

## **Multiplication of Endangered Indian Sandalwood (*Santalum album* L.) through Vegetative Propagation Techniques**

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### *Abstract*

*Santalum album* is a highly demanded plant species, known for its fragrant heartwood and oil in ayurvedic and beauty industry trends towards natural products. Due to increase of worldwide demand and decline of sandalwood natural resource, currently Indian sandalwood has gained the interest as a plantation crop in Sri Lanka. As an alternative propagation for rapid multiplication of *S. album*, identification of potential multiplication techniques to get uniform plant stock to meet market demand quantitatively and qualitatively is an important task. The objectives were to find out suitable growth medium, effect of hormone, and suitable type of stem cuttings for rooting, and to study the potential use of juvenile coppice shoots of mother stock raised from seedlings for multiplication. For macro propagation, hard wood, semi-hard wood and soft-wood cuttings were taken from mother stock from seedlings. Two rooting media: sand and sand + coir dust; and two hormone treatments: with and without roocta commercial hormone, were used. Juvenile coppice shoots obtained from mother seedlings were planted in sand in humid chamber with two hormone treatments: with and without roocta. All soft wood cuttings died within few weeks. One hard wood cutting out of thirty planted in coir and sand medium, without supplement of hormone only rooted. All other hardwood and semi hardwood cuttings showed development of leaves and shoot elongation after two weeks of establishment but no rooting even after ten weeks of establishment. All juvenile coppice shoots planted on sand retained green colour and alive even after five weeks of establishment. Juvenile coppice shoots without hormone showed 40% rooting but 27% rooting with hormone treatment. Very limited success of rooting of stem cuttings might be probably due to factors such as collection date of cuttings, cutting characteristics, humid chamber parameters, stock plant maturation and clones used because presence of carbohydrate and translocation of auxine in leafy juvenile shoots leaves to base of cuttings and play an important role on rooting of cuttings. Various treatments used for rooting of stem cuttings were not suitable for rapid multiplication of *S. album*. Newly initiated shoots with new leaves do not always work as good indicator for rooting. Juvenile coppice shoots showed better rooting ability. Therefore, juvenile coppice shoots can be introduced as one of feasible rapid method for multiplication of Indian sandalwood.

Keywords: Sandalwood, propagation, stem cuttings, juvenile coppice shoots