



RESEARCH PAPER

Predicting magnitude of variability and genetic divergence for yield and quality traits in tomato (*Solanum lycopersicum* L.)

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Abstract : Thirty genotypes of tomato including one check cultivar (*Solan lalima*) were planted in Randomized Complete Block Design, during *Kharif*, 2014 and were assessed to know the nature and magnitude of variability and genetic divergence for 17 horticultural traits. The experimental results revealed a wide range of variability for all the traits under study. High heritability coupled with high genetic gain was observed for marketable fruit yield (89.60 and 56.02%), lycopene content (92.40 and 50.40%) and buckeye rot incidence (80.00 and 56.12%), which offers the better scope for improvement through selection. Based on the Mahalanobis D² statistics, 30 genotypes of tomato were grouped into four clusters. Maximum number of genotypes were accommodated in the cluster-IV (13) followed by cluster-III (8), cluster-II (7) and I (2). Highest inter cluster distance (8.789) was recorded between cluster I and III, hence, crossing between the genotypes of these cluster is expected to yield more heterotic hybrids. On the other hand, five genotypes *viz.*, LC-8, AVTO9001, LC-9, Punjab Chhuhara and AVTO0201 belonging to cluster-III performed better for most of the horticultural traits under study. These genotypes need further testing to be released as a substitute of already existing tomato varieties or these can be crossed with diverse genotypes of other clusters for the development of superior varieties /hybrids in tomato.

Key Words : Clusters, Diversity, Genetic variability, Quality, Tomato

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