

ISOLATION AND IDENTIFICATION OF
Pseudomonas aeruginosa FROM
HEALTHY AND DISEASED AQUACULTURE TILAPIA FISHES FROM
KENYIR LAKE

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**ISOLATION AND IDENTIFICATION OF *Pseudomonas aeruginosa* FROM
HEALTHY AND DISEASED AQUACULTURE TILAPIA FISHES FROM
KENYIR LAKE.**

BY

OOI ENG HOOI

**THIS PROJECT REPORT IS SUBMITTED IN PARTIAL FULFILMENT OF
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PUSAT PEMBELAJARAN DIGITAL SULTANAH NUR ZAHARA

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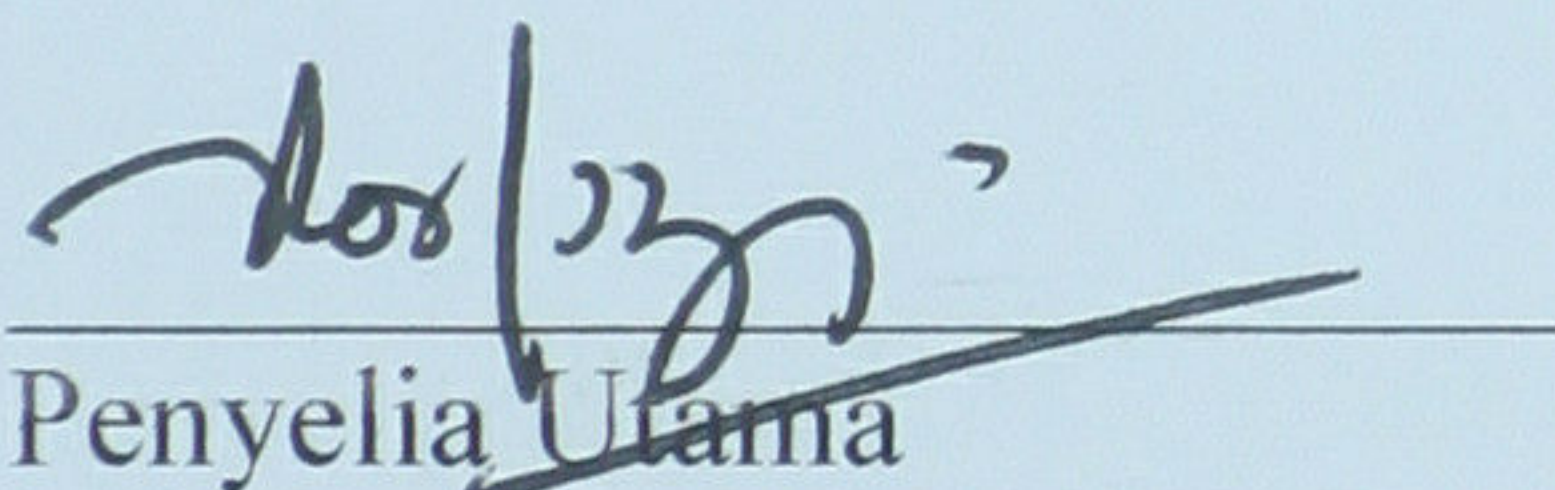
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**PENGAKUAN DAN PENGESAHAN LAPORAN
PENYELIDIKAN ILMIAH TAHUN AKHIR**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan ilmiah tahun akhir bertajuk "Isolation and Identification of *Pseudomonas aeruginosa* From Healthy and Diseased Aquaculture Fish (Tilapia) in Kenyir Lake" oleh Ooi Eng Hooi, no matrik UK 4123 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: Pemuliharaan Dan Pengurusan Biodiversiti, Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia.

