

## **Shoot Tip Culture of Apple (*Malus domestica*) for Planting Material Production**

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### **ABSTRACT**

Apple (*Malus domestica*) is one of the most consumed fruits in Sri Lanka. Climatic conditions in Central province offer suitable growing conditions for apple and hence experimental sites were established in Kundasale and Bandarawela by Department of Agriculture. The lack of true to type planting material is one of the constraints for the promotion of apple cultivation in Sri Lanka. One of the potential strategies would be tissue culture which is widely used for apple cultivation throughout the world. Improvement of the *in vitro* clonal propagation method is a valuable tool for this task. The aim of this study was to determine the most appropriate concentration level of Indole Butyric Acid (IBA) and Benzyl Amino Purine (BAP).

Apple seeds were taken from imported Apple fruits. Apple seeds were sterilized in 30% Clorox for 30 minutes under shaking condition. Seeds were germinated in hormone free Murashige and Skoog (MS) medium to obtain Shoot tip explants. Shoot tip explants (1.5 cm long) were transferred to MS medium with different concentrations of Indole Butyric Acid (IBA) for shoot multiplication. Sub culturing was started after eight (8) weeks and the cultures were divided in to two equal parts and transferred to new culture media at 4 weeks interval. Extent of proliferation was estimated with the number of shoots formed. *In vitro* raised shoots (2 cm) were transferred to half and full strength MS basal medium with different concentrations of Indole Butyric Acid (IBA) for root induction. Suitable condition for *in vitro* root induction was optimized in 2 mg/l IBA) in half strength MS medium. The results of the study reveals that while shoot multiplication was optimized with 4 mg/l BAP level in full MS medium, root induction can be optimized with 2 mg/l IBA in half strength MS medium.

**Key words:** Apple, BAP, IBA, Root induction, Shoot multiplication,