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**Tissue culture propagation of ornamental aquatic plants, *Cryptocorine wendtii* (wendi brown) and *Echinodorous cordifolious* (marble queen)**

By

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### ABSTRACT

The importance of ornamental aquatic plants is inseparable from that of ornamental fish and they have gained value as both an aesthetically and ecologically useful partners in ornamental fish aquaria. *Cryptocorine wendtii* (Wendi brown) is an endemic and threatened aquatic plant in Sri Lanka and *Echinodorous cordifolious* (Marble queen) is an introduced species; both plants have a high demand in export market. Number of plants produced by conventional methods is not sufficient to meet the demand and collection of an endemic plant from the wild might lead for its extinction. Therefore mass propagation of these plants is important for the expansion of export industry and the present study was carried out to investigate whether tissue culture techniques could be employed to propagate *C. wendtii* and *E. cordifolious* .

Segments of the rhizome (about 5 mm) were used from both species as explants . The medium was Murashige and Skoog's with 2% sucrose at 5.8 pH, solidified with 5% agar. Different agents and sterilizing procedures were tested for sterilization of explants and different combinations of cytokinins and auxins were employed to achieve multiplication of shoots.

Highest survival of explant (65% for *C. wendtii* and 60% for *E. cordifolious*) was achieved when sterilized with 95 % alcohol for 1 minute, 5% chlorox for 15 minute and 0.1 % Hg<sub>2</sub>Cl<sub>2</sub> for 30 seconds for both *C. wendtii* and *E. cordifolious*. *C. wendtii* responded to a combination of benzylamino purine (BAP) and naphthelene acitic acid (NAA) at different concentrations and produced significantly higher number of shoots at initial and sub culture levels (0 to 11 shoots per rhizome segment; p < 0.05 ) when

treated with 5 mg l<sup>-1</sup> BAP & 0 mg l<sup>-1</sup> NAA and 10 mg l<sup>-1</sup> BAP & 2.5 mg l<sup>-1</sup> NAA , *E.cordifolius* did not respond to these two hormones but responded to combination of NAA (0.5 mg l<sup>-1</sup> ) and N<sup>6</sup>- isopentyladenine (2ip ; 5 mg l<sup>-1</sup>) and produced significantly higher number of shoots at initial and subculture levels (0 to 11 shoots per rhizome segment ; p <0.05 ). Aseptically separated shoots of both species produced roots under 0.1 mg l<sup>-1</sup> indole buteric acid (IBA) shock and were successfully acclimatized to indoor and outdoor environmental conditions.