

IDENTIFICATION AND CHARACTERIZATION OF
BACTERIA FROM FRESHWATER FISH,
Labiobarbus leptodactylus

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**IDENTIFICATION AND CHARACTERIZATION OF BACTERIA FROM
FRESHWATER FISH, *Labiobarbus leptocheilus***

By

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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
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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, *Labiobarbus leptocheilus*** oleh **HASNATUL HAZWANI BINTI HASSAN**, No. Matrik: **UK12165** 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.

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DECLARATION

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

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ABSTRACT

The risk of food bacteria infection and microbiological quality of waters are the major public health concern. There have been suggested that the bacterial flora of fish might reflect the bacteriological conditions of the water and it could be a potential indicator for pollution. Therefore, the objectives of this study were to isolate, to identify and to characterize of bacteria isolates from freshwater fish, *Labiobarbus leptocheilus*. Approximately all the bacterial isolates were able to grow on MacConkey and Nutrient agar. Based on Gram reaction, 100% of Gram-negative bacteria obtained, 82% were rod and the rest were cocci. The morphological and biochemical characteristics of isolates were determined by using macro, micromorphology and nine biochemical tests. *Escherichia* sp. shown the highest number reflected the warm-blooded-animal-pollution level of the water. Besides *Megasphaera* sp., *Pseudomonas* sp. and *Aeromonas* sp., other faecal indicator bacteria from Enterobacteriaceae family (*Shigella* sp., *Enterobacter* sp., *Klebsiella* sp. and *Citrobacter* sp.) also detected. However, *Proteus* sp. shown the lowest number because it most frequently seen in urinary tract. The existence of coliform in fish was determined as an indication of passage through a polluted area and these results generally agree with previous reports.

ABSTRAK

Risiko jangkitan bakteria terhadap makanan dan kualiti mikrobiologi air mendapat perhatian khusus di dalam kesihatan awam. Terdapat beberapa cadangan mengatakan bahawa bakteria flora di dalam ikan menggambarkan keadaan bakteriologi bagi air dan berpotensi menjadi penanda bagi pencemaran. Oleh itu, objektif kajian ini adalah untuk memencilkan, mencirikan dan menggambarkan pencilan bakteria dari ikan air tawar, *Labiobarbus leptocheilus*. Hampir kesemua pencilan bakteria mampu hidup di atas agar MacConkey dan agar Nutrien. Berdasarkan tindak balas Gram, daripada 100% bakteria Gram-negatif yang diperolehi, 82% daripadanya berbentuk rod dan selebihnya berbentuk sfera. Ciri-ciri morfologi dan biokimia pencilan telah dikenalpasti menggunakan ujian makro, mikromorfologi dan sembilan ujian biokimia. *Escherichia* sp. mencatatkan jumlah tertinggi menggambarkan aras pencemaran haiwan berdarah panas bagi air. Selain *Megasphaera* sp., *Pseudomonas* sp. dan *Aeromonas* sp., lain-lain bakteria penunjuk najis dari famili Enterobacteraceae (*Shigella* sp., *Enterobacter* sp., *Klebsiella* sp. and *Citrobacter* sp.) turut dikesan. Walaubagaimanapun, *Proteus* sp. mencatatkan nilai terendah kerana ia selalunya boleh dijumpai di dalam salur urinari. Kewujudan koliform di dalam ikan telah dikenalpasti sebagai penanda perjalanan melalui kawasan tercemar dan secara amnya hasil dapatan ini selari dengan laporan sebelumnya.