

# Genetics of pod yield and yield contributing characters in okra [*Abelmoschus esculentus* (L). Moench]

P.M. MISTRY AND P.S. VASHI

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## SUMMARY

The nature and magnitude of gene action was analyzed by six generation mean for pod yield and yield contributing characters in six inter varietals crosses of okra. The results revealed that both additive and dominance gene effects were significant for majority of the traits in all the six crosses studied, however the magnitude of dominance gene effects was much higher than the additive effects in all the crosses for majority of the traits which indicated pre-dominant role of dominance gene effects in the inheritance of yield/plant and its related traits. Study indicated that dominance gene effects for pod yield and yield contributing characters were of prime importance. All the characters recorded significant additive and dominance gene effect but the magnitude of dominance gene effect was higher. Among the non-allelic interactions, additive x additive and dominance x dominance were found significant, the opposite sign of (h) and (l) indicated that both the characters are controlled by duplicate type of epistasis. So, further improvement could be expected through bi-parental mating or reciprocal recurrent selection.

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**Key words :** Dominance gene effects, Additive effects, Six generation mean, *Abelmoschus esculentus* (L). Moench, Okra

Okra [*Abelmoschus esculentus* (L). Moench] is one of the important vegetables grown for its immature non-fibrous edible pods in tropical and sub-tropical parts of the world. Study of nature and magnitude of gene effects governing the inheritance of quantitative characters is of prime importance in formulating breeding methods used for crop improvement programme. In self pollinated crops an approach based on generation mean analysis has particular suitability as in addition to additive and dominance gene effect, it also estimate the types of epistasis present. In present investigation, an attempt has been made to estimate gene effects operative for control of pod yield and yield contributing characters by using six generation means in six inter varietals crosses of okra.

## MATERIALS AND METHODS

The experimental material in present investigation

comprised of six inter varietal crosses of okra viz., Parbhani Kranti x Pusa Sawani, Parbhani Kranti x GO<sub>2</sub>, Arka Anamika x Pusa Sawani, Arka Anamika x VRO<sub>5</sub>, Arka Abhay x HRB-55 and Arka Abhay x VRO<sub>6</sub>, their respective parents, F<sub>2</sub>'s, BC<sub>1</sub> and BC<sub>2</sub> populations. The material was grown in compact family block design with three replications on Agriculture Experimental Station, Navsari Agricultural University, Paria, Ta. Pardi, Dist. Valsad during summer-2007. The parents and F<sub>1</sub>'s consisted of one line of 3.0 m, BC<sub>1</sub> and BC<sub>2</sub> consisted of two lines of 3.0m and F<sub>2</sub>'s consisted of four lines of 3.0 m in each replication. The distance between two rows was 45 cm and within plants 30 cm. Recommended agronomical practices were followed for okra.

Five random competitive plants in each treatment in P<sub>1</sub>, P<sub>2</sub> and F<sub>1</sub>, ten plants in BC<sub>1</sub> and BC<sub>2</sub> and 20 plants in F<sub>2</sub> generation were selected for recording the observation.

Simple scaling test A, B, C and D of Mather (1949) was used to detect presence of the epistasis. Six parameter model given by Hayman (1958) used to obtained estimate of m, d, h, i, j and l parameters.

## RESULTS AND DISCUSSION

Before any model is fitted to estimate gene actions involved in yield and its components, scaling tests were performed as given by Mather (1949). The scaling tests

### Correspondence to:

P.M. MISTRY, Department of Soil and Water Management Research Unit, Main Paddy Research Centre, Navsari Agricultural University, NAVSARI (GUJARAT) INDIA  
Email : drpmmistry2510@yahoo.in

### Authors' affiliations:

P.S. VASHI, Department of Genetics and Plant Breeding, N.M. College of Agriculture, Navsari Agricultural University, NAVSARI (GUJARAT) INDIA