

CRYOSTORAGE OF *Cryptoceryne ciliata*

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CRYOSTORAGE OF *Cryptocoryne ciliata*

By

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PROJEK PENYELIDIKAN I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: Cryostorage of *Cryptocoryne ciliata* oleh Chee Pui Yee, no. matrik: UK 6388 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 SYMBOLS

ANOVA	Analysis of Variance
BAP	Benzylaminopurine
HCl	Hydrochloric acid
mg/L	Milligram per liter
M	Molar
MS	Murashige and Skoog
NaOH	Sodium Hydrochloride
PVS	Plant Vitrification Solution
p.s.i	Pound per square inch
v/w	Volume per weight
v/v	Volume per volume

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ABSTRACT

Twenty primers were screened. Four primers, OPA4, OPA7, OPA10 and OPA16 showed the clearest bands and polymorphism was chosen for *Cryptocoryne ciliata*. Vitrification technique was used to obtain the cold storage procedure for *C. ciliata*. No surviving explant was obtained after being immersed in liquid nitrogen. Preculture, loading, dehydration, unloading and warming upon cold storage of explants were examined. After two to four days of preculture, 30 minutes of loading period, one hour of dehydration in PVS (Plant Vitrification Solution), 20 minutes of unloading treatment and warming in 40 °C for one minutes. Explants stored in the freezer at 0 °C and -20 °C showed 20 to 60% survival rate. Thus, more improvement can be done to increase the survival rate of the explants, for example the modification in concentration of PVS and the elongation of the preculture duration.

PENYIMPANAN SEJUK *Cryptocoryne ciliata*

ABSTRAK

Dua puluh primer telah digunakan untuk menentukan primer yang sesuai bagi *Cryptocoryne ciliate*. Empat primer yang memberikan jalur pemisahan DNA genome yang terbaik dan boleh mengesan polymorphisma gen *C. ciliata* telah ditentukan, iaitu OPA4, OPA7, OPA10 dan OPA 16. Teknik vitrifikasi digunakan untuk menentukan kaedah penyimpanan sejuk bagi *C. ciliata*. Dalam kajian ini, tiada pokok yang hidup selepas disimpan dalam cecair nitrogen. Pra-kultur, pemuatan (loading), pengeringan (dehydration), penurunan (unloading) dan pemanasan ke atas pokok dalam penyimpanan sejuk telah diuji. Selepas dua hingga empat hari pra-kultur, 30 minit pemuatan, sejam pengeringan dalam PVS (Plant Vitrification Solution), 20 minit penurunan dan pemanasan dalam suhu 40 °C selama seminit. Bagi pokok yang disimpan dalam peti sejuk pada suhu 0 °C dan -20 °C, 20% hingga 60% pokok berjaya hidup selepas pra-kultur selama empat hari. Dengan itu, pengubahsuaian diperlukan untuk meningkatkan kebolehan pokok hidup. Contohnya, perubahan dalam kepekatan PVS (Plant Vitrification Solution) dan pemanjangan tempoh pra-kultur.