

Variability, heritability and genetic advance in okra [*Abelmoschus esculentus* (L.) Moench]

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ABSTRACT

Forty eight genotypes of okra collected from different part of the country were evaluated during summer 2007 to study the variability for different characters. The analysis of variance revealed significant differences among the genotypes for all the characters studied. The characters like number of nodes per plant, fruit yield per plant, fresh fruit crude protein content and plant height showed high GCV and PCV estimates. The closeness of these parameters indicated the less influence of environment in the expression of characters. Medium to high heritability was recorded for most of the characters studied. High estimates of heritability coupled with high genetic advance expressed as percentage of mean and high genotypic coefficient of variation were observed for number of nodes per plant, fresh fruit crude protein content, fruit yield per plant and plant height which may be attributed to the preponderance of additive gene action and these characters possess high selective value. Low value of these parameters were exhibited by days to 50 per cent flowering and days to first fruit picking indicating these characters were highly influenced by environments.

Key words : Variability, GCV, PCV, Heritability, Genetic advance, Okra

Okra [*Abelmoschus esculentus* (L.) Moench] is an annual warm season vegetable crop grown in tropical and subtropical regions of Asia, Africa and Latin America. In India, okra is cultivated in almost all the states. The future and prospects of any breeding programme depends on the extent of variability present in the population. Hence, assessment of genetic variability in the base population is the foremost step in any breeding programme. In present investigation attempt has been made to assess the variability of important yield and yield contributing traits, along with the indices of variability *i.e.* GCV, PCV, heritability (broad sense) and genetic advance (GA). This study will facilitate an understanding behind expression of character and also the role of environment therein

MATERIALS AND METHODS

Forty eight genotypes collected from different parts of the country were evaluated using Completely Randomized Block Design with three replications at Vegetable Research Station, Junagadh Agricultural University, Junagadh during summer 2007. Each genotype was accommodated in a single row of 4.5 m length. The row to row spacing of 60 cm and plant to plant spacing of 30 cm was adopted. The recommended packages of practices were followed for 13 traits were recorded on five randomly selected plants of each genotype and replication. The data generated was subjected to analyze

the variability through GCV and PCV as suggested by Burton (1952) and Allard (1960) for heritability (broad sense) and genetic advance (GA).

RESULTS AND DISCUSSION

The analysis of variance (Table 1) revealed significant differences among the genotypes for all the characters suggesting the presence of good amount of variation. The characters *viz.*, fruit yield per plant, 10 fruits weight and plant height recorded wide range of variation suggesting the presence of variability for these characters and also offers scope for selecting better variable genotype to exploit yield in okra.

While looking to estimates of GCV and PCV (Table 2), it was observed that the characters like number of nodes per plant, fruit yield per plant, fresh fruit crude protein content and plant height exhibited higher magnitudes of GCV and PCV estimates than rest of characters suggesting the presence of variability for these traits. The closeness of these parameters further suggested that a major portion of total variation was due to genetic cause and selection based on phenotypic performance would be rewarding for improvement of these characters. These results confirm the earlier findings of Dhall *et al.* (2001), Indu rani and Veeraragavathatham (2005) and Singh *et al.* (2007).

The GCV and PCV were moderate in magnitude