

MICROPROPAGATION OF NODAL SEGMENTS OF YAM VARIETIES

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Yams (*Dioscorea*) are important tuber crops and a staple food for millions of people in all over the world. In Sri Lanka, two improved varieties of *Dioscorea alata* known as 'Raja ala' and 'Kekulu ala' are found having high yield and marketable values with good culinary qualities. However phytosanitary problems, lack of agronomic constraints and healthy planting materials restrict mass and rapid production of 'Raja ala' and 'Kekulu ala'. An investigation was carried out to find the best explant from two types of nodal cuttings i.e. axillary and sprouted meristem nodal cuttings, to identify a suitable media and to find out the suitable age of the plant for tuberization of 'Kekulu ala' and 'Raja ala' via *in vitro* propagation. Nodal segments were cultured on Murashige and Skoog (MS) medium supplemented with 1 mg/l indole-3-acetic acid (IAA) and 2 mg/l 6-benzylaminopurine (BAP). There was no significant difference observed in growth rates, nodal number and shoot proliferation among both explants tested in both varieties. After ten weeks of culture, the nodal segments were transferred to MS medium supplemented with 4 mg/l BAP and 0.3 mg/l Gibberellic acid (GA₃) for multiplication. Number of shoots and nodes produced per subculture in multiplication media were not different among both types of nodal cuttings in both varieties. For tuberization two months and four months old *in vitro* 'Raja ala' and 'Kekulu ala' plantlets were directly transferred into ½ MS medium supplemented with three sucrose concentration (40 g/l, 60 g/l and 80 g/l) and 2 mg/l α-naphthaleneacetic acid (NAA). Tuber formation was observed only in plantlets that were transferred after four months. All three media tested were significant on rate of tuberization. Highest mean number of tuber (Raja ala; 1.28 tubers/plant and Kekulu ala; 1.14 tubers/plant) was observed in 80 g/l sucrose medium and followed by 60 g/l sucrose and 40 g/l sucrose media. Therefore *in vitro* propagation of 'Kekulu ala' and 'Raja ala' is applicable for the production of planting materials in large scale.

Keywords: *Dioscorea alata*, *In vitro* propagation, Kekulu ala, Nodal cuttings, Raja ala, Tubers