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

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ABSTRACT

Correlation and path coefficient analysis conducted on 10 okra hybrids at Department of Horticulture, Marathwada Agricultural University, Parbhani during *Kharif* 2009 and data were recorded for height of plant, number of functional leaves per plant, leaf area, days to flower initiation, days to 50% flowering, days for first picking, first fruiting nodal position, weight of fruit, number of seeds per fruit, number of fruits per plant, average length of fruit, average diameter of fruit and marketable yield per plot. Green pod yield was positively and significantly correlated with number of fruits per plant, leaf area, number of functional leaves and plant height, whereas it had negative and non-significant association with length of fruit, diameter of fruit, days to flower initiation and seeds per pod. Hence, direct selection for fruit per plant is suggested for getting yield per plant.

Key words : Correlation, Path analysis, Okra, Yield

INTRODUCTION

Okra is an important vegetable crop grown for its tender pods in tropics, subtropic and warmer parts of temperate region. It is a potential export earner and provides high returns to the farmers. Information regarding association of characters like growth, flowering, yield, quality and its component is very useful for plant breeder in developing commercial hybrids. Many of these characters are interrelated in desirable and undesirable direction. Correlation study measures the mutual relationship between various characters and helps in determining the component characters on which selection can be based for improvement in yield. The implication of correlation studies becomes more evident when correlations are partitioned into its component in path analysis in order to determine the relative magnitude of various attributes contributing to correlation. Hence, an attempt has been made in the present investigation to study the association of different traits and its direct and indirect contribution towards yield.

MATERIALS AND METHODS

Ten okra hybrids were raised in a Randomized Block Design with three replications at the field of Department of Horticulture, Marathwada Agricultural University, Parbhani during *Kharif* season of 2009. The treatments which were under study as given below: T_1 (Mahabeej-913), T_2 (Mahyco-10), T_3 (Syngenta 016), T_4 (Rasi 20), T_5 (Sleek), T_6 (Soh 136), T_7 (Prerna), T_8 (Rashmi), T_9 (BSS 828) and T_{10} (Parbhani Kranti). Observations regarding growth, flowering, yield and quality were recorded. Height of plant, number of functional leaves per plant and leaf area were recorded at 30, 60 and 90 DAS. The data were subjected to statistical analysis as per the method suggested by Panse and Sukhatme (1967). Correlation coefficients were evaluated as per the analysis of variance and covariance as described by Singh and Choudhari (1977) and path analysis as suggested by Dewey and Lu (1959).

RESULTS AND DISCUSSION

In the present investigation inter-character correlation coefficients were estimated at genotypic level (Table 1). The genotypic correlations of marketable green fruit yield per plot were positive and significant with number of fruit per plant, leaf area, number of functional leaves and plant height. It had also positive but non-significant correlation with days regarding for first picking, weight of pod, days to 50% flowering and first fruiting nodal position, while negative correlation with length of pod, diameter of pod, days to flower initiation and seeds per pod. Similar results were obtained by Yadav (1996), Jaiprakashnarayanan and Mulge (2004) for number of fruits per plant, plant height and length of fruit, Ajmal *et al.* (1979), Maksoud *et al.* (1986), Dhankar and Dhankar (2002) for days for initiation of flowering.

Path coefficient is an important method for estimating the association between traits with cause and effect *i.e.* the direct and indirect basis of association. The results of path coefficient analysis (Table 2) revealed that number

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