



INFLUENCE OF GENOTYPES ON ADVENTITIOUS RHIZOGENESIS THROUGH MACROPROPAGATION IN *BAMBUSA VULGARIS* AND *BAMBUSA NUTANS*

FATIMA SHIRIN*, IRSHAD ALI SAUDAGAR, VINEET MEHRA, SUSHMA MARAVI, MUKESH KUMAR SONKAR, PRAMOD KUMAR AND G. RAJESHWAR RAO

Tropical Forest Research Institute

P.O. RFRC, Mandla Road, Jabalpur-482021 (M.P.)

*Corresponding author email: fatimashirin1997@gmail.com

ABSTRACT: In recent years Government of India has encouraged the plantation of bamboos by exempting it from the definition of tree in non-forest areas. Adventitious rhizogenesis of bamboos through culm or culm branch cuttings is influenced by a number of factors like species, genotypes of species, season of collection, types and concentrations of plant growth regulators, environmental conditions, etc. Selection of candidate plus clumps (CPCs) of various species has been carried out at TFRI, Jabalpur based on multi-trait selection. In this study, we investigated the rooting behaviour of two important bamboo species *Bambusa vulgaris* var. green, one of the largest, fast growing and most easily recognized bamboo and *Bambusa nutans*, a medium sized woody bamboo. Four vigorously growing healthy CPCs of these two bamboo species were selected viz., *Bambusa vulgaris* var. green (BV-SL-2 and BV-SL-4) and *Bambusa nutans* (BN-DM-9 and BN-GEN-1). Single nodal cuttings were prepared from culms and given prophylactic treatment of 2% Bavistin for 10 minutes and then dipped in 200 ppm IBA (Indole Butyric Acid) solution for 24 hours. The experiment was set in completely randomized design with three replications. After 70 days, observations were recorded and analyzed. Significant variations were observed among genotypes for rooting percentage, number of roots and root length (cm). BV-SL-4 had maximum rooting (79.88%), followed by BN-GEN-1 (61.613%), BN-DM-9 (56.42%) and BV-SL-2 (51.80%) had minimum rooting. Maximum numbers of roots were found in BV-SL-4 (36.21) and minimum in BN-GEN-1 (22.87). Longest roots were also observed in BV-SL-4 (47.21 cm) and BV-SL-2 (30.133 cm) with recorded with smallest roots. Therefore, our study indicates that the BV-SL-4 genotype of *Bambusa vulgaris* var. green gave best results for adventitious rhizogenesis. Significant effect of different genotypes on rooting parameters was noticed in the present study. Selected CPCs of commercially important bamboos were successfully propagated vegetatively through culm cuttings for production of quality planting material.

Keywords: *Adventitious rhizogenesis, culm cuttings, genotype, plant growth regulators, season*

Citation: Shirin F, Saudagar IA, Mehra V, Maravi S, Sonkar MK, Kumar P, Rao GR (2021) Influence of genotypes on adventitious rhizogenesis through macropropagation in *Bambusa vulgaris* and *Bambusa nutans*. Indian J Trop Biodiv 29(1):47-53

INTRODUCTION

Bamboos are monocotyledonous perennial grasses and most diverse plants in the grass family. They are the most primitive sub-family belonging to Bambusoideae of the Family Poaceae (Gramineae), including approximately 1700 described species in 127 genera (Vorontsova *et al.*, 2016; Soreng *et al.*, 2017; Clark and Oliveira, 2018). They are distinguished by having woody culms and complex branches, a complex

and robust rhizome system, and flowering at long intervals. Bamboos have an extensive fine root system, which ramifies horizontally and vertically binding the soil particles together (Sujatha, 2008). Bamboo grows on elevated grounds and river banks (Nath, 2008) and can cope with temporal floods (Kaushik, 2005). The cultivation of bamboos have attracted a great deal of interest in recent years. The National Bamboo Mission (NBM) envisages covering an area of 1.7 lakh ha,