

**DEVELOPMENT OF MICROPROPAGATION
PROTOCOLS FOR TWO *Aponogeton* SPECIES**

OF

SRI LANKA

(Aponogeton crispus and Aponogeton natans)

A dissertation submitted to the
Faculty of Animal Science and Export Agriculture
Uva Wellassa University
in partial fulfillment of the requirement of
the degree of
Bachelor of Science in Aquatic Resources Technology

by

T.W.G.J.C AMARAWANSHA

**Aquatic Resources Technology Degree Programme
Faculty of Animal Science and Export Agriculture
Uva Wellassa University**

2014

Abstract

Aponogeton also known as “Kekatiya” in Sinhala is an aquatic plant which belongs to family Aponogetonaceae. *Aponogeton* plant species plays a vital role in aquatic ornamental plant industry in Sri Lanka. Four *Aponogeton* species can be observed in Sri Lanka and having a high demand as an aquarium decorative plant in the export market. Some species used as a food source by local people. Due to lack of proper method for mass production of these plants, exportation was done by the wild collection. Therefore over exploitation has become a threat to these species.

This study was carried out to develop a micropropagation protocol for mass production of *Aponogeton* species. *Aponogeton crispus* rhizome culture was done using full strength MS medium supplemented with 0, 0.4, 0.8, 2, and 5 mgL⁻¹ of BAP and 0, 0.1 mgL⁻¹ of IAA. Seed culture of *Aponogeton natans* was done in full strength MS medium supplemented with 0, 1, 2, 3 and 5 mgL⁻¹ of BAP and 0, 0.1 mgL⁻¹ of IAA. Seeds of *Aponogeton crispus* were cultured in full strength MS medium supplemented with 0, 1 and 2 mgL⁻¹ of BAP and 0, 0.1 mgL⁻¹ of IAA. Seed germination percentage, height of seedlings and number of leaves were recorded. Seedlings were transferred into multiplication medium which was supplemented with 0, 2 and 5 mgL⁻¹ of BAP.

Data analysis of rhizome culture had shown that the concentration of both hormones (auxin, cytokinin) had a significant effect ($p < 0.05$) on shoot regeneration of *Aponogeton crispus* rhizomes. BAP (2 mgL⁻¹) in combination with IAA (0.1 mgL⁻¹) shown the maximum mean number of shoots initiation with compared to other hormone levels. Data analysis of seed culture had shown maximum seed germination, maximum mean height of seedling and maximum mean number of leaves in hormone free MS media at 5 % level of significance. Media supplemented with 2 mgL⁻¹ of BAP recorded the maximum mean number of shoots.

Keywords : *Aponogeton*, growth regulators, seed germination, sterilization, MS media, micropropagation