

COMPARISON OF LIFE CYCLES OF *Platycerium*
ON THREE GROWTH MEDIA

MUJAHID HABIBAH AMINAH BINTI MOHAMED

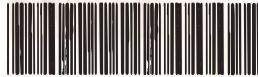
EKSPRESI SAINS DAN TEKNOLOGI
UNIVERSITI MALAYSIA TERENGGANU
2007

Perpustakaan Sultanah Nur Zahirah (UMT)
Universiti Malaysia Terengganu

1100051228

C/N 4857

LP 38 FST 3 2007



1100051228

Comparisom of life cycles of ptycerium on tree growth media Nurul Faridah Aminah Mohamed.



PERPUSTAKAAN
UNIVERSITI MALAYSIA TERENGGANU (UMT)
21030 KUALA TERENGGANU

100051228

Lihat sebelah

COMPARISON OF LIFE CYCLES OF *Platycerium* ON THREE GROWTH MEDIA

By

Nurul Faridah Aminah Binti Mohamed

Research Report submitted in partial fulfillment of
the requirements for the degree of
Bachelor of Applied Science (Biodiversity Conservation and Management)

Department of Biological Sciences
Faculty of Science and Technology
UNIVERSITI MALAYSIA TERENGGANU
2007

1100051228

This project should be cited as:

Nurul, F. A. M. 2007. Comparison of life cycles of *Platycerium* on three growth media. Undergraduate thesis, Bachelor of Applied Science in Biodiversity Conservation and Management, Faculty of Science and Technology, Universiti Malaysia Terengganu, Terengganu. 29p.

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 the supervisor (s) of the project.



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: **COMPARISON OF LIFE CYCLES OF *Platycerium* ON THREE GROWTH MEDIA** oleh **NURUL FARIDAH AMINAH BINTI MOHAMED**, no. matrik: **UK 10609** 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 Gunaan (Pemuliharaan dan Pengurusan Biodiversiti), Fakulti Sains dan Teknologi, Universiti Malaysia Terengganu.

Disahkan oleh: / Verified by:

Penyelia Utama / Main Supervisor

Nama: MISS JAMILAH BINTI MOHD SALIM @ HALIM

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

Tarikh: 16/5/07

Ketua Jabatan Sains Biologi /Head, Department of Biological Sciences

Nama: DR. AZIZ BIN AHMAD

Cop Rasmi:

Tarikh: 17/5/07

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

ACKNOWLEDGEMENTS

In the name of Allah, the Most Benevolent, the Most Merciful

Alhamdulillah. All praise and thanks to Allah for giving me strength and guidance in completing this research and giving me the bounty in Islam in this life.

First and foremost, a very special thanks and gratitude goes to my final year project supervisor, Miss Jamilah Binti Mohd. Salim @ Halim, for her patience, advices and guidance as well as been my lecturer during these consecutive years. For all lecturers, whose hope, patience and guidance have kindled me to improve myself, only The All Mighty may repay.

Not to forget, for laboratory staffs of Department of Biological Sciences, especially Tn. Hj. Muhamad Razali bin Salam and Puan Zarina, thank you for all of your helps. To my comrade, Siti Faridah and Fadzillah, your motivation and support from the first moment in UCT during Diploma and until today, we have managed to be in UMT for our Degree, 6 years have been so meaningful. To Zuraidah, Nurhuda, Suziati, Syuhadah, Junaidah, my colleagues, housemates and all my friends out there, it has being a great pleasure knowing you all in my life.

