

RESEARCH ARTICLE

# Study on genetic diversity in Amaranthus (*Amaranthus hypochondriacus* L.)

■ B. H. Kale, S. B. Sarode, S. G. Gawai and S. L. Haloli

## SUMMARY

Grain amaranth is a protein rich pseudocereal, assumes an important position in terms of quality breeding activities. Systematic characterization, evaluation and utilization of the potential genotype in the crop are prerequisite to any crop improvement. Genetic diversity study was conducted in one hundred fifty genotypes using Mahalanobis  $D^2$  Statistics during *Kharif* 2017 at College of Agriculture Badnapur. Based on  $D^2$  values, 150 genotypes were grouped into XII clusters. In the present investigation, the cluster II was with the highest number of genotypes (62) followed by cluster I (33), clusters VI (25), cluster VI (16), IX (3), X (3) and cluster III, V, VII, VIII, XI, XII had single genotype. The intra cluster distance (D) range from 4.74 to 48.64. The maximum inter cluster distance ( $D=48.64$ ) was observed between cluster XII and IX cluster, followed by cluster XI and IX ( $D=46.25$ ), cluster XI and cluster IV ( $D=45.43$ ), cluster IX and cluster VIII ( $D=43.92$ ), cluster IX and cluster II ( $D=39.03$ ) indicating that the genotypes falling in these clusters were highly divergent from each other implying large amount of diversity within and between groups, which could be exploited in breeding programmes. As crosses between genotypes belonging to the clusters with maximum inter cluster distance, may give high heterotic response resulting in better recombinants.

**Key Words :** Amaranthus, Cluster analysis,  $D^2$  statistics, Inter cluster distance, Intra cluster distance

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