

## **Development of micropropagation protocols for two different *Cryptocoryne* species in Sri Lanka (*Cryptocoryne parva* and *Cryptocoryne xwillisii*)**

**D.T.K. Boyagoda<sup>1</sup>, S.C. Jayamanne<sup>2</sup>, H.M.I. Herath<sup>3</sup>**

<sup>1</sup>*Department of Animal Science, Uva Wellassa University Bac/1111a, Sri Lanka*  
<sup>2</sup>*Royal Botanic Gardens, Peradeniya, Sri Lanka*

An efficient protocol was developed for the micropropagation of *Cryptocoryne parva* and *Cryptocoryne xwillisii*, two endemic threatened aquatic herbs of Sri Lanka, which considered as highly valued aquarium plants. Rhizomes and leaves of two species were surface sterilized using Sodium Hypochlorite and 0.1 % Mercuric Chloride successfully and they were established on full strength Murashige and Skoog (MS) medium. Experiment was arranged in factorial Complete Randomized Design (CRD). Effects of basal MS medium supplementation with factorial combinations of BAP 6-benzylaminopurine (0, 1, 3, 5 mg l<sup>-1</sup>) and NAA-Naphthalene Acetic Acid (0, 0.1, 0.3 mg l<sup>-1</sup>) on shoot initiation from rhizome and leaf explants were determined after 42 days. Data were analyzed using ANOVA and Tukey's Test incorporated in MINITAB 16 software. The presence of growth regulators in MS medium had a significant (p<0.05) effect on shoot initiation in rhizomes of both species. Highest mean number of shoots initiated per single rhizome explant was observed in the combination of 5.0 mg l<sup>-1</sup> BAP with 0.1 mg l<sup>-1</sup> NAA in both species (*C. parva* 4.3, 3.7; *C. xwillisii* 4.1). Regenerated shoots of rhizome explants were cultured on MS medium supplemented with BAP 0, 1, 3 mg l<sup>-1</sup> for shoot multiplication. The presence of growth regulators in MS medium had a highly significant (p<0.05) effect on shoot proliferation of both species. Highest mean number of shoots proliferated per shoot (*C. parva* 5.6 and *C. xwillisii* 5.6) was observed in 3 mg l<sup>-1</sup> of BAP. Presence of growth regulators in MS medium had a highly significant (P<0.05) effect on embossing leaves of both species as a positive response. Best explant source for both species was rhizome. Optimum hormone combination for shoot initiation of both species is 5 mg of BAP with 0.1 mg l<sup>-1</sup> of NAA and for shoot multiplication optimum hormone concentration is 3 mg l<sup>-1</sup> of BAP.

**Keywords:** *Cryptocoryne parva*, *Cryptocoryne xwillisii*, BAP, NAA, Rhizomes and leaves, Shoot initiation, Shoot multiplication