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AFLP and microsatellites genetic divergence analyzes among 103 mango accessions

Carlos Antonio Fernandes Santos^{1} and Francisco Pinheiro Lima Neto²*

¹Centro de Pesquisa Agropecuária do Trópico Semiárido, Petrolina, 56302-970, Pernambuco, Brazil. *Email: carlos-fernandes.santos@embrapa.br

Abstract

The genetic relationship among 103 mango accessions of different geographic origins of the Embrapa germplasm collection was estimated based on AFLP and microsatellite markers in order to orient breeding and management of genetic resource of this species to the Brazilian Semi-Arid region. The DNA of the accessions was extracted according to the CTAB protocol. Two UPGMA dendrograms were generated using Jaccard coefficients from distance matrixes based on 50 alleles of 12 microsatellite loci and 157 amplicons obtained from 13 AFLP *EcoRI/ MseI* primer combinations. The cophenetic values were 0.81 and 0.80 for the AFLP and microsatellite dendrograms, respectively. Four groups were observed in the AFLP dendrogram: 1) Amrapali, Malika, Embrapa-CPAC hybrids and some American varieties forming a group, 2) other built, predominantly, by American varieties, with some inclusions of South African and Brazilian hybrids, 3) a large group composed by Brazilian accessions, with some inclusion of Australian, Indian and American accessions, and 4) a group with some accessions of Espada, Rosa and others of different origins. Three groups were observed in the microsatellite dendrogram: the first group was formed predominantly by foreign accessions, the second group was formed by Brazilian accessions, and the Dashehari accession was isolated from the others. The analyzed accessions presented variability greater than 51% and 30% in the AFLP and microsatellite studies, respectively, suggesting a high genetic variability present in the studied mango germplasm collection. Based on the grouping patterns, the microsatellite study presented a better resolution, since it was possible to separate the Brazilian accessions from foreigner ones. The microsatellite results were the expected one, since mango Brazilian accessions have a long adaptation term, tracking back to the XVI century.

Keywords: *Mangifera indica*, accessions relationship, Brazilian accessions