ISOLATION AND IDENTIFICATION OF FUNGI ASSOCIATED WITH ACROSTICHUM AUREUM IN MANGROVE IN UNIVERSITI MALAYSIA TERENGGANU

FONG PIT LI

FAKULTI SAINS DAN TEKNOLOGI
UNIVERSITI MALAYSIA TERENGGANU
2007

ISOLATION AND IDENTIFICATION OF FUNGI ASSOCIATED WITH *ACROSTICHUM AUREUM* MANGROVE IN UNIVERSITI MALAYSIA TERENGGANU

By

Fong Pit Li

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

Department of Biological Sciences
Faculty of Science and Technology
Universiti Malaysia Terengganu
2007

This project should be cited as:

Fong, P. L. 2007. Isolation and Identification of Fungi Associated with *Acrostichum Aureum* Mangrove in UMT. Undergraduate thesis, Bachelor of Science (Biological Sciences), Faculty of Science and Technology, Universiti Malaysia Terengganu. 43p.

JABATAN SAINS BIOLOGI
FAKULTI SAINS DAN TEKNOLOGI
UNIVERSITI MALAYSIA TERENGGANU

PENGAKUAN DAN PENGESAHAN LAPORAN PROJEK PENYELIDIKAN I DAN II
RESEARCH REPORT VERIFICATION

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: ISOLATION AND IDENTIFICATION OF FUNGI ASSOCIATED WITH *ACROSTICHUM AUREUM* MANGROVE IN UNIVERSITI MALAYSIA TERENGGANU oleh FONG PIT LI, no. matrik: UK9498 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 (Sains Biologi), Fakulti Sains dan Teknologi, Universiti Malaysia Terengganu.

Disahkan oleh: / Verified by:

.....

Penyelia Utama / *Main Supervisor*

Nama: DR. MARSAM TAIB

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

Tarikh: 25/4/07

.....

Penyelia Kedua (jika ada) / *Co-Supervisor (if applicable)*

Nama: JAMILAH MOHD SALIM @ HALIM

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

Tarikh: 25/4/07

.....

Ketua Jabatan Sains Biologi /*Head, Department of Biological Sciences*

Nama: DR. AZIZ BIN AHMAD

Cop Rasmi: Ketua
Jabatan Sains Biologi
Fakulti Sains dan Teknologi
Universiti Malaysia Terengganu
21030 Kuala Terengganu

Tarikh: 10/5/2007

ACKNOWLEDGEMENTS

I would like to thank my supervisor Dr. Mariam Taib and my co-supervisor Miss Jamilah Bt. Salim @ Halim who shared their knowledge, guidance, and support throughout this project.

My heart felt thanks also go to microbiology lab assistant Puan Zarina Mohd Sharrif for her kind assistants and recommendation during the lab works. Besides that, I would also like to thank Miss Norazlina Bt. Abd. Aziz, the Science Officer of Biological Department for providing supplementary materials in microbiology lab.

Lastly, I am sincerely grateful to my family and friends for their support and encouragement throughout this project.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

cm	-	centimeter
N	-	North
%	-	percent
PDA	-	Potato Dextrose Agar
SWA	-	Sea Water Agar
S	-	South

LIST OF APPENDICES

ABSTRACT

Bioactive compounds in mangroves may come from the plants or from microbes associated with the plants. Therefore, in this study, possible fungi associated with *Acrostichum aureum* were isolated and identified. The sampling site of the mangrove was in zone 1 in Universiti Malaysia Terengganu (UMT). Two isolation techniques were used, the direct plating technique and damp incubation technique. In direct plating technique, a total of eight species of fungi have been successfully isolated from the leaves, branches, and roots of the *Acrostichum aureum*, where seven Ascomycota and one Zygomycota have been identified. The Ascomycota are *Nigrospora sphaerica*, *Curvularia lunata*, *Microsporum cookei*, *Aureobasidium kiliense*, *Trichoderma* viride, *Aspergillus terreus,* and *Phialophora parastica*, while the Zygomycota is *Absidia corymbifera.* The highest number of fungal isolates was obtained from root samples compared to leaves and branches. Out of these, four species are marine fungi while another four species are terrestrial fungi. In addition, there were three types of suspected marine fungi isolated from damp incubation technique, but they could not be identified yet. These isolates can be used further in the investigation of possible bioactive compounds produced by the mangrove-associated fungi.

PEMENCILAN DAN IDENTIFIKASI KULAT BERASOSIASI DENGAN POKOK PAKAU *ACROSTICHUM AUREUM* DI SEKITAR UNIVERSITI MALAYSIA TERENGGANU

ABSTRAK

Sebatian bioaktif pada pokok paya bakau mungkin berasal dari pokok itu sendiri ataupun dari mikroorganisma yang berasosiasi dengan pokok tersebut. Maka, dalam kajian ini kulat yang berasosiasi dengan *Acrostichum aureum* telah dipencil dan dikenalpasti. Tempat bagi persampelan adalah di Zon 1, Universiti Malaysia Terengganu (UMT). Dua jenis teknik pemencilan yang telah digunakan iaitu teknik pengkulturan terus dan teknik pengeraman lembab. Dalam teknik pengkulturan terus, lapan spesis kulat telah berjaya dipencilkan daripada semua bahagian daun, dahan, dan akar *Acrostichum aureum* dimana tujuh Ascomycota dan satu Zygomycota telah dikenalpasti. Spesis Ascomycota ialah *Nigrospora sphaerica*, *Curvularia lunata*, *Microsporum cookei*, *Aureobasidium kiliense*, *Trichoderma* viride, *Aspergillus terreus,* dan *Phialophora parastica*, sementara satu spesis Zygomycota ialah *Absidia corymbifera.* Akar menunjukkan bilangan kulat paling banyak dipencilkan berbanding bahagian daun dan dahan. Empat spesis kulat marin dan empat spesis kulat daratan telah didapati daripada teknik pengkulturan terus. Sebagai tambahan, dalam teknik pengeraman lembab tiga jenis kulat yang dipercayai adalah kulat marin, telah dapat dipencilkan tetapi belum dapat dikenalpasti. Kulat yang telah dipencilkan ini boleh digunakan dalam kajian seterusnya ke atas sebatian bioaktif yang mungkin dihasilkan oleh kulat yang berasosiasi dengan pokok paya pakau.