

ISOLATION AND IDENTIFICATION OF FREE-LIVING
AMOEBAE IN WATER AT SETU WETLAND,
TERENGGANU

MURIL MOEZZA BT MOHAMMED RAJAWI

FAKULTI SAINS DAN TEKNOLOGI
UNIVERSITI MALAYSIA TERENGGANU

2008

LP
53
FST
1
2008

ISOLATION AND IDENTIFICATION OF FREE-LIVING AMOEBAE IN WATER
OF SETIU WETLAND, TERENGGANU

By
Nurul Haffiza bt Mohamed Razani

A research report 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 SCIENCES AND TECHNOLOGY
UNIVERSITI MALAYSIA TERENGGANU

2008

1100057845

This project report should be cited as:

Nurul, H.M.R. 2008. Isolation And Identification of Free-Living Amoebae in Water of Setiu Wetland, Terengganu. Undergraduate final year project report, Bachelor of Science in Biological Sciences, Faculty of Science and Technology, Universiti Malaysia Terengganu, Terengganu. 44p.

No part of this project report may be produced by any mechanical, photographic, or electronic process, or in the form of phonographic recording, nor may it be stored in a retrieval system, transmitted, or otherwise copied for public or private use, without written permission from the author and supervisor(s) of the project.



PENGAKUAN DAN PENGESAHAN LAPORAN PITA I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk ISOLATION AND IDENTIFICATION OF FREE-LIVING AMOEBAE IN WATER AT SETIU WETLAND, TERENGGANU oleh NURUL HAFFIZA BT MOHAMED RAZANI no. matrik: UK12434 telah diperiksa dan semua pembedaan yang disarankan telah dilakukan. Laporan ini dikemukakan oleh kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperoleh ijazah SARJANA MUDA SAINS (SAINS BIOLOGI), Fakulti Sains dan Teknologi, Universiti Malaysia Terengganu.

Disahkan oleh:

Penyelia utama

Nama: PROF MADYA DR. NAKISAH MAT AMIN

Cop rasmi: **PROF. MADYA DR. NAKISAH MAT AMIN**

Pensyarah
Jabatan Sains Biologi
Fakulti Sains dan Teknologi
Universiti Malaysia Terengganu
21030 Kuala Terengganu.

Tarikh: 11/5/2008

Ketua Jabatan Sains Biologi

Nama: PROF MADYA DR. AZIZ BIN AHMAD


Cop rasmi:

PROF. MADYA DR. AZIZ BIN AHMAD
Ketua
Jabatan Sains Biologi
Fakulti Sains dan Teknologi
Universiti Malaysia Terengganu
21030 Kuala Terengganu

Tarikh: 11/5/2008

DECLARATION

I hereby declare that this thesis entitled Isolation & Identification of Free- Living Amoebae in Water of Setiu Wetland, Terengganu, is the result of my own research except as cited in the references.

Signature	: 
Name	: Nurul Haffiza bt Mohamed Razani
Matric No	: Uk 12434
Date	: 11 th May 2008

ACKNOWLEDGMENT

The author wishes to thank the supervisor of this thesis Assoc. Prof. Dr. Nakisah Bt Mat Amin for supervision and advices that given during the research of this thesis.

Appreciation also dedicate for the cooperation from all student that done research under the same supervisor- Farhana, Syafaf Syazwani, Nur Izzati, Syazwani, Asyimah Effendy, Nurazila and Zawahir- Siti Faedah bt Sidek, MASTER and Ph.D students at Marine Biology Laboratory 3, INOS. Special thanks also given to my beloved family.

Acknowledgment also devoted to all persons that direct and indirectly involve in the complement of this research project.

