

## **Development of *In-vitro* and Conventional Propagation Protocols for Two Different Endemic Species of *Aponogeton* (*Aponogeton rigidifolius* and *Aponogeton jacobsenii*)**

W.N.V. Weerasekara<sup>1</sup>, B.V.A.S.M. Bambaranda<sup>2</sup>,  
S.C. Jayamanne<sup>1</sup>, S.A. Krishnarajah<sup>2</sup>

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

This research was focused on the development of successful propagation protocols for two different endangered and threaten aquatic plant species of *A. rigidifolius* and *A. jacobsenii*. Due to lack of effective propagation methods, *Aponogeton* species indiscriminately harvested from wild and leads to extinct. To overcome the problem of species loss and inadequate supply to the local and foreign market, *in vitro* and conventional propagation protocols were developed for both species. Rhizomes, seeds and leaf explants of both species were sterilized using NaOCI and 0.1 % HgCl<sub>2</sub> and established on full strength MS medium supplemented with combination of 6- benzylaminopurine (BAP) 2, 3, 5 mg/L with or without 0.1 mg/L indole acetic acid (IAA) for initiation. For shoot multiplication 2, 3, 5 mg/L BAP were used. Rhizome cuttings and seeds of both species were planted in pots, which contain sand, sand: top soil, top soil and boggy soil with water as conventional propagation method. Experiment was arranged in Complete Randomized Design method and data were analyzed using ANOVA and Tukey's Test. The presence of growth regulators had significant effect (p<0.05) on shoot initiation of *A. rigidifolius* rhizome. The highest shoots per replicate (2.4) were proliferated in 2 mg/L BAP medium. Application of hormones had a significant effect on number of leaves and seedling height of seed explants of both species. Maximum number of leaves (5) and seedling height (5.8cm) in *A. rigidifolius* obtained from the treatment which supplemented both 5 mg 1<sup>st</sup> BAP and 0.1 mg IAA while the highest leaves (3.43) and height (1.92 cm) shown in 5 BAP alone medium in *A. jacobsenii* seedlings. The highest shoots per seedling (4.2) obtained from 2 mg BAP contain multiplication medium in *A. rigidifolius* seedling. Conventional growth media significantly influence on the shoot development from *A. rigidifolius* rhizome cuttings, seed germination, and in other seedling growth parameters of both species. Mean number of leaves, height of seedlings, and number of roots and length of roots were high in both plants which planted in boggy soil medium. The highest shoots of *A. rigidifolius* obtained in sand medium.

**Keywords:** *Aponogeton rigidifolius*, *Aponogeton jacobsenii*, *in vitro*,