



Genetic relationship of cowpea (*Vigna unguiculata*) varieties from Senegal based on SSR markers

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ABSTRACT. Genetic diversity and phylogenetic relationships among 22 local cowpea (*Vigna unguiculata*) varieties and inbred lines collected throughout Senegal were evaluated using simple sequence repeat molecular markers. A set of 49 primer combinations were developed from cowpea genomic/expressed sequence tags and evaluated for their ability to detect polymorphisms among the various cowpea genotypes. Forty-four primer combinations detected polymorphisms, with the remaining five primer sets failing to yield PCR amplification products. From one to 16 alleles were found among the informative primer combinations; their frequencies ranged from 0.60 to 0.95 (mean = 0.79). The genetic diversity of the sample varied from 0.08 to 0.42 (mean = 0.28). The polymorphic information content ranged from 0.08 to 0.33 (mean = 0.23). The local varieties clustered in the same group, except 53-3, 58-53, and 58-57; while Ndoute yellow pods, Ndoute violet pods and Baye Ngagne were in the

second group. The photosensitive varieties (Ndoute yellow pods and Ndoute violet pods) were closely clustered in the second group and so were inbred line Mouride and local cultivar 58-57, which is also one of the parents for inbred line Mouride. These molecular markers could be used for selection and identification of elite varieties for cowpea improvement and germplasm management in Senegal.

Key words: Cowpea; *Vigna unguiculata*; Genetic diversity; Germplasm management; Microsatellites