

ISOLATION AND IDENTIFICATION OF
Aeromonas salmonocida FROM
HEALTHY AND DISEASED AQUACULTURE TILAPIA FISHES FROM
KENYIR LAKE

KAYAL VIZI D/O KARUPPANNAN

DEPARTMENT OF BIOLOGICAL SCIENCES
FACULTY OF SCIENCE AND TECHNOLOGY
UNIVERSITY OF SCIENCE AND TECHNOLOGY MALAYSIA
KUSTEM

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Isolation and identification of 'Aeromonas salmonocida' from healthy and diseased aquaculture Tilapia fishes from Kenyir Lake / Kayal Vizi d/o Karuppannan.



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PERPUSTAKAAN
KOLEJ UNIVERSITI SAINS & TEKNOLOGI MALAYSIA
(KUSTEM) *dn 1578*

Pengarang <i>Kayal Vizi</i>		No. Panggilan <i>LP 7 FST 1 2003</i>	
Judul <i>Isolation & identification of</i>			
Tarikh	Waktu Pemulangan	Nombor Ahli	Tanda tangan
<i>17/2/04</i>	<i>1/30 pm</i>	<i>UK 6731</i>	<i>[Signature]</i>
<i>8/8/06</i>	<i>4.35</i>	<i>UK 646</i>	<i>7</i>
<i>15/11/06</i>	<i>2.00</i>	<i>UK 12581</i>	<i>[Signature]</i>

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BY

KAYAL VIZI D/O KARUPPANNAN

**THIS PROJECT REPORT IS SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENT FOR THE DEGREE OF SARJANA MUDA APPLIED
SCIENCE (CONSERVATION AND MANAGEMENT OF BIODIVERSITY).**

**FACULTY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF BIOLOGY
UNIVERSITY COLLEGE OF SCIENCE AND TECHNOLOGY MALAYSIA
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PUSAT PEMBELAJARAN DIGITAL SULTANAH NUR

**FACULTY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF BIOLOGY
UNIVERSITY COLLEGE OF SCIENCE AND TECHNOLOGY MALAYSIA
2002/2003**

To my family members, whose love and support have been such an important part of my life, and to my supervisors and to my colloquies, who have provided the motivation and inspiration to finish up my final year project.

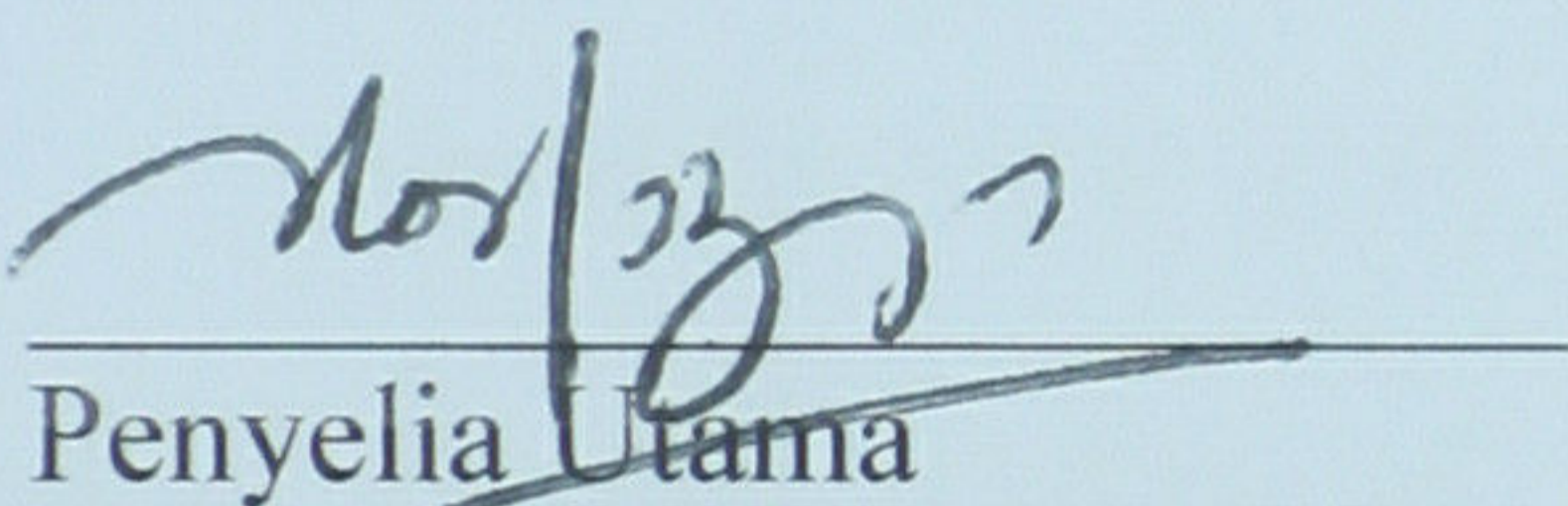
THANK YOU

KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA

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

Adalah ini diakui dan disahkan bahawa laporan penyelidikan ilmiah tahun akhir bertajuk "Isolation and Identification of *Aeromonas salmonicida* From Healthy and Diseased Aquaculture Tilapia fishes in Kenyir Lake" oleh Kayal Vizi.K, no matrik UK 4243 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: Pemuliharaan Dan Pengurusan Biodiversiti, Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia.

