EFFECT OF LIGHT ON GROWTH OF *Cryptocoryne elliptica* PLANTLETS

AZI AZEKAHTY BINTI JAHALUDIN

FAKULTI SAINS DAN TEKNOLOGI
UNIVERSITI MALAYSIA TERENGGANU

2008

EFFECT OF LIGHT ON GROWTH OF *Cryptocoryne elliptica* PLANTLETS

By

Azi Azeyanty Jamaludin

A research project submitted in partial fulfillment of
the requirements for the award of the degree of
Bachelor of Applied Science (Biodiversity Conservation and Management)

DEPARTMENT OF BIOLOGICAL SCIENCES
FACULTY OF SCIENCE AND TECHNOLOGY
UNIVERSITI MALAYSIA TERENGGANU

2008

This project should be cited as:

Azi, A. J. 2008. Effects of light on growth of *Cryptocoryne elliptica* plantlets. Undergraduate thesis, Bachelor of Applied Science in Biodiversity Conservation and Management, Faculty of Science and Technology, Malaysia University of Terengganu. 61p.

JABATAN SAINS BIOLOGI
FAKULTI SAINS DAN TEKNOLOGI
UNIVERSITI MALAYSIA TERENGGANU

PENGAKUAN DAN PENGESAHAN LAPORAN PROJEK PENYELIDIKAN I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: **Effect of Light on Growth of *Cryptocoryne elliptica* Plantlets** oleh **Azi Azeyanty Jamaludin**, No. Matrik **UK 11232** telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sabahagian daripada keperluan memperolehi **Ijazah Sains Gunaan Pemuliharaan dan Pengurusan Biodiversiti**, Fakulti Sains dan Teknologi, Universiti Malaysia Terengganu.

Disahkan oleh:

.....

Penyelia Utama

Nama: Prof. Madya. Dr. Aziz B. Ahmad

Cop Rasmi: Tarikh: .....

.....

Ketua Jabatan Sains Biologi

Nama: Prof. Madya Dr. Aziz B. Ahmad

Cop Rasmi: Tarikh: .....

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

DECLARATION

I hereby declare that this thesis entitled Effects of Light on Growth of *Cryptocoryne elliptica* Plantlets is the result of my own research except as cited in the references.

Signature : .....

Name : AZI MEYANTY JAMALUDIN

Matrix No : UK11232

Date : 11/05/2008

ACKNOWLEDGEMENT

I am most grateful to Allah S.W.T, for endless love and strength, to my supervisor, Associate Professor Dr. Aziz bin Ahmad, for his guidance and advices, and to my loving parents, Abah and Mama, for their endless support and encouragement which had made me the way I am today. Thank you.

I would like to thank Mr. Amirrudin Ahmad and Madam Fazillah, for their unending support towards the end. Their supports aid me in most of my difficulties that has been faced throughout the year. To brother Azmi and Zairol, I would like to personally thank you for everything that you had done for me throughout the project.

Not forgetting my beloved housemates, their help and friendship, the inspiring discussions and the pleasant moments of happiness and despair that we spent together, will always be the moment I treasure.

Last but not least, to all my friends, thank you for your advices and help when I desperately need it and to all the peoples involved either directly or indirectly in the project, I am gratefully honored with your help. May Allah S.W.T bless you all. Thank you so much.

ABSTRACT

Light induce various plant responses, including morphogenesis in which they were greatly affected by the light quality. The aim of study is to determine the effect of different light colors on the growth of tissue culture-derived plantlets of *Cryptocoryne elliptica*. The plantlets were grown with 24 hour daylight under fluorescent lamps with different light colors; white, blue, red and green. The effects of these light colors were evaluated based on the plant growth which measured by the petiole and leaves elongation and also leaves width, including the chlorophyll content of the leaves, the addition of new leaves and also new shoot tips. The growth of the plantlets grown for ten weeks under blue light color treatment rose rapidly compared with other light color treatment. Nevertheless, the white, red and green light colors give out different effects towards the growth of the plantlets. The values of the chlorophyll content after ten weeks of cultivation was higher in the white light color treatment, but reduced in blue, green and red light color treatment from the initial chlorophyll content. This outcome demonstrates that different light sources during growth affects the pattern of the plant growth as well as the chlorophyll contents in the leaves.

ABSTRAK

Cahaya merangsang tumbuhan dalam pelbagai tindakbalas termasuk morfogenesis. Tujuan utama kajian dijalankan adalah untuk menentukan kesan warna cahaya yang berlainan terhadap pertumbuhan anak-anak pokok daripada spesis *Cryptocoryne elliptica* yang dihasilkan daripada kaedah tisu kultur di mana anak-anak pokok ini dibesarkan di bawah lampu kalimantang yang berlainan warna, putih, biru, merah dan hijau selama 24 jam sehari. Kesan-kesan cahaya yang berlainan warna ini dinilai berdasarkan pertumbuhan anak pokok di mana panjang petiol, panjang dan lebar daun diukur, pertambahan bilangan daun dan tunas juga dikira, selain kandungan klorofil daun dianalisis pada sebelum dan selepas perawatan cahaya dijalankan. Pertumbuhan anak-anak pokok yang dibesarkan selama sepuluh minggu di bawah cahaya biru meningkat dengan dengan pesat bebanding dengan cahaya-cahaya yang lain. Walaubagaimanapun, cahaya-cahaya putih, merah dan hijau memberikan tindakbalas berbeza terhadap pertumbuhan anak-anak pokok ini. Nilai kandungan klorofil di dalam daun selepas sepuluh minggu penanaman adalah tinggi pada cahaya putih, tetapi berkurangan pada cahaya-cahaya biru, merah dan hijau berbanding dengan bacaan awal kandungan klorofil yang diambil sebelum perawatan kesan cahaya dijalankan. Hasil-hasil ini menunjukkan bahawa sumber cahaya yang berlainan semasa tumbesaran tumbuhan memberikan kesan terhadap corak pertumbuhan selain daripada kesan terhadap kandungan klorofil.