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RESEARCH NEWS

MICRO PROPAGATION OF GRAPE (*Vitis sp.*) VARIETY ISRAEL BLUE THROUGH SHOOT TIP CULTURE TECHNOLOGY

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Israel blue is a commercially important grape (*Vitis spp.*) variety, which is popular due to its sweetness and colour. At present, there is an increasing trend in cultivation of this variety in Sri Lanka. It is one of the two varieties that has been selected to cultivate under "Highland Development Project" which aims at improving farmers' income as well as giving fresh fruits to people to uplift their health condition. Conventionally, grape is a vegetatively propagated crop through stem cuttings but it is not sufficient enough to fulfill the high demand for large -scale production of planting material. Therefore, micro propagation may become imperative and the objective of this study is to develop a suitable micro propagation system.

Young shoots (2-3 cm in length) of variety Israel blue were collected from field – grown mature vines and they were surface sterilized and cultured on modified MS media supplemented with BAP at (0.1mg/l) (M_1) and (2mg/l) (M_2). After one month, shoots that were not contaminated were sub cultured into fresh M_2 medium and MS medium supplemented with BAP (3mg/l)(M_3). One month later, elongated and multiplied shoots were sub - cultured in hormone – free MS medium (MS_0) and MS medium supplemented with BAP (3 mg/l) and NAA (0.2 mg/l) (M_5) for 3-4months. Rooting was induced in MSo medium after 3-4weeks. Cultures were incubated at 26 ± 2^0C and at 35μ $Es^{-1}m^{-2}$ illumination for a 16 hr photoperiod. Acclimatization was performed in a soil mixture of sand: coir dust: compost (2: 1: 0.5) in plant house.

Results showed that the use of 0.5% (v/v) Clorox in explant sterilization was better with higher survival rate (70%) than 5% (v/v) Clorox where survival rate of explants were lower (52%). From the two media tested for explant establishment, M_2 was better as it showed low basal callus formation (11%) and higher shoot growth (77%) while M_1 showed higher basal callus formation (66%) and lesser rate of shoot growth (46%). During early multiplication phase, M_2 medium showed higher multiplication rate (3.6) and produced elongated shoots where M_3 medium showed comparatively low multiplication rate (2.9) and stunted shoots. Therefore, initially M_2 was a better medium for multiplication than M_3. At later stage of multiplication M_5 medium did not show any shoot elongation or multiplication. In this stage, MSo medium showed rapid elongation of shoots and initiation of roots. Therefore, multiplication was achieved by repeated sub-culturing of stem

cuttings of these elongated shoots into same MSo medium. Rooting was also successful at high rate (95%) in MSo medium. Acclimatization of tissue culture derived plants showed high survival rate (>90%).

As a conclusion, by using the shoot tip culture technology described here, multiplication rate of about 60 plants per explant could be achieved in 6 months for grape variety Israel blue.