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Variability in Okra

J. N. Patel and K. C. Dalal

Gujarat Agricultural University, Anand Campus, Anand-388 110

Okra, *Abelmoschus esculentus* L. Moench, is being grown as summer and monsoon crop for vegetable purpose in India. Very little work has been done for the improvement of this crop in Gujarat (Patel, 1982). The present investigation was therefore undertaken to study variability in pod yield and yield attributes of okra at the Plant Breeding Research Farm, Gujarat Agricultural University, Anand Campus, Anand.

The experimental material comprised of 7 randomly selected genotypes from the germplasm maintained by the farm and their 21 diallel crosses. The material was grown at 45 cm x 30 cm spacing in randomized block design with three replications. Each plot had two rows of ten plants each. End border rows were provided in each replication. Cultural practices in vogue on farm were followed.

Three plants per plot were selected at random for recording days to first flower, plant height and number of branches. The same plants were used for recording pod characters. The selected plants were inspected daily in the morning hours. The flowers which were found open on selected plants were labelled with date of opening of flower. The six days old pods developed from labelled flowers were harvested separately for the study of pod characters. The number of pods per plant, fresh pod weight (g), pod length (cm), pod girth (cm) and pod yield per plant (g) were recorded. The pod yield per plot was also recorded in kg. The average values were used in the analysis of data.

The results (Table 1) revealed significant variation among genotypes for all the traits studied. Significant genotypic effect indicated the presence of genetic variability governing the expressivity of different traits. It is interesting to note that days to first flower, plant height, branches per plant and number of pods per plant had larger mean squares for parents than those for hybrids. In case of pod characters, hybrids exerted larger variation than parents. The results on σ^2_g, σ^2_p and H^2 indicated that genotypic variance constituted major proportion of the total variance in plant height, number of pods per plant, pod yield per plant as well as per plot indicating that the expressivity of these traits depended on gene system. The expressivity of days of first flower and number of branches per plant was highly influenced by the environmental factors. The pod weight, pod length and pod girth though influenced by the environments had high genotypic variance as compared to error variance. Pod attributes had moderate heritability. These results are akin to those reported by Lal *et al.* (1977), Mishra and Chhonkar (1979) and Partap *et al.* (1990).

The pod yield, number of pods per plant, plant height number of branches per plant and pod weight had relatively high GCV. The PCV was maximum for number of branches per plant. The deviation between GCV and PCV was also maximum for number of branches per plant indicating that this character was influenced by environment. The narrow range of variability was observed for days to first flower and pod girth.

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TABLE 1

Analysis of variance (Part-I) and estimates of genetic parameters (Part-II) for different characters of okra.

Sources of variance	*Mean square for*								
	Days to first flower	*Plant height*	*Branches per plant*	*No. of pods per*	*Pod weight*	*Pod length*	*Pod girth*	*Pod yield per plant*	*Pod yield per plot*
					PART-I				
Replications	9.18*	173.96	0.98*	1.58	40.99	4.17	0.12	172.90	1.15
Genotypes	3.36*	1131.51*	0.17*	16.27*	37.00*	7.20*	0.19	19602.63*	11.64*
Parents (P)	4.36*	1482.03*	0.26*	19.35*	23.45*	5.88*	0.11	13349.79*	10.50*
Hybrids (H)	3.22	1052.47*	0.15	15.82*	42.91*	7.94*	0.22*	22009.67*	12.33*
P V/s H	0.17	609.14*	0.08	6.88*	0.00	0.37	0.02	8979.02*	4.64
Error	1.66	85.08	0.08	0.39	10.78	1.94	0.05	84.99	0.63
					PART-II				
$\sigma^{\wedge 2}_{g}$	0.85	523.21	0.05	7.49	13.11	2.62	0.07	9757.87	3.67
$\sigma^{\wedge 2}_{a}$	0.23	234.63	0.01	2.97	7.59	1.71	0.03	1579.47	0.38
$\sigma^{\wedge 2}_{s}$	0.61	288.59	0.04	4.97	5.51	0.92	0.04	8179.36	2.91
$\sigma^{\wedge 2}_{p}$	2.51	608.24	0.13	8.33	23.89	4.57	0.12	9842.62	4.30
H^2	0.34	0.87	0.38	0.95	0.55	0.57	0.58	0.99	0.85
GCV %	1.67	18.87	17.75	16.41	15.16	10.82	4.11	24.33	22.86
PCV %	2.87	20.35	28.62	16.81	20.61	14.30	5.39	24.44	24.29

Legend : * Indicates significant at 5 per cent level of significance.

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