

VARIATION STUDIES IN OKRA

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Accepted : November, 2007

ABSTRACT

The experimental material comprising the parental lines of okra viz., Pusa A-4, Punjab Padmini, Pusa Makhmali, Pusa Sawani, Arka Anamika, VRO-4, VRO-5, VRO-6 and IIVR-10 were observed for twelve characters pertaining to plant height, plant spread, number leaves, days to 50% flowering, fruit length, fruit diameter, number of ridges per fruit, hundred seed weight and yield per plant. Analysis of variances revealed significant differences among parents and crosses for all the characters except fruit diameter. The highest coefficient of variation (PCV=24.63, GCV=23.95) associated with high heritability (94.5%) and highest genetic advance as percent of mean (1.870) were observed for hundred seed weight.

Key words : Okra, PCV, GCV, Heritability, Genetic advance

Okra is an annual vegetable belonging to the family Malvaceae. It was domesticated from Ethiopia and distributed to all over the world, Joshi *et al.*, (1974). India is the largest producer of okra in the world. However, the area under F1 okra is presently 20,000 ha with a share of 5.38% foreign exchange earnings only. Further, it becomes necessarily important to increase the production and productivity to meet the country nutrition security which can be met by F₁ hybrids. Information on genetic parameters such as heritability and genetic advance among different characters of all the parents are important prerequisites to formulate a successful breeding strategy for crop improvement programme in bhendi.

MATERIALS AND METHODS

The investigation to determine the extent of variability, heritability and genetic advance for twelve characters in okra was carried out during the session 2002-2005. The ten genotypes included in the study were Pusa A-4, Punjab Padmini, Pusa Makhmali, Pusa Sawani, Arka Anamika, VRO-4, VRO-5, VRO-6 and IIVR-10. The recommended production technology and plant protection measures were followed periodically viz., applications of fertilizers, insecticides and pesticides. Analysis of variance for all the parameters of various treatments was tested by f-test (Snedecor and Cochran, 1967). Heritability estimates were calculated as per the formula given by Allard

(1960) and expected genetic advance as suggested by Johnson (1955).

RESULTS AND DISCUSSION

Results of analysis of variance (Table 1) revealed highly significant differences among the parents and crosses for all the characters except for fruit diameter and hundred seed weight. These results indicated that the material used in the study possessed considerable genetic variation.

All the characters showed high variability in the observed traits as it is evident from the estimates of mean, range of means, coefficients of variation, heritability and genetic advance for each character given in Table 2.

The spectrum of large variability for important characters will provide the breeder a good scope for the improvement in okra. Highest range of variation was exhibited by yield per plant and the lowest by fruit diameter. The number of fruits per plant and plant height also had substantial variation which led to variation in yield per plant. Similar results were also reported by Swamy Rao and Sathyarathi (1977) and Dhankar and Dhankar (2002). Also, Mishra and Chhankar (1979) indicated scope for improvement of these two characters by selection and breeding.

The cross Pusa A-4 x VRO-6 proved to be highest yielder (424.64 g) per plant. The mean estimates of associate characters influencing the yield like plant height, number of fruits per plant and fruit weight were also high in this cross. Second highest cross for fruit yield per plant was Arka Anamika x VRO-6 followed by VRO-5 x VRO-