Studies on correlation and path analysis in mungbean (*Vigna radiate* (L) Wilczek)

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SUMMARY

Correlation and path analysis are important biometrical tools for getting information regarding inter-relationship among various traits for use in selection programme. In the present study, these parameters have been studied in19 diverse genotypes of mungbean (*Vigna radiata* (L) Wilczek). Estimate of correlation reveals the preponderance of genotypic values over the phenotypic ones. Number of clusters per plant and number of productive pods per plant exhibited significant and positive correlation with seed yield per plant. All the traits except plant height and number of productive branches per plant had higher magnitude of indirect effects than their direct effects on seed yield per plant. Number of productive branches per plant was recorded to have a direct significant contribution towards seed yield per plant. Hence it is suggested that more emphasis should be given on number of productive branches per plant while executing the selection for genetic enhancement of seed yield in mungbean.

Key words: Correlation, path analysis, mungbean

S eed yield is one of the most complex trait in any field crop. The expression of this largely depends upon the interplay of a number of components. Being this intricacy, the direct selection of seed yield is never effective for genetic enhancement of itself. A knowledge of correlation is always helpful in the short listing of desirable component traits in any plant breeding programme, while, the estimates of path analysis provides a concrete information on direct and indirect effects of different characters on seed yield. Hence, considering these points, the present investigation is aimed at estimating the correlation coefficients and direct as well as indirect effects of a number of yield components in mungbean.

MATERIALS AND METHODS

The experimental material consisting of nineteen diverse genotypes of mungbean was grown during the spring season of 1999 at research farm of CSK Himachal Pradesh Krishi Vishvavidyalaya, Research Station, Berthin (H. P.) . The material was planted in a randomized block design with three replications. Each plot consisted of three rows of 2.5 meter length with row to row and plant to plant spacing of 30 and 10 cm. respectively. Observations were recorded on five competitive plants in each plot for eight characters viz. plant height, number of clusters per plant, number of productive branches per plant, number of productive pods per plant, number of seeds per pod, 100 seed weight, biological yield per plant and seed yield per plant . Days to 50% flowering and days to 80% maturity were recorded on plot basis. The mean value of data were subjected to statistical analysis as per methods of Johanson

et al., (1955) to estimate the correlation coefficient and path coefficient respectively.

RESULTS AND DISCUSSION

The estimates of correlation coefficients (Table-1) revealed that at phenotypic level only two traits i.e. numbers of clusters per plant (0.717) and number of productive pods per plant (0.736) were found to have a significant positive correlation with seed yield per plant while ,at the genotypic level none of the traits could be observed to have a significant positive correlation among themselves as well as with seed yield per plant. Further ,at neither level no trait exhibited a significant correlation with seed yield per plant as well as with component traits. The inter- association study revealed that at the phenotypic level the number of clusters per plant and number of productive pods per plant were also observed to be significantly associated in positive direction (.710). Among other component traits the biological yield per plant showed positive association with clusters per plant (0.468) and with productive branches per plant (0.591). A similar association was also obtained for number of seeds per pod with days to 80% maturity (0.505) and plant height (0.500) the results on correlation aspects of present study are similar as those of earlier workers Khan (1991) and Wani *et al*., (1992) in mungbean.

Considering the seed yield per plant as the effect and nine component trairs as causes, the path coefficient analysis was done to find out the direct and indirect contributions of yield contributing traits towards seed yield in mungbean. The results of path coefficient analysis (Table

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