



Studies on genetic variability in cherry tomato (*Solanum lycopersicum* var. *Cerasiforme*)

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ABSTRACT

Six cherry tomato genotypes were subjected to study the genetic components such as variability, heritability and genetic advance for growth, yield and quality traits. The analysis of variance indicated the prevalence of sufficient genetic variation among the genotypes from all the characters studied except plant height at 60 and 90 DAT. The high PCV and GCV were observed for average fruit weight (g), pericarp thickness of fruit (cm), fruit firmness (kg/cm²), shelf life of fruit (days), fruit yield per plant (kg), lycopene content (µg/100g), fruit length (cm), TSS of fruit (°Brix) and fruit width (cm). High heritability coupled with high genetic advance were observed for average fruit weight (g), days to 50 % flowering and high heritability coupled with moderate genetic advance were observed for plant height at 90 DAT (cm), days to first flowering, shelf life of fruit (days) and ascorbic acid content (mg/100g) indicating these characters are governed by additive gene action. Hence, direct selection may be followed for the improvement of cherry tomato for these characters.

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Key words : Cherry tomato, Heritability, Genetic advance

The present demand for tomato is based on the industrial requirement and ultimately the consumer preference. Therefore, the breeding programme should focus on need based research. Cherry tomato (*Solanum lycopersicum* var. *Cerasiforme*) is a botanical variety of there cultivated tomato or a smaller garden variety of tomato. It is thought the ancestor of all cultivated tomatoes and marketed at premium to ordinary tomatoes. It is generally considered to be similar but not identical to the wild relative of the domestic tomato.

It has become more popular all over the world because of its favorable characteristics such as good source of vitamin A and C, sugars, taste and low calories and fruit set even at high temperature. Hence, for the production of hybrids/ cultivars with better yield and quality having desirable/ marketable trades that meets the local and international standards, introduction, variability and selection of suitable genotypes are prerequisite. Therefore, the present study was undertaken to estimate variability, heritability and genetic advance, this study was taken up with 19 growth, yield and quality parameters in cherry tomato genotypes.

MATERIALS AND METHODS

In this experiment, six genotypes were used for the study. Out of six genotypes, five genotypes (Tomy Toe, Stupice Harry, Red Pear, Podland Pink and Broad Ripper) were collected from Asian Vegetable Research and Development centre (AVRDC), Taiwan and one genotype (EC-1) from University of Agricultural Sciences (UAS), Bangalore. The experiment was laid down out in a Completely Randomized Block Design (RCBD) with four replications in the year 2009-10 at the vegetable research block of the Department of Horticulture, UAS, GKVK, Bangalore. The analysis of variance for testing variation among the characters studied was estimated as per the procedure given by Panse and Sukhatme (1957). The phenotypic and genotypic coefficient variations were estimated as per Burton and Dewane (1953). Heritability estimates were assessed as per Falconer (1981) and genetic advance as per the method of Robinson *et al.* (1949).

RESULTS AND DISCUSSION

Analysis and variance revealed highly significant difference for almost all the characters studied indicating