

Population Diversity Studies in *Dendrocalamus strictus* Roxb. (Nees.) Through Morphological Parameters

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Abstract : Bamboos are considered as valuable resources which have the potential of meeting current economic, environmental and social needs. Bamboo has played a key role in humankind and its livelihood since ancient time. Distributed in diverse areas across the globe, bamboo makes an important natural resource for hundreds of millions of people across the world. In some of the Asian countries and northeast part of India, bamboo is the basis of life on many horizons. India possesses the largest bamboo-bearing area across the world and a great extent of species richness, but this rich genetic resource and its diversity have dwindled in the natural forest due to forest fire, over exploitation, lack of proper management policies, and gregarious flowering behavior. Bamboos which are well known for their peculiar, extraordinary morphology, show a lot of variation in many scales. Among the various bamboo species, *Dendrocalamus strictus* is the most abundant bamboo resource in India, which is a deciduous, solid, and densely tufted bamboo. This species can thrive in wide gradients of geographical as well as climatic conditions. Due to this, it exhibits a significant amount of variation among the populations of different origins for numerous morphological features. Morphological parameters are the front-line criteria for the selection and improvement of any forestry species. Study on the diversity among eight important morphological characters of *D. strictus* was carried out, covering 16 populations from wide geographical locations of India following INBAR standards. Among studied 16 populations, three populations viz. DS06 (Gaya, Bihar), DS15 (Mirzapur, Uttar Pradesh), and DS16 (Bhogpur, Pinjore, Haryana) were found as superior populations with higher mean values for parametric characters (clump height, no. of culms/ clump, circumference of clump, internode diameter and internode length) and with the higher sum of ranks in non-parametric characters (straightness, disease, and pest incidence and branching pattern). All of these parameters showed an ample amount of variations among the studied populations and revealed a significant difference among the populations. Variation in morphological characters is very common in a species having wide distribution and is usually evident at various levels, viz., between and within the populations. They are of paramount importance for growth, biomass, and quick production gains. Present study also gives an idea for the selection of the population on the basis of these morphological parameters. From this study on morphological parameters and their variation, we may find an overview of best-performing populations for growth and biomass accumulation. Some of the studied parameters also provide ideas to standardize mechanisms of selecting and sustainable harvesting of the clumps by applying simpler silvicultural systems so that they can be properly managed in homestead gardens for the community utilization as well as by commercial growers to meet the requirement of industries and other stakeholders.

Keywords : *Dendrocalamus strictus*, homestead garden, gregarious flowering, stakeholders, INBAR

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