



## Genetic variability, heritability and correlation studies in tomato genotypes (*Lycopersicon esculentum* Mill.)

CHANDAN SINGH AHIRWAR\*, VIJAY BAHADUR AND VINAY PRAKASH

Department of Horticulture, Allahabad School of Agriculture,  
Sam Higginbottom Institute of Agriculture, Technology and Sciences,  
ALLAHABAD (U.P.) INDIA

**Abstract :** Genetic variability, heritability, genetic advance and correlation for different yield contributing characters were studied in 19 genotypes of tomato. Significant differences were observed among the genotypes for all the traits. The phenotypic co-efficient of variation (PCV) was higher than genotypic co-efficient of variation (GCV) for all the traits. Traits like plant height 120 DAT, number of branches 120 DAT, number of fruits per plant, average fruit weight, number of cluster per plant, fruit set (%), radial diameter and polar diameter (mm), ascorbic acid (vita'C'), TSS (Brix), showed positive correlation with fruit yield per ha, plant height after 120 DAT, days to 50 per cent flowering, leaf curl incidence and intensity showed negative correlation at both phenotypic and genotypic level. Genetic advance at 5 per cent was found high for plant height after 120 DAT, number of fruits per plant, ascorbic acid and fruit yield per plant(g). Where as genetic advance as per cent of mean at 5 per cent was noticed high for all the traits except days to flower initiation and days to first harvest. Number of fruits per plant exhibited the highest positive direct effect followed by days to flower per cent, ascorbic acid content, plant height 120 DAT and fruit diameter at genotypic level. In view at the direct and indirect contributions of component traits towards fruit yield per plant, selection on the basis of horticultural traits viz., average fruit weight and number of fruits per plant would be a paying preposition in the genotypes included in the study.

**Key Words :** Tomato, GCV, PCV, Heritability, Correlation, Path analysis

**View Point Article :** Ahirwar, Chandan Singh, Bahadur, Vijay and Prakash, Vinay (2013). Genetic variability, heritability and correlation studies in tomato genotypes (*Lycopersicon esculentum* Mill.) . *Internat. J. agric. Sci.*, **9**(1): 172-176.

**Article History :** Received : 16.07.2012; Revised : 27.09.2012; Accepted : 15.11.2012

### INTRODUCTION

Tomato widely known as pepper is a member of family Solanaceae and is very important crop for vegetable. There is a good scope for increasing its export by pushing up production. In India especially, it is considered as a mint master for adding foreign exchange to the states have given it a good locus in the area of horticultural crops and hence, the breeder work for overall improvement of this crop for profitable returns. A wide range of variability in tomato is available which provide a great scope for improving fruit yield through a systematic and planned selection programme. The present investigation was conducted for selected 19 genotypes to determine the extent of genetic variability, genetic co-efficient, heritability, genetic advance and correlation of

different characters in tomato.

### MATERIALS AND METHODS

The field experiment was carried at the Vegetable Research Farm, Department of Horticulture, SHIATS, Allahabad. Seedlings of 19 genotypes of tomato were transplanted in a Randomized Block Design with three replications during 2011-12. Seedlings were transplanted in to the main field at 60cm row to row and 50cm between plant to plant spacing. All the recommended agro climatic package of practices were followed. Observation on five randomly selected plants of each plants of each genotype were recorded for 16 quantitative characters viz., plant height, number of branches per plant, number of leaves, flower per plant, cluster

\* Author for correspondence