



VEGETATIVE PROPAGATION THROUGH STEM AND BRANCH CUTTINGS IN PRIORITY BAMBOO SPECIES OF KERALA

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ABSTRACT: Bamboos are the arborescent grasses with multiple utility and value addition of bamboo has led to divergent products. Large-scale cultivation is initiated countrywide in public and private lands to cope up with the demand for raw material. The major bottlenecks in the plantation establishment are the long flowering cycle, poor production and viability of the seeds. The vegetative propagation methods are resorted to obtain quality planting stock. The vegetative propagation trials on 7 species of the genus *Bambusa*, 8 of *Dendrocalamus*, one each of *Gigantochloa*, *Pudoxytanthera*, *Melocanna*, *Munroclao* and *Oxytenanthera*, 4 of *Ochlandra* and two species of *Thyrsostachys* genus were completed in past decades. The cavity method of growth regulator application was tried in stem and dipping the basal part in branch cuttings and solid bamboos. The studies revealed that propagation through culm cuttings was successful in most of the species and a few species responded to rooting of branch cuttings. Rooting was poor or absent in the species like *T. oliveri* and *T. siamensis*. Thick-walled bamboo species showed better rooting efficacy compared to the thin walled. The factors like season, cutting position, growth regulator and its concentration and method of planting significantly influenced the propagation by cuttings. The summer season was the best for the root induction of stem cuttings of most bamboos. Selection of cuttings based on the position of node and application of proper concentration of growth regulator can ensure efficient rooting and cost-effective planting stock production. In addition to auxins, coumarin, phenol and boric acid can also promote root induction. Rooted cuttings needed 3-6 months to profuse rooting and rhizome formation. The horizontal planting method outperformed the vertical planting method for branch cuttings in terms of sprouting and roots.

Keywords: Adventitious rhizogenesis, bamboo, culm cuttings, sprouting, vegetative propagation

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INTRODUCTION

Bamboos are grasses that belong to the Poaceae family, the Bambusoideae subfamily, and the Bambuseae tribe (Chapman, 1996 & 1997). There are both woody and herbaceous species and the woody ones are economically important. Bamboos are generally known as giant grass, miracle grass, green gold, poor man's timber and so on. Naturally, bamboos are growing in the tropical, subtropical and temperate regions (Dransfield, 1992; Nguyen, 2006). There are 1662 species of bamboos occurring in 121 genera in the world, of which 232 (14 %) have been introduced beyond their native ranges (Susan *et al.*, 2017).

Seethalakshmi and Kumar (1998) have compiled the compendium 'Bamboos of India' in which 18 genera and 128 species (A total of 311 species including synonyms) are described that include 87 natural and 41 introduced or cultivated species. Many new species have been reported afterwards and currently, 148 species belonging to 29 genera of bamboos (both wild and cultivated) are reported from India (Sharma and Nirmala, 2015). The deciduous and semi-evergreen regions of the northeast, as well as the tropical moist deciduous forests of North and South India, have the highest concentration of bamboo species. In Peninsular India, Bambusoideae is represented by 23 species and two varieties under seven genera (Kumar, 2011). Lack