



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم



MONA MAGHRABY



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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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MICROPROPAGATION OF *Loropetalum chinense* Plant

By

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ABSTRACT

This study was carried out in the Plant Tissue Culture Laboratory, Horticulture Research Institute, Agriculture Research Center, Ministry of Agriculture and land reclamation, Giza, Egypt, during the period from 2016 to 2019. An efficient direct shoot regeneration micropropagation protocol has been established successfully for commercial *in vitro* propagation of *Loropetalum chinense*, an ornamental plant with medicinal values. The optimized sterilization conditions for the Terminal node stem cuttings with its two axillary buds explants were exposure to sodium hypochlorite at 0.25 % for 20 min and 0.5 % for 15 or 20 min gave the highest value of survived explants (100 %). In establishment stage, MS medium supplemented with 0.5 mg/l IBA gave (3.0 shoots) the highest number of shoots. The multiplication stage should be cultured on MS medium supplemented with 2.0 mg/l BA which recorded 7.67 shoots at the end of the third subculture. For rooting of the regenerated shoots, using WPM medium supplemented with NAA at 1.0 mg/l resulted in significantly highest number of roots (4.0) and highest rooting percentage (100%) than that recorded with other treatments. Growing medium consists of peatmoss and vermiculite at the ratio of 1:1 (v/v) was the best for acclimatization. Inter simple sequence repeats (ISSR) analysis detected similarity to the mother plant in the *in vitro* propagated plants, that the protocol will be useful for *Loropetalum chinense* production. This plant protocol could be used for large scale regeneration of *Loropetalum chinense*.

Key words : *Loropetalum chinense*, IBA, BA, ISSR analysis ,Tissue culture.

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LIST OF ABBREVIATIONS

AC: Activated charcoal.

BA: 6- Benzyl adenine.

BAP: Benzyl amino purine.

B5 Medium : Gamborg B5 medium.

Clorox: 5.25 % sodium hypochlorite (commercial bleach).

2,4-D: (2,4-Dichlorophenoxy acetic acid).

GA₃: Gibberellic acid, (Gibberellin A₃).

IAA: Indole-3- acetic acid.

IBA: Indole -3- butyric acid.

Kin: 6-Furfuryl- amino purine (Kinetin).

MS: Murashige & Skoog medium.

NAA: Naphthalene acetic acid.

PVP: Polyvinyl pyrrolidone.

TDZ: Thidiazuron.

Tween 20: Polyoxyethylene sorbitan monolaurate.

V/V: Volume by volume.

WPM: Woody plants medium.

Gl: Glutamine

AdS: Adenine sulphate.

PGR: Plant growth regulators

PPFD: Photosynthetic photon flux density

PG: Phloroglucinol

MSBs: Multiple shoot buds

TIS: Temporary immersion system

DNA: Deoxyribonucleic acid

ISSR: Inter simple sequence repeats

ISSR-PCR: Inter simple sequence repeat - Polymerase chain reaction

SSRs: Simple sequence repeats

PCR: Polymerase chain reaction

McCown's: McCown's woody plant medium.

CK: Cytokinin

RAPD: random amplified polymorphic DNA

UPGMA: unweighted pair group method with arithmetic means

(DAMD): directed amplification of minisatellite DNA

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