# Correlation and path analysis studies in okra [*Abelmoschus esculentus* (L.) Moench]

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**ABSTRACT**

Investigation on interrelationship and path coefficient of thirteen quantitative characters using forty eight genotypes of okra was carried out at Junagadh during summer 2007. Correlation studies revealed that ten fruits weight, number of fruits per plant, fruit length, plant height and number of nodes per plant were the yield contributing characters. The positive association of fruit length and ten fruit weight with yield was due to their direct positive contribution. Interesting, number of fruits per plant had maximum indirect contribution via fruit length and ten fruit weight in building strong positive association with yield. Fruit shape index negatively correlated with fruit yield but showed high direct effect towards yield.

**Key words :** Correlation, Path analysis, Yield contributing characters, Okra

Okra is one of the popular vegetables of the malvaceae family. Its tender green fresh fruits are used as a vegetable. Sometime, it is also available in dehydrated and canned forms. Okra fruit is a good source of nutrients and minerals. Further, okra has a vast potential as one of the foreign exchange earner crops. For designing an affective plant breeding programme, adequate knowledge about the magnitude and direction of association of between yield and its component traits is essential. But, correlations do not provide an exact influence of the component characters towards the yield. In this context, path coefficient analysis is an important tool for the plant breeder in partitioning the correlation coefficient variables into direct and indirect effect of independent variables on the dependent variable like yield. Therefore, studies were undertaken to work out correlation and path coefficients among different characters.

## MATERIALS AND METHODS

The material for study was comprised of forty eight genotypes of okra. The experiment was laid out in completely Randomized Block Design with three replications at Vegetable Research Station, Junagadh Agricultural University, Junagadh during summer 2007. Each genotype was sown at 60 x 30 cm in a single row of 4.5 m length. All the recommended packages of practices were followed for raising healthy crop. The observations were recorded from five competitive plants from each replication on thirteen characters. Correlations of various biometrical characters were undertaken as per the procedure suggested by Al-Jibouri *et al*. (1958) along with

path coefficient analysis by Dewey and Lu (1969).

## RESULTS AND DISCUSSION

Genotypic and phenotypic correlations are presented in Table 1. Genotypic coefficient of correlation, in general, were greater in magnitude than the corresponding phenotypic ones, indicating that there was an inherent association among various characters and phenotypic expression of correlation was lessened under the influence of environment. Highly significant and positive correlation of fruit yield per plant with ten fruits weight, number of fruits per plant, fruit length, plant height and number of nodes per plant were observed at genotypic and phenotypic levels, indicating mutual association of these traits. It could be suggested from correlation estimates that yield would be improved through selection based either of these characters. Such positive interrelationship between fruit yield and these attributes have also been reported in okra by several researchers *viz*., Sood *et al*. (1995), Dhankhar and Dhankhar (2002), Bendale *et al*. (2003), Sharma *et al*. (2006) and Singh *et al*. (2007).

Significant and negative correlation was observed between fruit yield per plant and fruit shape index (it is a ratio of fruit girth and fruit length) indicating that yield was quite high if fruit girth was also high along with fruit length. In case of interrelationship of yield contributing characters like days to 50% flowering had only high significant and positive correlation with days to first fruit picking at genotypic and phenotypic levels indicating less time required for first fruit picking which is helpful to the growers to sale the produce at higher price in the market.