Correlation and path analysis studies in green fruited brinjal

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ABSTRACT

Correlation and path analysis in 23 genotypes of green fruited brinjal indicated that yield per plant was closely associated with number of fruits per cluster, fruit index, average fruit weight and number of fruits per plant. Path analysis revealed positive direct effect on yield per plant through number of fruits per plant, average fruit weight, fruit index, days to first fruit harvest, number of primary branches and plant spread. Hence, these characters may be given consideration while making selection for the improvement of brinjal.

Key words : Brinjal, Correlation, Path analysis.

Brinjal (*Solanum melongena* L.) also called egg plant is one of the most common vegetable crops grown all the year round in the country. Yield is complex character and is jointly or individually contributed by many other traits. Selection for yield is more effective when it is based on component characters which are highly heritable and positively correlated. When more number of variables are considered in correlation the association becomes more complex and less obvious. The path analysis is useful under such circumstances. This gives clear picture of the direct and indirect effects of various traits on yield. Relationship with yield of eleven characters in green fruited brinjal was studied and is reported in this text.

MATERIALS AND METHODS

The experiment was laid out at Main Garden, University, Department of Horticulture, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, with 23 genotypes of brinjal. The transplanting was done on 20th July 2007 in randomized block design with three replications. The inter and intra-row spacing of 60 x 60 cm. Observations were recorded for eleven traits on ten randomly selected plants per replication for each genotype. Correlation coefficient was computed by using the formula of Johnson *et al.* (1955) and path coefficient by Dewey and Lu (1959).

RESULTS AND DISCUSSION

The phenotypic and genotypic correlation coefficients between different pair of characters presented in the Table 1 revealed higher estimates of genotypic correlation coefficients than the phenotypic thereby, suggesting an inherent association between various characters. The character yield per plant showed positive and significant correlation with number of fruits per cluster, similar findings were reported by Sharma and Swaroop (2000). Yield per plant had also positive and significant correlation with fruit index and average fruit weight at both genotypic and phenotypic levels. Similar results were reported by Ahmed *et al.* (1999). Yield per plant also showed positive and significant correlation with number of fruits per plant, similar results were reported by Ponnuswami and Irulappan (1994) and Mohanty (2001). The character plant height exhibited positive and significant correlation with plant spread, number of secondary branches, fruit index and average fruit weight at phenotypic and genotypic level. While plant spread showed positive and significant correlation with number of secondary branches at both levels. The days to first flowering showed positive and significant correlation with days to first fruit harvest at both levels, while it showed negative and significant correlation with yield per plant at both levels, this is in conformity with results reported by Kumar (1995). The character number of fruits per cluster exhibited positive and significant correlation with yield per plant at both levels. The trait fruit index had positive and significant correlation with average fruit weight and yield at phenotypic and genotypic levels. The character number of fruits per plant exhibited positive and significant correlation with number of marketable fruits per plant at both levels, whereas the number of marketable fruits per plant had positive but non-significant correlation with yield per plant at genotypic and phenotypic levels.

Path analysis have indicated the importance of yield