

Genetic diversity of wild and common bean (*Phaseolus spp.*) genotypes as revealed by RAPD and AFLP markers

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ABSTRACT

*The present work was conducted to evaluate RAPD-PCR and AFLP (amplified fragment length polymorphism) marker systems for their ability to detect genetic diversity within and among some common bean (*Phaseolus vulgaris*) cultivars and tepary bean (*Phaseolus acutifolius*) lines and to compare the efficiency of these two marker types in the classification of accessions according to the gene pool of beans. The polymorphic fragments were obtained on the basis of 12 differentiating primers using the RAPD method and 4 differentiating primer combinations using the AFLP method. The 12 RAPD primers produced 119 polymorphic bands, while AFLP primer combinations produced 165 polymorphic bands. RAPD data analysis showed that the genetic similarity among thirteen *Phaseolus* accessions ranged from 44.6 to 93.8% while the AFLPs generated data show that the highest genetic similarity value was 86.7% and the lowest value was 27.7% with an average of 57.2%. The dendrogram generated with hierarchical UPGMA (unweighted pair group method with arithmetic mean) cluster analysis of the Jaccard's similarity coefficient matrices revealed two major clusters, which were identified.*

Keywords: AFLP, Genetic diversity, *Phaseolus vulgaris*, *Phaseolus acutifolius*, RAPD.