RESEARCH NOTE | *International Journal of Plant Sciences,* Vol. 6 Issue 2 (July, 2011) : 370-371

Genotypic and phenotypic variability in rice bean

M.M. DODAKE AND D.V. DAHAT

Received : January, 2011; Accepted : March, 2011

SUMMARY

The different 50 genotypes of rice bean were evaluated for 12 different characters including growth and yield attributes. Higher values of genotypic and phenotypic coefficients of variation were observed for harvest index, number of root nodules per plant, seed yield per plant, number of pods per plant and number of branches per plant. The lowest genotypic and phenotypic coefficients of variation were recorded for days to maturity.

Dodake, M.M. and Dahat, D.V. (2011). Genotypic and phenotypic variability in rice bean. *Internat. J. Plant Sci.*, **6** (2): 370-371.

Key words : Phenotypic, Genotypic correlation

Apart from tropical traditional pulses (*viz*., Chickpea, Pigeonpea) many other non traditional underutilized legumes such as winged bean, marama bean, rice bean etc. have gained attention as supplementary food crops. Rice bean is described as an annual or short term perennial. It is found in Eastern ghat, Western ghat, North Eastern Himalaya and it has become a potential crop in Central and Southern Indian hills (Arora *et al.*, 1980). Though, rice bean is grown since long, no significant achievements have been obtained in cultivar improvement. A successful progress in breeding depends on genetic variability present in population. The phenotypic expressions of the character are the result of interactions between genetic make up and the environment.

The present investigation was carried out at Botany farm, College of Agriculture, Pune-5. Fifty germplasm lines received from Officer In-charge, NBPGR, regional Station, Umiam (Meghalaya) were evaluated in replicated trial during *Kharif* 2006.

Fifty genotypes were randomly sown in three replications in each block. Each entry was represented by the row of 4.5 m length spaced at 45 cm between the rows and 15 cm between the plants within the row. The basal dose of 25 kg N and 50 kg P_2O_5 per hectare was applied to whole experimental area. The cultural practices like plant protection, weeding were followed as and when required during the growth period of the crop.

Twelve different characters were taken for statistical computations. The analysis of variance was done as suggested by Panse and Sukhatme (1985). The data were further subjected to analysis for genetic parameters *viz*., genotypic and phenotypic coefficient of variation (Burton, 1952), Heritability in broad sense (Burton, 1952) and genetic advance as percentage of mean was calculated by the formulae given by Johnson *et al*. (1955).

The estimate of GCV and PCV were magnitudinally higher than GCV for all the characters indicating the influence of environment on these traits (Table 1).

The highest GCV and PCV were recorded for the trait harvest index (24.67 and 30.60) followed by number of root nodules per plant, seed yield per plant, number of pods per plant and number of branches per plant. The lowest GCV and PCV were recorded for days to maturity (0.93 and 2.46).

This result confirms the finding of Das *et al*. (1997) for number of root nodules and Gadekar and Dhumale (1990) for seed yield per plant. Moderate GCV and PCV were observed for plant height at harvest. This result showed controversy with Kumar *et al*. (1996) for plant height. They observed high GCV and PCV for these characters.

Days to 50% flowering, days to maturity, pod length, number of seeds per pod 100 seed weight and shattering percentage had very low GCV and PCV estimates suggesting narrow range of variation for these characters. The earlier findings of Kumar *et al*. (1996), Jadhav (1996) and Chaudhari (1997) were similar to the present result.

The difference between GCV and PCV magnitude for days to 50% flowering, days to maturity, plant height

Correspondence to:
M.M. DODAKE, Department of Botany, Agriculture College, PUNE (M.S.) INDIA

Authors' affiliations:
D.V. DAHAT, Department of Botany, Agriculture College, PUNE (M.S.) INDIA