

## **DEVELOPMENT OF A PROTOCOL FOR ROOT INDUCTION USING IN-VITRO RAISED APPLE SHOOTS**

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Unavailability of true to type planting material is a major barrier to promote cultivation of apple (*Malus pumila*) in Sri Lanka. Plant tissue culture plays a vital role to overcome this problem. Mass propagation of apple through micro-propagation has already been initiated and a protocol has been developed for seed germination and multiplication. Therefore, this research only aimed to develop a root induction protocol via *in-vitro* raised apple shoots using suitable plant tissue culture media for successful production of planting materials. Five replicates consisting two levels as full and half strength MS media and six levels of Indole Butric Acid (IBA) concentrations (0, 1, 2, 3, 4, 5 mgL<sup>-1</sup>) were tested at 26°C under fluorescent light. The experiment was conducted as a two factor factorial with Complete Randomized Design (CRD). Average numbers of roots per plant and average length of main roots in rooting media were recorded. The combined effect of the levels of MS media and IBA concentration was significant for number of roots per plant ( $p < 0.05$ ). However, it was not significant for length of roots ( $p > 0.05$ ). At the end of 10<sup>th</sup> week, the highest average number of roots (3.52) per plant was observed in half strength MS + 2 mgL<sup>-1</sup> IBA medium followed by half strength MS + 1 mgL<sup>-1</sup> IBA (3.26). The longest average root length (9.51 cm) was observed in rooting medium with full strength MS + 2 mgL<sup>-1</sup> IBA. Considering results of the two parameters measured, half strength MS was the best rooting medium (mean 4.84) while IBA 2 mgL<sup>-1</sup> (mean 7.46) was the best hormone concentration for highest number of roots per plant for apple.

**Keywords:** Indole Butric Acid, Micro propagation, Root induction of apple