EFFECTS OF SALINITY ON GROWTH AND
CHLOROPHYLL CONTENT OF *Cryptocoryne*
ciliata CULTURES

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EFFECTS OF SALINITY ON GROWTH AND CHLOROPHYLL CONTENT OF *Cryptocoryne elliptica* CULTURES

By

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ABBREVIATIONS

α	Alpha
APX	Ascorbate peroxidase
BAP	6-benzylaminopurine
CAT	Catalase
cm	Centimeter
C.elliptica	*Cryptocoryne elliptica*
Fwt	Fresh weight
g	Gram
g/L	Gram per liter
H_2O_2	Hydrogen peroxide
HCl	Hydrochloric acid
INOS	Institute of Oceanography
mg/g	Miligram per gram
ml	Milliliter
mM	Milimolar
NaCl	Natrium chloride/Sodium chloride
nm	Nanometer
NaOH	Natrium hydroxide
$O_2^{\cdot -}$	Superoxide radical
$^1O_2$	Singlet oxygen
O_2	Oxygen
$OH^{\cdot}$	Hydroxyl radical
rpm	Revolution per minutes
ROS	Reactive oxygen species
SOD	Superoxide dismutase
UMT	Universiti Malaysia Terengganu
V	Volume
w	Weight
^0C	Degree Celsius
%	Percentage

ABSTRACT

To date, the application of micropropagation technology for increasing the quality and stock plants are world-wide recognition. By using tissue culture technique with correlation of *Cryptocoryne elliptica* at certain salinity, these will improve the productivity of stock plants. The objectives of this study were to determine the effect of different concentrations of NaCl on the growth and chlorophyll content of *C. elliptica* cultures. *C. elliptica* cultures were treated with different concentrations of NaCl at 0, 25, 50 and 100 mM in B5 solid medium. The growth and chlorophyll content were determined at 0, 1, 2, 7, 14 and 28 days of treatment periods. The chlorophyll content of *C. elliptica* cultures were initially reduced and longer treatment periods tend to increase the chlorophyll content. The chlorophyll content in control plants was significantly higher than the treated cultures especially at higher concentration of NaCl. Longer NaCl treatment periods significantly increased the leaf length of *C. elliptica* cultures. No significant differences were observed between treated cultures. The shoot length in control and 25 mM increased at the later stages of treatment while no significant different were observed in cultures treated with 50 and 100 mM NaCl. NaCl treatments did not significantly affect the leaf width, root length and fresh and dry weight of *C. elliptica* cultures. Results indicated that NaCl treatment did not significantly affected the growth and chlorophyll content of *C. elliptica* cultures.

KESAN SALINITI TERHADAP PERTUMBUHAN DAN KANDUNGAN KLOROFIL DALAM KULTUR *Cryptocoryne elliptica*

ABSTRAK

Kini, aplikasi teknologi mikropropagasi ialah untuk meningkatkan kualiti dan jumlah pokok mendapat pengiktirafan sedunia. Dengan menggunakan teknik kultur tisu dan perkaitan *Cryptocoryne elliptica* pada saliniti tertentu, ia akan meningkatkan produktiviti pokok. Objektif kajian ini ialah untuk menentukan kesan kepekatan NaCl yang berbeza terhadap pertumbuhan dan kandungan klorofil kultur *C. elliptica.* Kultur *C. elliptica* telah dirawat dengan kepekatan NaCl yang berbeza pada 0 mM, 25 mM, 50 mM dan 100 mM di dalam media B5. Pertumbuhan dan kandungan klorofil ditentukan setiap 0, 1, 2, 7, 14 dan 28 hari rawatan. Kandungan klorofil dalam *C. elliptica* pada permulaannya menurun dan rawatan yang berpanjangan meningkatkan kandungan klorofil. Kandungan klorofil dalam kawalan adalah lebih tinggi berbanding kultur rawatan terutamanya pada kepekatan NaCl yang tinggi. Peningkatan masa rawatan NaCl meningkatkan panjang daun kultur *C. elliptica.* Tiada perbezaan yang jelas dilihat di antara kultur yang dirawat. Panjang batang dalam kawalan dan 25 mM meningkat pada peringkat rawatan yang seterusnya sementara tiada perbezaan yang ketara dilihat dalam kultur rawatan pada kepekatan NaCl 50 mM dan 100 mM. Rawatan NaCl tidak memberi kesan yang ketara kepada lebar daun, panjang akar dan juga berat basah dan kering bagi kultur *C. elliptica.* Keputusan menunjukkan bahawa rawatan NaCl tidak memberi kesan yang ketara kepada pertumbuhan dan kandungan klorofil kultur *C. elliptica.*