Genetic divergence analysis in rice bean [*Vigna umbellate* (L.)]

■ **N.M. BASAVAPRABHU, NIRANJANA MURTHY, M. ASIF, K.T. VENKATESHA AND K.V. VIJAYAKUMAR**

SUMMARY

A wide genetic variability among the genotypes was revealed by the D^2 analysis, where in 49 genotypes were grouped into ten clusters. Based on average inter-cluster distance, the clusters VII and VIII were found to be highly divergent from all the clusters, the intercluster D^2 value was 500.33, where lowest D^2 value was noticed between the clusters IV and VIII (23.35). The genotypes LRB-461, LRB-462, LRB-463, LRB-464, LRB-465, LRB-466, LRB-467, LL-476, LRB-491, LRB-498 and LRB-490 were found to be divergent.

Key Words : Rice bean, Genetic divergence, Seed yield

Genetic diversity in the available germplasm has immense value in crop improvement for character of interest. From the point of selecting the parents for hybridization which are divergent enough for character of interest, estimation of genetic distance is most important. This genetic divergence can be estimated by using an effective statistical tool, Mahalanobis D^2 statistics, which gives clear idea about the diverse nature of the germplasm. Therefore, present investigation was undertaken to obtain the information on divergence in 49 rice bean genotypes.

MATERIALS AND METHODS

The experimental material consisted of 45 diversified germplasm lines and five check varieties of rice bean. The

■ **MEMBERS OF THE RESEARCH FORUM** ■

M. ASIF, Department of Genetics and Plant Breeding, G.K.V.K., University of Agricultural Sciences, BENGALURU (KARNATAKA) INDIA
Email: asifmiyan87@gmail.com

Address of the Co-authors:
N.M. BASAVAPRABHU, K.T. VENKATESH AND K.V. VIJAYA KUMAR, Department of Genetics and Plant Breeding, G.K.V.K., University of Agricultural Sciences, BENGALURU (KARNATAKA) INDIA

NIRANJAN MURTHY, AIRCP (U U CROPS), MRS, University of Agricultural Sciences, G.K.V.K., BENGALURU (KARNATAKA) INDIA

genotypes are maintained at All India Co-ordinated Research Network on Underutilized Crops, at Main Agricultural Research Station, Hebbal, Bangalore. The experiment was conducted at Main Agricultural Research Station, Hebbal, Bangalore during *Kharif* season 2009 under irrigated condition. The material was grown in 7×7 simple lattice design with two replications. For recording observations five plants were selected randomly from each plot in each replication and the observations were recorded on the characters plant height (cm), number of primary branches per plant, days to first flowering, days to 50 per cent flowering, pods per plant, number of pods per cluster, pod length (cm), seeds per pod, days to maturity, 100-seed weight (g) and seed yield per plant (g). Mahalanobis (1936) D^2 analysis was used for estimating genetic divergence among the genotypes. Method suggested by Rao (1952) was followed for computing D^2 values and for determining group constellations.

RESULTS AND DISCUSSION

Sufficient variation among various genotypes for all characters was observed which indicated that the present material of rice bean was appropriate for estimation of further analysis. Based on D^2 values the genotypes were grouped into ten clusters using Tocher's methods given by Rao (1952). Clustering of genotypes are presented in (Table1). Out of the