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Short Communication

Character Association Studies in Mung bean (*Vigna radiata* L.)

A.K. Sharma, P.R. Kothari, Ajit Singh Shekhawat and Brajendra Kumar
Department of Plant Breeding and Genetics, College of Agriculture, Bikaner 334 006, India

Correlation and path coefficient analysis are powerful tools to understand the inter-relationships of various attributes. Such understanding is of immense help in selection program for rapid genetic improvement. In present study attempt was made to asses the genetic variance and inter-relationships of various yield components and direct and indirect effects on seed yield in mung bean.

Thirty-seven genotypes of mung bean were raised in randomized block design with three replications during kharif 1995 at Agricultural Research Station, Mandor, Jodhpur. Each plot comprized of 4 m long row with a spacing of 30 x 10 cm. Observations were recorded on five randomly selected plants for days to 50% flowering, plant height, primary branches plant^{-1}, pods per plant, 100-seed weight and seed yield plot^{-1}. The data were used to compute variance as per the method suggested by Panse and Sukhatme (1961). Path coefficient analysis was worked out as per the method given by Dewey and Lu (1959).

The analysis of variance indicated significant variability for all the characters studied (Table 1). The highest phenotypic (PCV 43.06) and genotypic coefficient of variability (GCV 40.66) was observed for seed yield, followed by pods plant^{-1} and primary branches plant^{-1}. The lowest values of PCV (9.13) and GCV (7.80) were observed for days to 50% flowering. Such results were also reported by Renganyaki and Sreerengaswamy (1993). High estimates of heritability (91.48) were recorded for plant height, followed by primary branches^{-1} (88.57). The genetic advance as per cent

Table 1. Variability and heritability estimates in mung bean

Characters	Mean	Phenotypic coefficient of variation (%)	Genotypic coefficient of variation (%)	Heritability (%)	Genetic advance (% of mean)
Days to 50% flowering	41.63	9.13	7.80	72.96	13.73
Plant height (cm)	36.92	19.84	18.97	91.48	37.38
Primary branches/plant (No.)	5.45	21.71	20.43	88.57	39.61
Pods per plant (No.)	19.07	31.27	29.28	87.71	56.50
100-seed weight (g)	3.23	9.70	8.74	81.16	16.22
Seed yield per plot (g)	24.41	43.06	40.66	73.54	64.74

Table 2. Direct and indirect effects of different characters on seed in mung bean

Characters	Primary branches per plant	Pods per plant	100-seed weight	Correlation with yield
Primary branches per plant (No.)	*0.201*	0.140	0.070	0.411**
Pods per plant (No.)	0.104	*0.270*	0.078	0.452**
100-seed weight	0.074	0.110	*0.191*	0.375**

of mean was maximum for seed yield (73.54) and lowest for days to flowering (13.73). High heritability with high genetic advance as per cent of mean was noticed in seed yield, followed by plant height. Primary branches plant^{-1} and pods plant^{-1} exhibited additive gene action. Hence selection based on these traits would be more fruitful for crop improvement. Seed yield showed positive and significant correlation with primary branches plant^{-1}, pods plant^{-1} and 100-seed weight. These findings are in agreement with Singh and Pathak (1993). Relationship of plant height with pods per plant was positive and significant. It was also found that branches and pods plant^{-1} and 100-seed weight had positive and significant correlation. It indicates that simultaneous selection for these characters will help in improving the seed yield.

Results of path analysis showed that pods plant^{-1} had maximum positive direct effect on seed yield. Direct effect on primary branches plant^{-1} and 100-seed weight was moderate but positive (Table 2). Indirect effect on branches via number of pods per plant was highest and positive. From this study it is concluded that pods per plant would be the most important seed yield attributing trait of mung bean.

References

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