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RANDOM AMPLIFIED POLYMORPHIC DNA (RAPD) CHARACTERISATION OF SOME NIGERIAN COWPEA GENOTYPES

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ABSTRACT

Variability is an important component in plant breeding, which when quantified will facilitate development of cultivars for specific purposes by providing an index of parental lines to be used in breeding programmes. Thirty-one genotypes of cowpea that included both improved and local land races were assessed for genetic distinctiveness and relationships using random amplified polymorphic DNA (RAPD). The molecular analysis showed that the 15 primers used generated 125 RAPD bands varying in size from 200 to 3,000 bp, 49 of which were polymorphic across genotypes. The number of amplification products per primer varied from 1 to 7 with an average of 3.27 bands per primer. Analysis of the RAPD profile based on Nei's similarity index revealed wide range of genetic variability among the genotypes within the genetic distance of 0.70-0.92. Cluster analysis carried out based on the estimate of distances among genotypes resolved all genotypes into seven main groups at a similarity index of 75%.

Keywords: RAPD; cowpea (Vigna unguiculata); Molecular markers; Polymorphism