

Variability and correlation studies for seed yield and its components in *desi* chickpea

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SUMMARY

Evaluation of newly developed 36 *desi* chickpea (*Cicer arietinum* L.) genotypes indicated significant differences among the genotypes for all the characters. High variability was observed for 100-seed weight, pods per plant and seed yield per plant and low for days to 50% flowering, days to 80% maturity and plant height. High heritability and moderate genetic advance was registered by days to 50% flowering, days to 80% maturity and 100-seed weight. Seed yield showed significant positive association with pods per plant. Days to 50% flowering, days to 80% maturity and plant height also exhibited significant correlation but in negative direction.

Key words : Chickpea, Variability, Heritability, Genetic advance, Correlation.

Chickpea is an important pulses crop of India. India grows chickpea on about 6.67 million ha area producing 5.63 million tones of seeds, which represents 30% and 38% of the national pulses acreage and production. The knowledge of the nature and magnitude of genetic variability and the extent of association between yield and yield components is essential before launching breeding programme. Similarly, the estimates of heritability and genetic advance are helpful in selecting superior individuals. The component traits are not independent in their action but are interlinked and in this complex genetic system, selection practiced for an individual trait might subsequently bring about simultaneous change in the other. Thus the understanding of the association among component traits is essential to bring a rational improvement. Present investigation aim to assess the genetic variability and association of component traits among different genotypes.

MATERIALS AND METHODS

The present study was conducted under irrigated condition at Pulses Research Station, Junagadh Agricultural University, Junagadh. The material for the present study consisted thirty-four advanced genotypes of *desi* chickpea. These genotypes were evaluated in randomized block design with three replications during *rabi* 2005-06. Each genotypes was grown in four row of 4.00 m length with 45 cm and 10 cm spacing between rows and plants, respectively. Observations were recorded on plot basis for the character days to 50% flowering, days to 80% maturity, 100 seed weight (g) and seed yield (kg). Plant height and number of pods per plant recorded on randomly selected five plants for each genotype from

each replication. Data were used to compute components of variation (Panse and Sukhatme, 1985), coefficient of variation (Burton, 1952), heritability and genetic advance (Johnson *et al.*, 1955) and correlation coefficients (Miller *et al.*, 1958).

RESULTS AND DISCUSSION

The statistical analysis of the data revealed highly significant differences among the genotypes for all the characters (Table 1). The seed yield per plot ranged from 1.01 to 2.11 kg. Maximum seed yield was recorded in WCG 2000-07 (2.11 kg) followed by GJG 0305 (2.09 kg). Days to 50 % flowering ranged from 52.00 to 74.67 and genotype LBeG 10 had least number of days to 50% flowering. SAKI 9516 had least number of days to maturity (92.67). The plant height ranged from 39.20 to 52.00 cm. Maximum plant height (52.00 cm) was recorded in genotype GL 22067. The number of pods per plant ranged from 33.67 to 72.11 and IG 226 had maximum number of pods per plant. Hundred seed weight ranged from 11.16 to 27.37 and maximum value observed in BG 256.

The success of selection depends on the extent of genetic variability present in a population. Genetic parameters of variation, heritability and expected genetic advance as percentage of mean for yield and other traits are given in the Table 2. The present study showed high genotypic coefficient of variation for 100-seed weight, seed yield per plot, pods per plant and days to 50% flowering. These characters except pods per plant were also observed to be least influenced by the environment. Pods per plant showed very high environmental influence. Wide range of variability had been reported for seed yield

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