My gratitude and love goes to my mother, Puan Noryah Binti Zainal, my father, Encik Mohamed Bin Chik, my brother, my elder sister, my niece and brother-in law. Thank you for being there for me. For who has directly or indirectly involves, and for all of us, I pray may His bless, benevolent and forgiveness showered on us till the last.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	iii
LIST OF TABLES	vi
LIST OF FIGURES	vii
LIST OF ABBREVIATIONS	viii
ABSTRACT	ix
ABSTRAK	x
CHAPTER 1 INTRODUCTION	
1.1 Introduction	1
1.2 Objectives of study	3
CHAPTER 2 LITERATURE REVIEW	
2.1 General life cycle of seedless vascular plant	4
2.2 <i>Platycerium coronarium</i> taxonomy hierarchy	5
2.3 <i>Platycerium coronarium</i> botanical descriptions	5
2.4 <i>Platycerium coronarium</i> habitat and distribution	7
2.5 Gametophyte morphology of <i>Platycerium coronarium</i>	7
2.6 Economic importance of <i>Platycerium coronarium</i>	9
2.7 Importance of growth medium	9
CHAPTER 3 METHODOLOGY	
3.1 Experiment A	11
3.1.1 Preparation of growth medium	11
3.2 Experiment B	14
3.2.1 Preparation of foundation	14

3.3	Experiment C	14
-----	--------------	----

CHAPTER 4 RESULTS

4.1	Experiment A	15
4.2	Experiment B	16
4.3	Experiment C	18

CHAPTER 5 DISCUSSION		19
-----------------------------	--	----

CHAPTER 6 CONCLUSION		21
-----------------------------	--	----

REFERENCES		22
-------------------	--	----

APPENDICES		24
-------------------	--	----

CURRICULUM VITAE		29
-------------------------	--	----

LIST OF TABLES

Table		Page
3.1	The growth medium containing sand, soil and commercial humus with replicate Petri dishes.	12
3.2	<i>Platycerium coronarium</i> gametophyte with 5% sucrose solution prepared in three replicates Petri dishes.	14
4.1	Spores germination for Experiment A.	15
4.2	<i>P. coronarium</i> gametophyte in sucrose solution after ten days.	18

LIST OF FIGURES

Figure	Page
2.1 The general life cycle of ferns (Adapted from Moore <i>et.al.</i> , 1995).	4
2.2 Taxonomy hierarchy of <i>Platycerium coronarium</i> .	5
2.3 <i>Platycerium coronarium</i> outlined of foliage fronds. A, Central fertile lobe. B, Deciduous foliage fronds.	6
2.4 Gametophyte morphology of <i>Campyloneurum angustifolium</i> (Swartz) Fee, a member of Polypodiaceae (Adapted from Chiou, 1996).	8
3.1 Petri dishes with it replicate containing growth medium.	13
4.1a The development stage of <i>Platycerium coronarium</i> gametophytes on medium of sphagnum mosses and coconut shells (10x magnification).	16
4.1b The development stage of <i>Platycerium coronarium</i> gametophytes on medium of sphagnum mosses and coconut shells (10x magnification).	17

LIST OF ABBREVIATIONS

m	-	meter
mm	-	milimeter
USDA	-	United States Department of Agriculture
°C	-	degree Celcius

ABSTRACT

Platycerium is an ornamental fern but the reproductive from spore rarely been studied. This study is focused on the spores of *Platycerium coronarium* capability to grow on three growths media of sand, soil and commercial humus. Media with spores were kept in an artificial environment and exposed to light condition as it source for energy. Though negative growth obtained in all media, comparative results of gametophyte phase from experiment that was successfully conducted in natural environment are presented. Possible factors contributing to the results are discussed.

PERBANDINGAN KITAR HIDUP *Platycerium* KE ATAS TIGA MEDIUM PERTUMBUHAN

ABSTRAK

Platycerium merupakan paku-pakis hiasan namun pembiakannya dari spora jarang di kaji. Kajian ini memfokuskan terhadap keupayaan spora *Platycerium coronarium* untuk tumbuh di atas tiga medium pertumbuhan yang terdiri daripada pasir, tanah dan humus komersial. Media yang disertai spora disimpan di dalam persekitaran buatan dan didedahkan dengan cahaya sebagai sumber tenaganya. Walaupun tiada pertumbuhan didapati dalam semua media, suatu perbandingan fasa gametofit hasil daripada ujikaji yang dilakukan dalam persekitaran semulajadi ditunjukkan. Faktor-faktor yang berkemungkinan menyumbangkan kepada keputusan kajian dibincangkan.