Disahkan oleh:



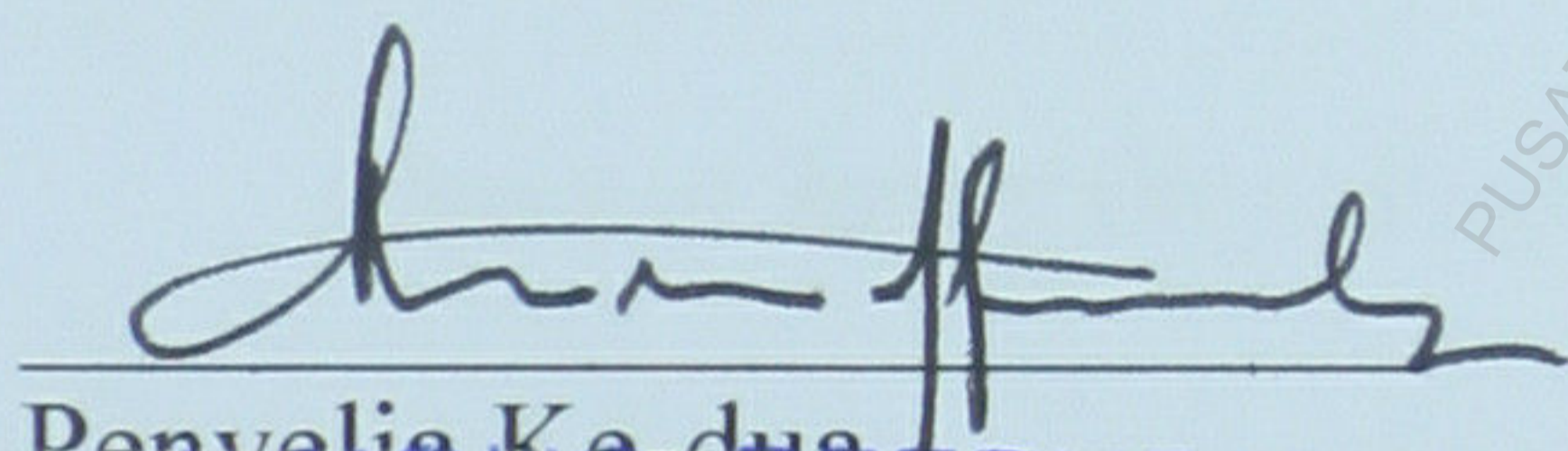
Penyelia Utama

Nama: Cik Noraznawati Ismail

Cop

Noraznawati Ismail
Lecturer
Department of Biological Science
Faculty of Science and Technology
KUSTEM 21300 K. Terengganu

