

Genetic diversity in local and commercial dry bean (*Phaseolus vulgaris*) accessions based on microsatellite markers

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ABSTRACT. Dry beans are considered to be a crop of great socio-economic importance, because they are an inexpensive source of nutrients and because their cultivation requires considerable manual labor. Studies of genetic diversity have been very important for genetic improvement programs, because they give parameters for the identification of genitors that can provide large heterosis effects and improved segregation in recombinants, increasing the probability of obtaining superior genotypes in the progeny. We evaluated the genetic diversity of 57 dry bean accessions, including 31 local accessions, propagated by small-scale farmers, 20 accessions supplied by the Brazilian Agricultural Research Agency, and six commercial accessions, using 16 microsatellite primers. Among these primers, 13 were found to be polymorphic, giving 29 polymorphic alleles. The largest number of alleles per locus was observed for primer BM141, which had four alleles. The polymorphic information content varied from 0.11 to 0.51, observed for loci BM212 and BM141, respectively. The lowest degree

of dissimilarity (0.0) was found between the accession Iapar 81 and the accessions E03, E04, E09, and E13 and between the accession pairs E08 with E16 and Iapar 31 with E06. The highest degree of dissimilarity was found between the accessions Carioca and E22 (1.0). Grouping analysis revealed four groups, according to the place of origin. This tendency was also found in the principal coordinate analysis. The local genotypes were found to have relatively high genetic diversity, while the EMBRAPA and commercial cultivars had a relatively narrow genetic basis.

Key words: Germplasm characterization; Fingerprint; SSR makers; Genetic resources