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Short Communication

INHERITANCE OF SEED YIELD AND ITS COMPONENTS IN BLACKGRAM (*VIGNA MUNGO* L. HEPPER)

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The knowledge of the nature and magnitude of gene effects is essential in formulating effective selection procedures to improve polygenic characters. In the present study, generation mean analysis was used for detection and estimation of various gene effects governing seed yield and its components. Two diverse genotypes viz. KU 92-1 and PU 30 and their F_1, F_2, BC_1 and BC_2 generations grown in randomised block design with three replications were studied. Scaling tests were performed to detect nonallelic interactions and the gene effects were estimated using 6- parameter model.

Scaling test A or B or both were significant for all the characters indicating the presence of additive x dominance (j) type of digenic interaction. Scaling test C was significant for plant height, days to maturity, pods/cluster, pod length, seeds/pod, 100-seed weight and seed yield/plant indicating dominance x dominance(l) epistasis whereas scaling test D was significant for all the characters, except days to maturity, clusters/plant and seeds/pod, suggesting the presence of additive x additive (i) epistasis.

For plant height, additive (d) and dominance (h) effects along with i, j and l interactions were significant (Table 1). Similar results for plant height were reported [1]. For days to 50% flowering, additive, dominance and all the three interactions were significant in conformity with earlier findings [2]. For branches/plant, additive, dominance and additive X dominance effects were significant, in accordance with the observations of Singh *et al.* [3]. For clusters/plant, additive and additive x dominance effects were significant. This was in confirmity with Waldia and Dahiya [4]. All the gene effects were significant for pod length, 100-seed weight and seed yield/plant. Similar results were reported by Dasgupta[2] for 100-seed weight and by Singh and Singh[5] for seed yield. In the present study since both additive and nonadditive gene effects were significant for different characters, therefore, intercrossing in segregating generations and advancing the selection to later generations may be used to improve yield and its components in blackgram.

Table 1. Estimates of gene effects for different characters based on digenic epistatic model in the blackgram cross KU 92-1 x PU 30

Character	m	d	h	i	j	l	Epistasis
Plant height	44.66 ± 0.98**	9.00 ± 1.21**	28.35 ± 4.63**	16.68 ± 4.61**	13.33 ± 2.51**	-44.69 ± 6.30**	D
Branches/plant	8.66 ± 0.54**	3.00 ± 0.90*	8.02 ± 2.51*	4.68 ± 2.83	5.33 ± 1.90**	-5.35 ± 4.39	D
Days to 50% flowering	43.33 ± 0.72**	6.33 ± 0.86**	23.68 ± 3.46**	19.34 ± 3.35**	19.33 ± 1.94**	-35.35 ± 4.79**	D
Days to maturity	87.00 ± 1.24**	14.00 ± 2.26**	-2.00 ± 6.78	-16.00 ± 6.73*	34.67 ± 4.62**	2.65 ± 10.47	D
Clusters/plant	14.66 ± 1.44**	3.33 ± 1.58*	5.36 ± 6.61	-1.98 ± 6.57	6.99 ± 3.26*	7.97 ± 8.67	C
Pods/cluster	2.66 ± 0.27**	1.67 ± 0.38**	5.51 ± 137**	3.34 ± 1.33*	3.67 ± 0.86**	0.99 ± 1.99	C
Pod length	4.56 ± 0.07**	-0.83 ± 0.09**	6.08 ± 0.36**	3.82 ± 0.34**	-2.69 ± 0.28**	-5.99 ± 0.53**	D
Seeds/pod	5.33 ± 0.27**	2.67 ± 0.60**	6.33 ± 1.29**	2.66 ± 1.63	4.01 ± 1.27*	15.33 ± 2.74**	C
100-seed weight	4.23 ± 0.02**	1.97 ± 0.06**	13.15 ± 0.16**	10.46 ± 0.16**	4.84 ± 0.13**	-13.7 ± 0.27**	D
Seed yield/plant	7.80 ± 0.08**	-1.07 ± 0.19**	5.40 ± 0.50	1.18 ± 0.05*	-3.51 ± 0.38**	-6.55 ± 0.83**	D

*, **Significant at 5% and 1% levels, respectively.

D-Duplicate; C-Complementary

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