RESEARCH ARTICLE

Indentification of genetic divergence in okra genotypes [*Abelmoschus esculentus* (L.) Moench]

■ **K.V. VIJAYA KUMAR, K.T. VENKATESHA, M. ASIF, E. GANGAPPA AND M. PITCHAIMUTHU**

SUMMARY

Using Mahalonobis D^2 statistic and Tocher method, 166 germplasm lines were grouped into 18 divergent clusters. Clustering pattern was not associated with geographical region of genotypes. Hence, Geographical separation may not be referred as index of genetic diversity. Yield per plant, Mean inter-node s length and nodes per plant contributed largely for total divergence, revealing ample scope for improvement of these traits. Maximum number of genotypes were congregated in cluster XVIII followed by cluster I. the highest inter cluster distance between cluster I and cluster XVIII emphasized the possibilities of getting high heterotic F_1 hybrids as well as transgressive segregants in advanced generations for different traits , when hybridization is carried out involving genotypes between these two divergent clusters.

Key Words : Intra and inter clusters distances, Intra and inter clusters divergence and per cent contribution

O kra [*Abelmoschus esculentus* (L) Moench.] an annual, often cross pollinated crop belongs to the family Malvaceae; it is an important vegetable crop of the tropics and subtropics of the world. It has found its place in India since time immemorial. Okra is also referred as gumbo, lady's finger and bhendi.

The D^2 statistic is a tool to evaluate large number of germplasm lines for their genetic diversity and helps to identify genetically divergent parents for utilization in hybridization programmes, as hybridization between lines of diverse origin display a greater magnitude of heterosis than those between closely related strains. Roy and Panwar (1993) suggested that

the magnitude of resulting heterosis was largely depended on the degree of genetic diversity in parental lines. Multivariate analysis with Mahalonobis D^2 statistics is a powerful tool to know the clustering pattern to establish the relationship between genetic and geographic divergence Dhaduk *et al.* (2004) and to determine the role of different quantitative characters towards the maximum divergence (Murthy and Arunachalam, 1966).

MATERIALS AND METHODS

The material for the study comprised of 166 collections of okra genotypes. The details of the genotypes used in the present study are given in Table A. Field evaluation of the genotypes was carried out at vegetables section in Department of Horticulture, UAS, GKVK, Bengaluru, during *Kharif* 2008. The observations for the present study were recorded on 11 characters, *viz.,* Yield and its attributing characters such as days to 50 per cent flowering, Plant height (cm), Primary branches per plant, nodes per plant, inter-node length (cm), green pods per plant, Fruit length (cm), Fruit diameter (cm), Number of ridges per fruit, Average fruit weight (g) and green fruit yield per plant (g). Observations were made on five randomly selected competitive plants per treatment in each

━━━━ **MEMBERS OF THE RESEARCH FORUM** ━━━━

K.T. VENKATESHA, Department of Genetics and Plant Breeding, University of Agricultural Sciences, G.K.V.K., BENGALURU (KARNATAKA) INDIA
Email: venki5441@ gmail.com

Address of the Co-authors:
K.V. VIJAYA KUMAR, M. ASIF AND E. GANGAPPA, Department of Genetics and Plant Breeding, University of Agricultural Sciences, G.K.V.K., BENGALURU (KARNATAKA) INDIA

M. PITCHAIMUTHU, Division of Vegetable Crops, Indian Institute of Horticultural Research, Hesaraghatta, BENGALURU (KARNATAKA) INDIA