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MICROPROPAGATION OF SELECTED ECONOMICALLY IMPORTANT HORTICULTURAL CROPS USING LOW COST TECHNIQUES

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Micropropagation is a technique, which can be used to produce large number of uniform high quality planting materials within a short period of time. As an *in vitro* technique, it requires strictly aseptic environment which is normally created with expensive equipment. Introduction of CSUPW, a sterilization solution, for *in vitro* techniques by Peiris and Peiris (1998) replaced such equipment reducing the cost of production of planting material. Due to this low cost technique, domestication of micropropagation is now possible. Therefore, the objective of this study was to experiment the applicability of the low cost technique on as many crop species as possible.

Chemical sterilization using CSUPW was applied on tomato, cucumber, bell pepper, Chinese cabbage, *Thumba Karawila*, strawberry, pineapple, *Gerbera*, carnation, Madonna Lily, *Gypsophilla*, *Hosta*, *Draceana*, *Syngonium*, wild and cultivated orchids and anthurium in this study. The experiments were carried out for establishment, multiplication, pre transplant and the acclimatization stages. Other than low cost applications, the conventional sterilization such as autoclaving and laminar flow environment were used on these crops in all stages as the control.

Regardless of the technique, seeds of cucumber, bell pepper, tomato, *Thumba Karawila*, Chinese cabbage, *Gypsophilla* and orchids germinated successfully *in vitro*. There was no significant difference in emergence of seedlings. The crops, carnation, *Draceana*, *Syngonium* and orchids, established from shoots grew well. There were no significant change in growth due to low cost technique. The contamination percentage was also not significantly different between treatment and the control. Maddona Lily and Gladioli were established using bulb scales. Both conventional and low cost cultures produced plantlets within one month period. *Hosta* bulb scale explants produced callus as well as shoots in both situations without any significant deviations. Plants were multiplied under both situations and healthy vigorously growing plants were obtained. All plants were rooted and acclimatized successfully.

In this study it was shown that the tested crop species can be successfully micropropagated using low cost technique. Therefore, provided with other facilities for tissue culture, domestication of micropropagation is possible in Sri Lanka.