Tarikh: 27.2.03



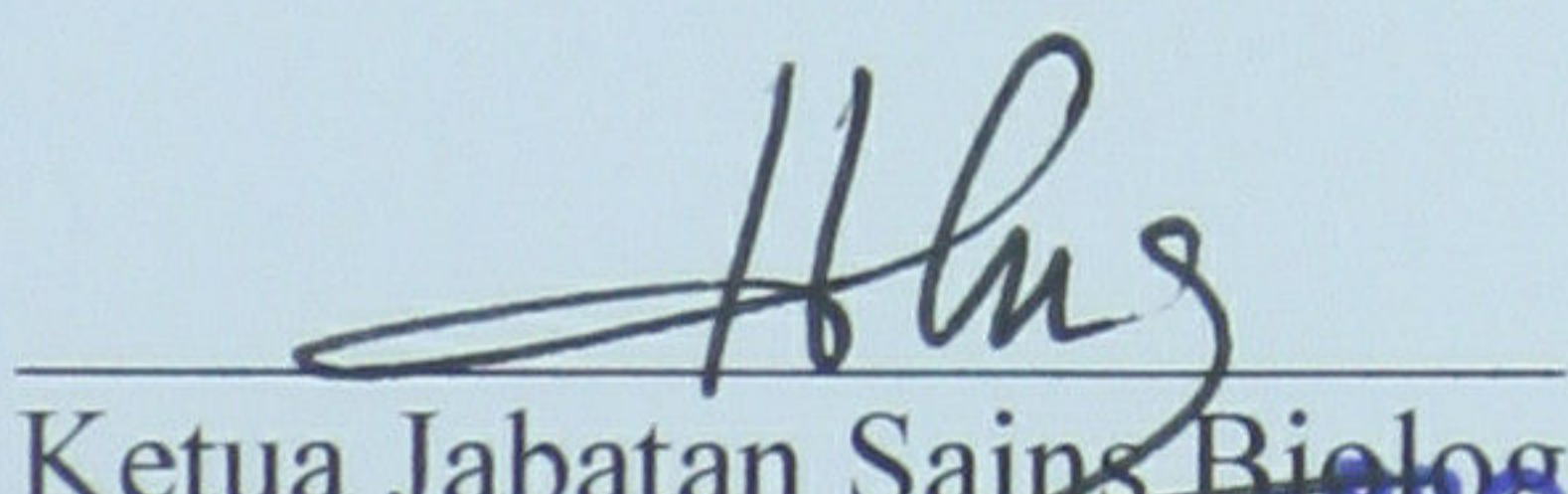
Penyelia Ke-dua

Nama: Dr. Mohd. Effendy bin Abdul Wahid

Cop

Dept. Of Biological Science
Faculty Of Science and Technology
University College Of Science and Technology M'sia
Mengabang Telipot
21030 Kuala Terengganu

Tarikh: 24.2.2003



Ketua Jabatan Sains Biologi

Nama: Prof. Chan Eng Heng

Cop

PROF. DR. CHAN ENG HENG
Ketua
Jabatan Sains Biologi
Fakulti Sains dan Teknologi
Kolej Universiti Sains dan Teknologi Malaysia
(KUSTEM)
21030 Kuala Terengganu.

Tarikh: 3/3/03

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ABSTRAK

A. salmonocida merupakan salah satu bakteria yang merupakan patogen pada ikan, khasnya pada ikan-ikan air tawar. Objektif kajian ini adalah i) menjalankan pemencilan dan pengecaman *A. salmonocida* pada ikan Tilapia di Tasik Kenyir, Terengganu. ii) pengesanan terhadap sensitiviti antimikrobial dan iii) pengekstrakan plasmid dijalankan untuk penentuan yang lanjut. Sampel-sampel dikategorikan kepada dua bahagian, iaitu ikan yang sihat dan berpenyakit. Isolat diambil daripada bahagian insang, buah pinggang, hati dan usus. Jumlah isolat *A. salmonocida* yang diperolehi adalah 21. Hanya satu isolat diperolehi daripada ikan sihat dan bakinya diperolehi daripada ikan yang berpenyakit. Semua sampel dikultur di atas agar darah, agar Trypticase Soy, agar Mac Conkey dan agar Brain Heart Infusion. Ujian biokimia dijalankan dengan pewarnaan gram, Triple Sugar Iron (TSI), Sulfide Indole motility (SIM) dan Citrate. Keputusan daripada pewarnaan gram menunjukkan *A. salmonocida* adalah gram negatif dan berbentuk rod. Isolat yang sama diambil untuk kultur di atas agar Muller Hinton dan 11 jenis disk antimikrob diletak diatas agar tersebut. Kloramfenikol, Polimisin, Kanamisin dan Amoxicillin menunjukkan kadar sensitiviti yang tinggi. Ujian pengesanan kehadiran plasmid turut dijalankan keatas semua isolat dan hanya 9 isolat menunjukkan kehadiran plasmid, setelah larian dengan elektroforesis gel agaros (0.7%). Memperolehi berat molekul yang berbeza. Setiap jalur plasmid adalah daripada organ-organ yang berlainan. Selain itu, kehadiran plasmid dan sensitiviti pada antibiotik oleh kesemua isolat adalah berbeza. Disimpulkan bahawa sensitiviti pada antibiotik dan kehadiran plasmid tidak berkaitan.

ABSTRACT

Aeromonas salmonicida is one of the most important pathogens in freshwater fish. Objectives of this study were i) isolation and identification of *A. salmonicida* in Tilapia fish from Kenyir Lake, ii) antimicrobial sensitivity test and iii) extraction of plasmid for further identification of *A. salmonicida*. Samples were taken from two categories, which were healthy and diseased fish. Swabs were taken from gills, intestines, kidneys and liver. Twenty-one isolates were recovered, where 20 isolates were indicated from diseased fish, whereas one isolate was from a healthy fish. All the isolates were cultured on Trypticase Soy agar, Blood agar, Mac Conkey agar and Brain Heart Infusion agar. Biochemistry tests were done with gram staining, Triple Sugar Iron, Citrate and Sulfide-Indole-Motility test. From the results, *A. salmonicida* was found to be gram negative rod. Same isolates were cultured on Muller Hinton agar and 11 types of antimicrobial sensitivity discs were used. Chloramphenicol, Polymyxin, Kanamycin and Amoxicilline showed a high percentage of sensitivity. Same isolates were used for extraction of plasmid. Only nine isolates showed a presence of plasmid. Clear bands appeared after running electrophoresis agarose gel (0.7%). All the isolates indicated were from different organs and their molecular weights for plasmid were also different. All nine isolates showed different sensitivities to antibiotics. As a conclusion, there was no correlation between presence of plasmid and antibiotic sensitivity resistance of *A. salmonicida*.