

**PERFECTING EXPLANTS STERILIZATION
PROCEDURE AND MULTIPLE SHOOT INDUCTION
MEDIUM FOR *IN VITRO* PROPAGATION OF
LAGENANDRA SPECIES**

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 Aquatic Resources Technology

By

P.G.A.D.PREMATHILAKE

**Aquatic Resources Technology Degree Programme
Faculty of Animal Science and Export Agriculture
Uva Wellassa University
2013**

ABSTRACT

Lagenandra species are important aquatic plants in the aquaculture industry of Sri Lanka. In the absence of a regular supply due to lack of effective propagation methods, *Lagenandra* species are indiscriminately harvested from the wild to supply to the export market. The threat on the species is further compounded by the loss of their rainforest habitats. Out of six *Lagenandra* species that occur in Sri Lanka, five are classified as “Highly threatened” species in the red list of international union for the conservation of nature. In order to overcome the problem of species loss and inadequate supply to the local and foreign markets, an *in vitro* micro-propagation method was developed for *Lagenandra lancifolia* and *Lagenandra ovata*.

The present investigations were carried out to standardize surface sterilization of explants, evaluate different concentration of growth regulators and evaluate effect of basal media and liquid agitated culture for shoot initiation and multiplication.

The study on surface sterilization of *Lagenandra ovata* revealed that explants treated with combination of 0.2 % mercuric chloride and 25% sodium hypochlorite, showed the highest aseptic culture establishment. Early response for sprouting and better culture establishment of rhizome segments were observed on Murashige and Skoog (MS medium) medium with 5 mg^l⁻¹ BAP with presence or absence of IAA. The maximum shoot length was observed full MS media contain 5 mg^l⁻¹ BAP with 0.1 mg^l⁻¹ IAA. Though there was no leaf formation in semisolid media, 3-4 leaves per plant was observed in liquid media. Maximum number of leaves were produced in liquid MS media contain 3 mg^l⁻¹ BAP with 0.1 mg^l⁻¹ IAA and 5 mg^l⁻¹ BAP. But the shoot length of liquid agitated culture was less than semi solid culture.

The study on surface sterilization of *Lagenandra lancifolia* revealed that explants treated with combination of 0.2 % mercuric chloride and 20% sodium hypochlorite, showed the highest aseptic culture establishment. Shoots sprouted only on full MS liquid media contain 5 mg^l⁻¹ BAP within a period of six weeks.

Key words – Explant sterilization, Growth regulator, *in vitro* propagation, *Lagenandra* species