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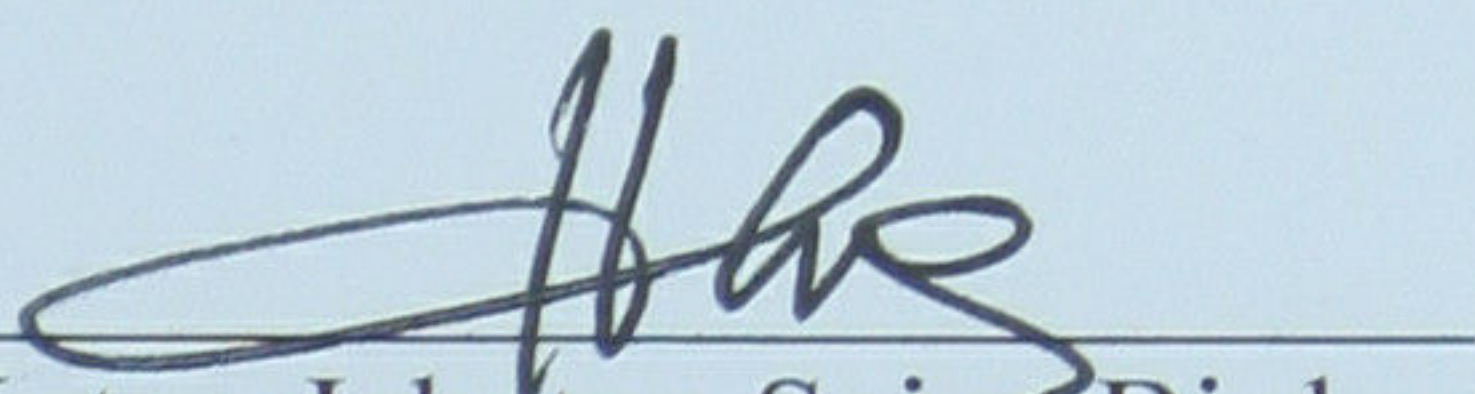
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ABSTRAK

Bakteria daripada genus *Pseudomonas* sp hadir dalam kebanyakan air tawar dan menjangkiti kebanyakan spesies ikan. Objektif kajian ini adalah (i) menjalankan pemencilan dan pengecaman ke atas *P. aeruginosa* daripada ikan tilapia dari Tasik Kenyir, Terengganu (ii) mengesan sensitiviti bakteria terhadap agen antimikrob yang biasa digunakan dan (iii) mengesan kehadiran plasmid dalam bakteria. Beberapa jenis agar telah digunakan untuk pemencilan bakteria seperti TSA, TSA, Mac Conkey, *Pseudomonas* agar dan agar darah. Sampel telah diambil daripada ikan sihat, berpenyakit dan mati dari bahagian insang, buah pinggang, hati dan usus. Beberapa ujian biokimia telah dijalankan untuk pengesahan spesies bakteria seperti pewarnaan gram, ujian oksides, TSI, SIM dan Citrate. Daripada 61 sampel hanya sepuluh sampel menunjukkan kehadiran bakteria dengan 11 pemencilan bakteria dimana dua isolat ditemui daripada ikan yang sama. Daripada pengesahan agen antimikrob didapati bahawa gentamisin, penisillin, kloramfenikol, and kanamisin menunjukkan sensitiviti yang tinggi terhadap bakteria tersebut. Dalam pengesahan plasmid pula hanya enam bakteria yang menunjukkan kehadiran plasmid. *P. aeruginosa* hanya dijumpai dalam ikan berpenyakit sahaja. Keadaan ini mungkin menjadi salah satu penyebab utama kepada kematian ikan di Tasik Kenyir, Terengganu.

ABSTRACT

The bacteria belonging to the genus *Pseudomonas* sp are present in most natural waters and infect most species of fish. The objectives of this study was (i) to isolate and identify *Pseudomonas aeruginosa* from healthy, diseased and dead fish from two fish farms located in Kenyir Lake, Terengganu, (ii) to determine the sensitivity of the isolates to commonly used antimicrobial agents, (iii) to isolate plasmid of *P. aeruginosa* for molecular weight identification. Samples were taken from healthy, diseased and dead fishes. Swabs were taken from gills, kidneys, intestine and liver. Eleven isolates of *P.aeruginosa* were recovered only from diseased fish. Further identification was continued using biochemical tests. Those tests were done with gram staining, Oxidase test, Triple Sugar Iron, Citrate and Sulfide Indole Motility. From the results, *P.aeruginosa* was gram negative and rod shaped. Muller Hinton agar and 11 types of antibiotic disc were used for antimicrobial sensitivity test. *P.aeruginosa* showed a high percentage of susceptibility to Gentamicin, Penincilin, Chloramphenicol and Kanamycin. Plasmid extractions were also done on the same isolates. Only six of them showed the presence of plasmid. All isolates were found only in diseased fish. As an assumption, *P. aeruginosa* could be one of the pathogen causing fish mortality, so further study should be done to confirm the results.