Research **P**aper

Combining ability for yield and yield components in okra [*Abelmoschus esculentus* (L.) Moench]

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Abstract : Combining ability analysis was carried out from F_1 and F_2 generations, involving 10 diverse genotypes in one-way dialllel in okra for fruit yield and its components. The estimates of variance components due to general (gca) and specific (sca) combining ability indicated that both additive as well as non-additive gene effects played an important role in the expression of most of the characters. The ratio of additive to non-additive genetic variance signified the predominant role of non-additive gene action in the expression of all the characters in F_1 and F_2 generations suggested that exploitation of hybrid vigour could be highly effective. Arka Abhay was good general combiner for fruit yield per plant and other attributes *viz.*, plant height, number of branches per plant and 10-fruits weight, in both the generations. The parents HRB-55 and Parbhani Kranti were also found to be good general combiners for earliness in both F_1 and F_2 generations. While GO-2, NOL-101 and Ajeet-121 were good general combiners for fruit length in both the generations. VRO-6 and HRB-107-4 combined well for 10-fruits weight and internodal length, respectively in both F_1 and F_2 generations. The hybrid JOL-1 x HRB-55 was found to be most promising for fruit yield per plant on the basis of *per se* performance and sca effects followed by JOL-1 x VRO-6 and followed by JOL-1 x VRO-6 and GO-2 x HRB-107-4 in F_1 generation whereas, Parbhani Kranti x NOL-101 in F_2 generation. The *per se* performance of the parents and hybrids would be a good indicator for predicting gca and sca effects, respectively.

Key words : Combining ability, Diallel cross analysis, Gca, Sca, Gene action, Okra

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Okra [*Abelmoschus esculentus* (L.) Moench] is an important vegetable crop, for both internal market and export purposes. It is grown for its tender green fruits during summer and rainy season through out India. The selection of parents is a matter of great concern to the breeders for developing superior varieties through hybridization. High yielding/superior genotypes can be identified based on the varietal trial. But it is not necessary that a high yielding genotype may transmit its superiority in its cross combination. The diallel cross analysis is one of the most useful techniques to get information on general and specific combining abilities that will be helpful in identifying the nature and magnitude of gene action involved in controlling quantitative traits. Thus, the present study was conducted to study the combining ability for fruit yield and its components in okra.

RESEARCH METHODS

Ten diverse pure-lines of okra *viz.*, JOL-1, AOL-99-24, GO-2, HRB-55, Parbhani Kranti, NOL-101, Ajeet-121, HRB-107-4, VRO-6 and Arka Abhay were crossed in a diallel mating fashion without reciprocals. The final experiment consisting of 10 parental lines, 45 F_1's and 45 F_2's was conducted in a randomized block design with three replications at Pulses Research Station, Junagadh Agricultural University, Junagadh during summer season of 2004. The parents and F_1s were sown in a single row, while F_2s were sown in three rows of 3 meter length with a spacing of 60 x 30 cm. Two guard rows were planted all around the experiment to avoid the border effects.