, *Citrobacter diversus*, *Aeromonas veronii*, *Enterobacter intermedius*, *Pseudomonas* sp. and *Corynebacterium kutscheri*. The most abundant bacteria isolated were from Gram-negative bacteria which were from *Neisseria* sp., 20% followed by *Staphylococcus* sp., 13 %. The abundance of *Staphylococcus* sp. in Paya Sungai Udang indicated that the area was contaminated with fecal. 81% of the total numbers of bacteria isolates were Gram-negative bacteria. The finding of this study is in agreement with previous study indicated that Gram-negative bacteria dominated the freshwater fish.

ABSTRAK

Pengecaman bakteria dari kawasan tercemar termasuklah persekitaran air tawar adalah penting terutamanya untuk kemajuan kesihatan manusia. Pada masa kini, bakteria digunakan sebagai bio-indikator dan terbukti menjadi kaedah paling cepat menentukan kawasan tercemar. Objektif untuk kajian ini ialah untuk memencil, mengecam dan mencari bakteria daripada ikan air tawar, *O. anomalura*. 100 bakteria yang dipencilkan dikulturkan ke atas agar MacConkey dan agar Nutrien. Ujian biokimia digunakan untuk menentukan bakteria yang dipencilkan kepada peringkat genus dan spesies. Genus dan spesies yang telah dicamkan ialah *Serratia fonticola*, *Aeromonas* sp., *Aeromonas salmonicida*, *Citrobacter freundii*, *Klebsiella pneumoniae*, *Serratia* sp., *Neisseria flavescens*, *Neisseria* sp., *Serratia liquefaciens*, *Enterobacter aerogenes*, *Corynebacterium xerosis*, *Citrobacter diversus*, *Aeromonas veronii*, *Enterobacter intermedius*, *Pseudomonas* sp., *Staphylococcus* sp. dan *Corynebacterium kutscheri*. Bakteria yang paling banyak dipencilkan ialah bakteria Gram-negatif terdiri daripada *Neisseria* sp. iaitu 20% diikuti oleh *Staphylococcus* sp. iaitu 13%. Taburan *Staphylococcus* sp. di dalam Paya Sungai Udang menunjukkan yang kawasan tersebut dicemari dengan tinja. 81% daripada jumlah bakteria yang dipencilkan ialah bakteria Gram-negatif. Penemuan dalam kajian ini mempersetujui dengan kajian sebelumnya menunjukkan yang bakteria Gram-negatif mendominasi ikan air tawar.