

Genetic Divergence for Morphological and Biochemical Traits in 1% EMS Treated Tomato (*Lycopersicon esculentum* M.) cv. Arka vikas.

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ABSTRACT

Genetic diversity of 1.00 % EMS treated seeds of variety Arka vikas in tomato, was assessed using Mahalanobis D^2 statistic for 17 yield and quality characters in M_3 generation (109 M_3 families along with control with 45-50 plants per family) which indicated considerable diversity in the material. The maximum contribution per cent towards genetic divergence was by plant height, fruit weight, pericarp thickness, days to 50 % flowering, fruit shape index, no. of primary branches per plant, no. of fruits per plant, no. of locules per fruit and no. of flowers per cluster. The 109 M_3 families (unreplicated), along with control were grouped into 11 clusters using the Tocher's method and their distribution was at random. Although all the mutant lines were developed from the same mutagenic treatment (1.00 % EMS) and same parental genotype (Arka vikas) their grouping into different genetic clusters indicated that mutagenic treatment was effective in inducing diverse types of genetic changes due to the anomaly of the chromosomes in the seventeen traits studied. The inter-cluster distance was maximum between clusters III and X showing higher mean values for fruits per cluster and no. of fruits per plant, respectively. So, mutant lines from these clusters may be used in future hybridization programme.

Key words: *D² statistic, Genetic divergence, Tomato.*