

Genetic variability and correlation studies in Okra (*Abelmoschus esculentus* (L) Moench.)

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ABSTRACT

Genetic Variability and Correlation Studies in Okra (*Abelmoschus esculentus* (L) Moench.) indicated that presence of considerable amount of genetic variability in the materials as well as of genotypic and phenotypic correlation among the various characters studied. The estimate of high heritability (bs) accompanied with high-expected genetic advance for fruit yield plant⁻¹ and plant height indicating the presence of additive gene action in the expression of these traits. The estimates of heritability (bs) were of high magnitude for green fruit yield plant⁻¹, plant height at harvest, days to maturity and number of internode plant⁻¹ indicating the major role of genotype and ultimately less environmental influence. The magnitudinal difference between PCV and GCV estimate was maximum for fruit length, number of fruits plant⁻¹ and fruit girth, and suggesting influence of environment on these traits. Days to 50 percent flowering and days to maturity are most important traits for exploiting earliness, which are significantly associated. Thus for increasing green fruit yield in okra due emphasis should be given to number of fruits, number of internodes, plant height and fruit length. All these characters had high heritability and highly significant positive association with fruit yield, which can be increased through selection in okra.

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Okra (*Abelmoschus esculentus* (L) Moench.) is one of the popular vegetables grown in India. It is especially valued for its tender green fresh delicious fruits, which are used as vegetable. Okra is rich in vitamins, calcium, potassium and other minerals. The mucilage of roots and stems of okra are used as clarifier in jaggery and brown sugar industry. The mature fruits and stem contains more crude fiber and are used in paper industry. It is therefore, felt necessary to evaluate these characters and their correlation with other component characters.

Good amount of variability has been reported in okra for various characters. However, their utilization in breeding programme resulted in identification and release of good number of genotypes in okra. While, these released varieties cannot be continued longer due to genetic drift and susceptibility to disease and pest. This demands replacement of old genotypes by many developed ones. Burton (1952) suggested that through genotypic coefficient of variation, the heritable variation couldn't be estimated, on other hand, genotypic coefficient of variation together with heritability would furnish most reliable information on the amount of genetic advance to be expected for selection.

MATERIALS AND METHODS

Eight diverse genotype of okra viz., Parbhani Kranti, Arka Anamika, Shagun, Duptari 45, Ankur 40, Versha Uphar, Hari Rani and Hissar Unnant were collected from senior vegetable breeder, All India Coordinated Vegetable Improvement Project, M. P. K. V., Rahuri and crossed in all possible combinations excluding reciprocals. The 28 F₁'s and eight parents were grown in a randomized block design with three replications at Botany Farm, College of Agriculture, Pune during *Kharif*, 2003. Each entry was sown in a single row of 4.5 m length with a spacing of 45 cm. between rows and 15 cm between plants. All the crop management and plant protection measures were carried out as per recommended package of practices. The observations were recorded on five random competitive plant for eight characters viz., Days to 50 percent flowering, days to maturity, plant height at harvest, number of internode plant⁻¹, fruit length (cm), fruit girth (cm), number of fruits plant⁻¹ and green fruit yield plant⁻¹.

The data collected was subjected to analyze the genetic variability parameters and correlation coefficient among different characters by following the procedure of Singh and Chaudhary (1977).

RESULTS AND DISCUSSION

The analysis revealed significant differences among the genotypes for all the characters presence of considerable amount of genetic variability in the materials under study. While, looking to the estimates of GCV and PCV (Table 1) it was observed that the GCV and PCV