

VIETNAM'S REQUIREMENTS BY CULTURES OF
Cryptocaryum irritans PLANTS

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FACULTY SCIENCE DAN TEKNOLOGI
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VITAMINS REQUIREMENTS BY CULTURES OF *Cryptocoryne ciliata* PLANTS

By

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**PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: VITAMINS REQUIREMENTS BY CULTURES OF *Cryptocoryne ciliata* PLANTS oleh NURULHANA BINTI SULAIMAN, No. Matrik UK 6596 telah diperiksa dan semua pembedaan 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, Kolej Universiti Sains dan Teknologi Malaysia.

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LIST OF ABBREVIATIONS

cm	centimeter
m	meter
ppm	parts per million
%	percentage
kPa	kilopascal
⁰ C	degree celcius
v/v	volume per volume
rpm	round per minutes
nm	nanometer
mg	milligram
ml	millimeter
μg	microgram
μl	microliter
mM	milliMolar
BAP	benzylaminopurine
HCl	hidrochloric acid
NaOH	natrium hydroxide
MS	media Murashige and Skoog
DCPIP	dichorophenolindophenol

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ABSTRACT

The effects of four vitamins (myo-inositol, thiamine, pyridoxine and nicotinic acid) type at various concentrations were investigated. The changes on total reducing sugar, chlorophyll content and DCPIP reduced were observed after 30 days of cultivation. The changes in reducing sugar has shown greater at 100 mg/L of myo-inositol, 10 mg/L of thiamine, 1.0 mg/L of pyridoxine and nicotinic acid. The maximum chlorophyll content was 0 mg/L of myo-inositol, with 10.0 mg/L of thiamine, 1.0 mg/L of pyridoxine and 1.0 mg/L of nicotinic acid. The activities of dichlorophenolindophenol (DCPIP) based on the electron transport reaction. DCPIP reduced shown maximum amount at 100 mg/L (0.18 $\mu\text{mol}/\text{min}$) of myo-inositol, 10 mg/L (0.22 $\mu\text{mol}/\text{min}$) of thiamine, 1 mg/L (0.20 $\mu\text{mol}/\text{min}$) of pyridoxine and 1 mg/L (0.21 $\mu\text{mol}/\text{min}$) of nicotinic acid. Among the four vitamins tested, thiamine gave the most significant effect on the growth of *C. ciliata*. The best vitamins condition were the combination of 100 mg/L myo-inositol, 10 mg/L thiamine and 1 mg/L nicotinic acid. Pyridoxine has shown no significant effect on the growth of explants.

KEPERLUAN VITAMIN TERHADAP PENKULTURAN IN VITRO *Cryptocoryne ciliata*

ABSTRAK

Kajian ini telah dijalankan untuk menguji kesan empat jenis vitamin (myo-inositol, tiamin, piridoxin dan asid nikotinic) dalam pelbagai kepekatan vitamin. Penentuan terhadap perubahan dalam gula penurun, kandungan klorofil dan penurunan DCPIP dilakukan selepas 30 hari. Perubahan gula penurun yang terbaik pada kepekatan 100 mg/L myo-inositol, 10 mg/L tiamin, 1mg/L piridoxin dan asid nikotinic. Bagi perubahan maksimum kandungan klorofil dapat diperhatikan dalam 0 mg/L myo-inositol, dengan 10.0 mg/L tiamin, 1.0 mg/L piridoxin dan 1.0 mg/L asid nikotinic. Untuk penurunan DCPIP yang maksimum diperhatikan dalam 100 mg/L (0.18 $\mu\text{mol}/\text{min}$) myo-inositol, 10 mg/L (0.22 $\mu\text{mol}/\text{min}$) tiamin, 1 mg/L (0.20 $\mu\text{mol}/\text{min}$) piridoxin and 1 mg/L (0.21 $\mu\text{mol}/\text{min}$) asid nicotinic. Di antara empat jenis vitamin yang dikaji, tiamin merupakan vitamin yang memberikan kesan dalam pertumbuhan *Cryptocoryne ciliata*. Media terbaik untuk pertumbuhan adalah kombinasi di antara myo-inositol pada kepekatan 100 mg/L, 10 mg/L tiamin dan 1 mg/L asid nikotinic. Manakala penambahan piridoxin tidak memberikan kesan dalam pertumbuhan *C. ciliata*.