

Molecular Characterization of Polyploid Bamboo (*Dendrocalamus hamiltonii*) Using Microsatellite Markers

Authors : Rajendra K. Meena, Maneesh S. Bhandari, Santan Barthwal, Harish S. Ginwal

Abstract : Microsatellite markers are the most valuable tools for the characterization of plant genetic resources or population genetic analysis. Since it is codominant and allelic markers, utilizing them in polyploid species remained doubtful. In such cases, the microsatellite marker is usually analyzed by treating them as a dominant marker. In the current study, it has been showed that despite losing the advantage of co-dominance, microsatellite markers are still a powerful tool for genotyping of polyploid species because of availability of large number of reproducible alleles per locus. It has been studied by genotyping of 19 subpopulations of *Dendrocalamus hamiltonii* (hexaploid bamboo species) with 17 polymorphic simple sequence repeat (SSR) primer pairs. Among these, ten primers gave typical banding pattern of microsatellite marker as expected in diploid species, but rest 7 gave an unusual pattern, i.e., more than two bands per locus per genotype. In such case, genotyping data are generally analyzed by considering as dominant markers. In the current study, data were analyzed in both ways as dominant and co-dominant. All the 17 primers were first scored as nonallelic data and analyzed; later, the ten primers giving standard banding patterns were analyzed as allelic data and the results were compared. The UPGMA clustering and genetic structure showed that results obtained with both the data sets are very similar with slight variation, and therefore the SSR marker could be utilized to characterize polyploid species by considering them as a dominant marker. The study is highly useful to widen the scope for SSR markers applications and beneficial to the researchers dealing with polyploid species.

Keywords : microsatellite markers, *Dendrocalamus hamiltonii*, dominant and codominant, polyploids

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