MULTIVARIATE ANALYSIS IN BLACKGRAM (VIGNA MUNGO(L.) HEPPER)

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ABSTRACT

A study was carried out among thirty-five blackgram [Vigna mungo(L.) Hepper] genotypes, using Mahalanobis’ D2 and principal component analysis for thirteen quantitative traits in randomized block design with three replications during zaid, 2021 at Naini Agricultural Institute, SHUATS, Prayagraj. The first 4 principal components showed >1 eigen value, which contributed 86.10% of the total accumulated variability. PC1 explained 38.63% of the total variation, followed by 20.15%, 14.61% and 12.70%. The variable contributing most positively to PC 1 was seed yield per plant (0.43), to PC2 was seed index (0.49), to PC 3 was number of days to maturity (0.54) and to PC 4 were both days to 50% flowering and days to 50% pod setting (0.63; each). D2 statistics showed 5 clusters with highest intra-cluster distance were shown by Cluster I (63.71). Minimum inter-cluster distance was found between cluster II and III (118.73), followed by II and I (240.72) while, maximum inter-cluster distance was found between Cluster IV and V (2899.3), followed by III and V (1894.53), II and V (1670.81) and I and IV (1478.26). Also, maximal genetic divergence contribution was shown by seed yield per plant (17%), followed by harvest index (15%) and biological yield per plant (14%). Therefore, the characters that contribute to maximal divergence should be given more weight when determining clusters for the purpose of selecting parents for future hybridization.

KEYWORDS: Blackgram, Principle component analysis, Genetic diversity & D 2 - statistics

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