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IN VITRO MORPHOGENIC RESPONSE OF ORCHID BY USING DIFFERENT EXPLANTS

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ABSTRACT

Orchid is an ornamental plant with high commercial value. Since, conventional propagation method is not competent to produce sufficient planting materials for commercial cultivation and also seed propagation results in unwanted heterozygous types, vegetative propagation by means of *in vitro* culture is an essential for rapid multiplication of orchids to meet the current market demand. This study was aimed to select the suitable type of explants for *in vitro* micropropagation of orchid. Young mother plants of Vanda orchid were collected from the net house subsequently nodal portion with auxiliary buds, leaves and stem were separated from these plants. Different types of 1 cm long explants namely single nodal segments, base and tip portions (0.5 cm width) of leaves and stem segments (entire and vertically cut into half) were excised from these plant parts and then surface sterilized with 20% of sodium hypochlorite (5.25% active ingredients) for 30 min. Subsequently they were cultured on the MS basal medium supplemented with 2.0 mg/l BAP and 0.2 mg/l NAA to evaluate *in vitro* morphogenesis. Result revealed that highest survival rate and *in vitro* response (88.8%) were significantly ($P<0.05$) high in light green immature nodal segment explants. Within four weeks of culture, mature leaf segments failed to show any *in vitro* response. Immature leaf segments showed moderate *in vitro* response (33.3-44.4%) and survival rate (55.5%) was higher in immature leaf tip portions than base portions (44.4%). Meanwhile stem segment explants showed very low survival rate (22.2%) and *in vitro* response (11-22%). Within 4 weeks of culture, creamy white in colour swelling was observed in nodal explants. Subsequently, nodules like structures were formed to initiate shoot buds on nodal portions after 8 weeks of culture. The result indicated that nodal segments were found to be the best for *in vitro* plant regeneration as compared to leaf and stem segment explants.

Key words: *Explants, In vitro culture, Morphogenic response, Multiplication, Orchid*

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