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Molecular characterization and genetic diversity analysis of sapota genotypes by RAPD markers

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ABSTRACT : To study the molecular characterization of 31 accessions of sapota comprising 19 cultivars, 6 land races and 6 hybrids of sapota using PCR based Random Amplified Polymorphic DNA (RAPD) markers. DNA isolated by CTAB method was used for amplification of 48 markers by using 7 RAPD primers. All 48 polymorphic fragments were used to generate the similarity matrix and construct a dendrogram. In this matrix highest genetic similarity of 100 per cent was observed between the 'DHS-1' and 'DHS-2', while least (23 %) was between 'PKM-3' and 'Culcutta Round'. UPGMA (Unweighted Pair Group Method with Arithmetical averages) cluster analysis using Jaccard's co-efficient of similarity of 31 genotypes showed medium to high diversity, which are distributed between the ranges of 35-100 per cent. For the 19 cultivars, the maximum similarity of 91 units was found between 'Murabba' and 'Oval'. 'Pala' and 'Virudhnagar' were closely placed due to 71 per cent oval shaped fruits. Among landraces the round shaped fruit bearing landraces were grouped in cluster-I, and 'Cricket Ball (Udupi)', 'Cricket Ball (Sirsi)' were closely associated with each other as they are having distinctively round shaped fruits and they are 78 per cent similar. Among hybrids 'DHS-1', 'DHS-2', 'PKM-2', CO-1' and 'CO-3' which are grouped together because of their oval and round shaped fruits with spreading and single bearing habit.

KEY WORDS : RAPD, Molecular characterization, Jaccard's co-efficient

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