EFFECT OF POTTING MEDIA ON SURVIVAL AND GROWTH OF TRANSPLANTED *IN VITRO* PLANTLETS OF ORCHID (*Dendrobium* sp)

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ABSTRACT

Orchids, the most beautiful flowers in God's creation, comprise a unique group of plants. They occupy top position among all the flowering plants valued for cut flower production and as potted plants. They known for their longer lasting beautiful flowers which occupy a very high price in the local and international market. Micropropagation has become very important nowadays to meet growing market demand, there are still some barriers that prevent the ultimate goal to achieve viable *ex vitro* plants. Therefore, acclimatization has remained very serious issue. The current study was carried out to standardize potting media for hardening of the *in vitro* raised plantlets of *Dendrobium* sp. under net house conditions. The potting media used for acclimatization contained coconut husk, brick pieces, charcoal and chip stones in different ratio. The observations were recorded on survival percentage, shoot length, number of leaves per plant, leaf width, number of roots per plant and length of longest root after transplanting to *ex vitro* conditions. The treatment contained coconut husk: brick pieces: charcoal: chip stones at ratio 1:1:1:1 proved the best potting medium for higher survival rate (90.00%) at 4 weeks after transplanting to *ex vitro* conditions and for the subsequent development of plantlets under *ex vitro* conditions during the process of acclimatization.

Furthermore, another study was designed to analyze socio-economic status of small and medium scale orchid farmers in Nattandiya DS Division, Puttalam District, North Western Province, Sri Lanka. Simple random sampling technique was used to draw the sample. Data were collected through pretested questionnaires and were analyzed using statistical

software SPSS for frequencies. Most of the farmers were involved in cultivation of *Dendrobium* sp. It has high demand in the local market.

Another experiment was conducted at the Tissue Culture Laboratory, Department of Crop Science, Eastern University, Sri Lanka to study the *in vitro* regenerative performance of different explants of orchid. Therefore, various types of explants namely, base and tip of leaves, nodal segment, and stem segments (entire and half) were excised from the healthy mother plant. Sterilized explants were separately cultured on MS medium containing 2 mg/l BAP and 0.2 mg/l NAA aseptically. The result revealed that *in vitro* response percentage of the cultured explants clearly showed significant difference ($P<0.01$) among the treatments. Nodal segments showed higher *in vitro* response and better survival rate (88.86%). Immature leaf segments and stem segments showed moderate *in vitro* response but the survival rate was significantly high (55.50%) in immature leaf tip at four weeks of culture. Mature leaf segments failed to show *in vitro* response and very low survival rate.

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