

## Multiple Shoot Induction Protocol for *Aegle marmelos* (L.) Corr. (Beli) Using *In-Vitro* Derived Shoot Tips

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### Abstract

*Aegle marmelos* (L.) Corr. commonly known as 'beli' in Sri Lanka is an important fruit tree with extensive medicinal uses in the indigenous medicine systems. All parts of this plant can be used to treat various diseases. *Aegle marmelos* root is one of the main ingredients of popular ayurvedic preparations. The plant is conventionally propagated by seeds which have short viability and low germination percentage. Vegetative propagation through root suckers is slow and challenging. Root being the major medicinally useful part, destructive harvesting poses a serious threat to the sustenance of the tree. Therefore, this study aimed to develop a suitable multiple shoot induction protocol through *in-vitro* derived shoot tips. Seeds were sterilized with 5% Clorox for 5 minutes and established in Murashige and Skoog (MS) medium to obtain shoot tips. For shoot multiplication, *in-vitro* derived shoot tips were transferred into MS medium supplemented with two different concentrations of Thidiazuron (0.25 mg/L - 0.5 mg/L) and various combinations and concentrations of 6-benzyl amino purine (1 mg/L - 2 mg/L) and kinetin (0.5 mg/L - 1 mg/L). The study was carried out in Completely Randomized Design (CRD) with five replicates and each replicates contained five shoot tips established in separate culture vessels. Data were recorded as the number of shoots per shoot tip and the length of shoots. The highest total shoot length (10.6 cm) was observed in MS medium supplemented with 1 mg/L 6-benzyl amino purine and 1 mg/L kinetin. But the value was not significantly different ( $p \leq 0.05$ ) than 2 mg/L 6-benzylaminopurine and 0.5 mg/L kinetin. The highest shoot proliferation rate (17) was observed in MS medium supplemented with 1 mg/L 6-benzylaminopurine and 1 mg/L kinetin and the value was significantly different ( $p \leq 0.05$ ) from all other treatments. The highest shoot proliferation rate was observed after five weeks from culture initiation. The findings of the study can be used for future *in-vitro* propagation studies of *Aegle marmelos*.

**Keywords:** *Aegle marmelos*, Establishment and proliferation, In-vitro generated shoot tips, Micropropagation

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