

DEVELOPMENT OF TISSUE CULTURE PROTOCOL FOR SURFACE STERILISATION AND *IN VITRO* ROOT INDUCTION OF PEAR SHOOTS

K.K.T.N. Sandeepani¹, L.G.I. Samanmalee² and P.A. Weerasinghe¹

¹*Department of Plant Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Puliyankulama Anuradhapura, Sri Lanka.*

²*Plant Virus Indexing Centre, Gabadawatta, Homagama, Sri Lanka.*

Pear (*Pyrus pyrifolia* L.) is the third most important temperate fruit crop in the world. In Sri Lanka, upcountry regions have ideal climatic conditions for the successful production of pears. The limitation of planting material is the major drawback for the expansion of pear cultivation in Sri Lanka. Hence, this study aimed to develop a protocol for the production of planting materials by developing the best surface sterilisation method for the Rahangala and Ragala varieties of pear shoots and root induction of *in vitro* raised pear shoots. In surface sterilisation, initially shoots were washed with running tap water for 30 min, followed by dipping in 0.06% Topsin fungicide for one hour, 70% Ethanol for one min, and immersed in 600 mg L⁻¹ ascorbic acid for three min. Finally, they were washed with 10% H₂O₂ for three min. After these steps, shoots of both varieties were subjected to the following twelve treatments separately in different concentrations of 0.5%, 1% (w/v) AgNO₃ for 15 min followed by 5%, 10% (v/v) NaOCl in 5, 10, 15 min of exposure at hormone free Murashige and Skoog (MS) medium. The survival rate of 86.6% and 80% for the Rahangala and Ragala varieties, respectively were recorded after three weeks with 1% AgNO₃ + 10% NaOCl in 10 min. Root induction was conducted on two strengths of MS (Full /1/2) media and six levels of Indole Butric Acid (IBA) concentrations (0, 0.5, 1, 2, 3, 4 mg L⁻¹) with 0.1 mg L⁻¹ of Naphthalene Acetic Acid. Significantly ($p < 0.05$) highest mean number of roots (1.93±0.98), average length (70.6 mm), and rooting percentage (60%) were observed in ½ MS medium with 4 mg L⁻¹ IBA for root induction. In conclusion, the Rahangala variety had the best survival rate and the best rooting was performed in ½ MS medium with 4 mg L⁻¹ IBA.

Keywords: Indole Butric Acid (IBA), *Ragala* pears, *Rahangala* pears, Root induction