Research Paper

Variability, heritability and genetic advances studies in okra [*Abelmoschus esculentus* (L.) Moench]

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ABSTRACT
Studies were conducted on genetic variability of 44 genotypes for fifteen quantitative characters of okra. The phenotypic variances for all the fifteen characters were found to be higher than the genotypic variance. High GCV and PCV was observed for plant height, inter-nodal length, first flowering node, first fruit producing node, height of first flowering node, average fruit weight and number of seeds per fruit. High heritability coupled with high GAM were observed for all most all the characters studied, except for days to 50% flowering and days to 80% maturity, which showed high heritability with low GAM. Plant height, average fruit weight, number of seeds per fruit and total yield per plant showed high genetic advance that helped in effective and reliable selection through these characters for further improvement in okra.

Key words : Okra, Genetic variability, Heritability, Genetic advance

Okra [*Abelmoschus esculentus* (L.) Moench] has been a popular vegetable crop in the tropics because of its easy cultivation, dependable yield, adaptability to varying moisture levels and resistance to diseases and pests. Its average nutritive value is higher than that of tomato, egg plant and most of the other cucurbits. It is an excellent source of iodine besides other minerals and vitamins. To improve yield and other characters, information on genetic variability is of great importance and is a prerequisite for the effective screening of superior genotypes. The progress in breeding for the economic characters that are mostly environmentally influenced is determined by the magnitude and nature of their genetic variability. Hence, it is essential to partition the overall variability into its heritable and non heritable components with the help of genetic parameters like genetic co-efficient of variation, heritability and genetic advance. The present study was, therefore, undertaken to determine the genetic variability for various characters to estimate the scope of advance for selection in okra.

MATERIALS AND METHODS

The experimental material comprised of 44 okra genotypes of diverse origin which were grown during *Kharif* season 2009 in Randomized Block Design with three replications at Indian Institute of Horticultural Research (IIHR), Bangalore, Karnataka. Recommended doses of fertilizers and cultural practices were adopted. Observations were recorded as per NBPGR minimal descriptors on randomly selected five plants from each of the genotypes for fifteen quantitative morphological characters *viz.*, Plant height (cm), inter-nodal length (cm), days to 50% flowering, first flowering node, first fruit producing node, height of first flowering node (cm), days to 80% maturity, stem girth (mm), fruit length (cm), fruit girth (mm), number of fruits per plant, average fruit weight (g), number of seeds per fruit, hundred seed weight (g) and total yield per plant (g). The mean values were subjected to statistical analysis (ANOVA) as suggested by Panse and Sukatme (1967). Phenotypic and genotypic co-efficient of variation (Burton and De-Vane, 1953), heritability, genetic advance (Johnson *et al.*, 1955) and genetic advance as per cent mean were calculated.

RESULTS AND DISCUSSION

The analysis of variance showed that, the variance due to treatments (genotypes) was significant (at P= 0.05) for all the traits studied (Table 1), indicating thereby the