

Variability Studies in Certain Intervarietal Crosses of Bhendi (*Abelmoschus esculentus* (L.) Moench)

K. PALANIVELUCHAMY¹, C. R. MUTHUKRISHNAN², I. IRULAPPAN³

A line x tester analysis in bhendi revealed significant variability for all the six characters studied. The genotypic coefficient of variation for all the characters were low. Within crosses a moderate to low variability was evident. However, the crosses AE 719 x Ae 100, AE 599 x AE 180 and AE 593 x AE 180 could be exploited for further testing since they showed notable variability for economic traits.

The progress in breeding for economic characters depends on the magnitude and nature of their genotypic variability. The current interest in Okra improvement is towards the development of superior varieties for yield and related quantitative characters of polygenic inheritance. The present paper reports the results of a variability study involving 56 intervarietal crosses of bhendi.

MATERIAL AND METHODS :

The trial was conducted during January — May 1979, at College Orchard, Faculty of Horticulture, Coimbatore. Fifty six F₂s were raised from the selfed seeds of the F₁. The layout of the experiment was a randomized block design with seven replications. A population of 14 plants was maintained in each cross under each replication and thus a total of 98 plants were maintained for each cross.

Six characters, namely plant height (cm), number of branches per plant, fruit length (cm), fruit width (cm), number of fruits per plant and yield of fruits per plant (g) were observed.

The mean of the observations from individual plant were subjected to the method of analysis of variance.

Phenotypic and genotypic variances, phenotypic and genotypic coefficients of variation and coefficient of variability were worked out by standard methods.

RESULTS AND DISCUSSION :

The analysis of variance revealed that all the six characters studied have attained statistical significance at 1% level indicating the existence of a high magnitude of variability among the crosses. Arumugam and Muthukrishnan (1977) in a study on genetic variability of bhendi crosses, found that the

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1. Research Associate, Horticultural Research Station, Kodaikanal-3.

2. Nil Nadu Agricultural University, Coimbatore-3.

3. Head, Horticultural Research Station, Thadiyankudisai-624212.

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crosses differed significantly for six yield parameters. The phenotypic coefficients of variation for all the characters were higher than the genotypic coefficients of variation indicating the influence of environment. Among the six characters, fruit width recorded the highest genotypic coefficient of 34.9 per cent, while yield of fruits per plant registered the lowest variation of 10.1 per cent. Singh *et al.* (1974) also have noticed high phenotypic and genotypic coefficients of variation for the diameter of the fruit. However, Arumugam and Muthukrishnan (1977) and Mishra and Chhonkar (1979) reported low genotypic coefficients of variation for fruit width and high genotypic coefficients of variation for yield of fruits per plant.

The coefficient of variability was worked out for individual crosses in respect of all the six characters and the ranges are presented in the table. For plant height, the range of coefficient of variability was from 26.1 (AE 981 x AE 106) to 53.5 per cent (AE 593 x AE 142). The crosses AE 712 x AE 180 and AE 975 x AE 180 recorded the highest (55.0 per cent) and the lowest (9.1) per cent coefficient of variability for number of branches per plant. The

highest variability for fruit length (41.3 per cent) and fruit width (47.6) was recorded in the cross AE 593 x AE 180 whereas the lowest value (10.5 per cent) for fruit length was showed by the cross AE 981 x AE 106 and for fruit width (7.5 per cent) by the cross AE 722 x AE 142. For number of fruits per plant, the cross AE 599 x AE 100 showed the highest variability of 50.8 per cent, while the cross AE 824 x AE 180 showed the lowest variability of 25.3 per cent. The cross AE 719 x AE 100 showed the highest coefficient of variability with 65.2 per cent for yield of fruit per plant. This was followed by the cross AE 599 x AE 180 (54.2 per cent). The lowest coefficient of variability of 23.8 per cent was exhibited by the cross AE 593 x AE 100.

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Mean, Phenotypic and Genotypic coefficients of Variation and the range of coefficient of variability in the F₂ Generation Bhendi crosser.

	Plant height	Number of branches	Fruit length	Fruit width	Number of fruits per plant	Yield of fruits
Mean	99.9	2.3	15.1	1.9	21.6	405.7
Phenotypic coefficient of Variation (percent)	64.4	60.5	70.6	79.3	65.4	57.4
Genotypic Coefficient of variation (per cent)	32.2	26.5	20.9	34.9	29.0	10.1
Range of coefficient of variability	26.1—53.5	9.1—55.0	10.5—41.3	7.5—47.6	25.2—50.8	23.8—65.2
Promising hybrid combination(s)	AE. 593x AE. 142	AE. 712x AE. 180	AE. 593x AE. 180	AE. 593x AE. 180	AE. 599x AE. 100	AE. 719x AE. 100 AE. 599x AE. 180