ABSTRAK

Tujuan utama kajian ini dijalankan adalah untuk mengasing dan mengenalpasti spesies amoebae yang hidup bebas di dalam air yang terdapat di sekitar Setiu Wetland, Terengganu. Setiu Wetland telah dipilih sebagai lokasi kajian kerana kawasan ini menyediakan sumber ekonomi, akuakultur dan agrikultur, kepada masyarakat setempat dan juga mempunyai kepentingan ekologi. Nilai fizikal-kimia air [pH, suhu, oksigen terlarut (DO), saliniti, jumlah pepejal terlarut (TDS) dan jumlah pepejal terampai (TSS)] juga diukur untuk dihubungkan dengan spesies amoebae yang dijumpai di setiap kawasan pensampelan. Lapan lokasi pensampelan telah dipilih untuk mengumpul sample air, mengukur nilai fizikal-kimia air dan pengasingan amoebae. Membrane Filtration Unit digunakan untuk pengasingan amoebae dan pengecaman dijalankan berpandukan Kekunci Page (1988). Sekurangnya, lima spesies amoebae telah berjaya diasingkan dan dikenalpasti. Spesies tersebut ialah *Platymoebae placida*, *Vahlkampfia sp.*, *Platymoeba sp.*, *Vannella platypodia* dan *Rhizamoeba sp.* Walaupun julat nilai parameter setiap lokasi adalah sedikit berbeza, julat nilai fizikal-kimia air yang telah diukur di lokasi pensampelan adalah seperti berikut : pH 7.0125 ± 0.3 , suhu $29.6 \pm 0.9^{\circ}\text{C}$, DO 4.6 ± 0.2 mg/L, saliniti 15.1 ± 3.07 ppt, TDS 17.3 ± 2.4 g/L dan TSS 69.4 ± 11.2 mg/L. Nilai pH dan suhu yang diukur adalah sederhana dan hampir sekata. Nilai DO dan TSS adalah paling tinggi di lokasi 7. Sementara nilai TDS yang diukur adalah paling tinggi di lokasi 1. Spesies amoebae lain yang dijumpai pada lokasi tertentu menunjukkan kualiti air di kawasan tersebut memberi kesan terhadap kehadiran amoebae sepertimana keputusan yang diperolehi daripada kajian ini. *Platymoebae placida* telah ditemui di semua lokasi, ini menunjukkan spesies amoeba ini adalah biasa didapati di kawasan ini sekarang.

ABSTRACT

The main purposes of this study are to isolate and identify the free-living amoebae species found in water at Setiu Wetland, Terengganu. Setiu Wetland had been chosen in this study because it provides economic value, aquaculture and agriculture, to the local community and also it ecological important. The physico-chemical parameters of water [pH, temperature, dissolved oxygen (DO), salinity, Total Dissolve Solid (TDS) and total suspended solid (TSS)] were also measured in order to associate with the occurrence of species of free living amoebae at each sampling locations. Eight locations were chosen to collect the water samples, measurement and isolation of amoebae for physico-chemical parameters of water. A membrane filtration unit was used to isolate the amoebae and their identification was done following Key of Page (1988). At least, five amoeba species were successfully isolated and identified. The species are *Platymoebae placida*, *Vahlkampfia sp.*, *Platymoeba sp.*, *Vannella platypodia* and *Rhizamoebae sp.* Although slightly differ from each site, the range value for the physico-chemical parameters measured for the water at all sampling locations were as followed: pH is 7.0125 ± 0.3 , temperature is $29.6 \pm 0.9^{\circ}\text{C}$, Dissolved Oxygen (DO) is 4.6 ± 0.2 mg/L, salinity is 15.1 ± 3.07 ppt, Total Dissolve Solid (TDS) is 17.3 ± 2.4 g/L and Total Suspended Solid (TSS) 69.4 ± 11.2 mg/L. DO and TSS values measured was highest at location 7, while TDS value measured was highest at location 1. Other species of amoebae were found at only certain sampling sites, suggesting the water quality at those sites affect the presence of amoeba as observed in this study. *Platymoebae placida* was found at all study sites, indicating that this amoeba species is common in this environment at present.