



## Genetic divergence in cucumber (*Cucumis sativus* L.)

A.G. GAIKWAD, S.S. DHUMAL, H.G. SONAWANE AND A.M. MUSMADE

See end of the article for authors' affiliations

Correspondence to:

**S.S.DHUMAL**

Department of Horticulture,  
Mahatma Phule Krishi  
Vidyapeeth, Rahuri,  
AHMEDNAGAR (M.S.)  
INDIA  
Email : sangram1326@  
hotmail.com

### ABSTRACT

A study of genetic diversity in 18 genotypes of Cucumber for various characters revealed substantial differences for all the characters. The accessions were grouped into 8 clusters with Cluster-A and Cluster-B comprising of 5 genotypes each followed by Cluster F (3). The maximum intercluster distance ( $D= 11.24$ ) was observed between F and H. Intercrossing among the genotypes belonging to Cluster-C, D, F, G and H was suggested to develop high yielding varieties with other desirable characters

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**Key words :** Genetic, Divergence, Cumber, Genotype

Cucumber (*Cucumis sativus* L.) is one of the earliest maturing important vine crops belonging to the family cucurbitaceae. As cucumber is thought to be indigenous to India. India is endowed with the wealth of cucumber germplasm, comprising of both wild and cultivated forms. Due to continuous cultivation of this cross pollinated crop large variation has occurred for fruit and vegetative characters. Any plant breeding programme needs clear understandings of the existing genetic divergence in the available population. Crosses involving genetically divergent parents were expected to show a broad spectrum of genetic variability, would increase the range of frequency distribution and provide better chance for improving the economic characters under consideration and greater scope for isolating the transgressive segregates in the advanced generation. In the present study, an attempt was made to obtain such information in cucumber.

### MATERIALS AND METHODS

Eighteen genotypes of cucumber were grown in Randomized Block Design with two replications at All India Coordinated Vegetable Improvement Project, Mahatma Phule Krishi Vidyapeeth, Rahuri, during summer 2006. Sowing of seeds was done, on the top of

ridges. The ridges were prepared by keeping the distance of 2.0 m between two ridges. The distance between two vines were kept 0.5 m. Each genotype consisted of a single row of ten vines. Observations of five plants in each row were recorded for thirteen quantitative characters viz., days to appearance of first male and female flower, node number at which first female flower appeared, days to first harvest, number of fruits per vine, weight of fruit(gm), length of fruit(cm), diameter of fruit(cm), thickness of flesh (cm), core diameter(cm), yield per vine(kg), final vine length(cm) and PDI for downy mildew (%). Multivariate analysis was done utilizing Mahalanobis  $D^2$  statistics (Mahalanobis, 1936) and cultivars were grouped into different clusters following Tocher's method as described by Rao (1952).

### RESULTS AND DISCUSSION

The analysis of variance revealed highly significant differences among eighteen cultivars for all thirteen characters, indicated that large variability existed among the cultivars and further analysis of genetic divergence is reasonable. On the basis of the Tocher's method of  $D^2$  estimates. Eighteen cultivars were grouped into eight clusters (Table 1). Out of these eight clusters, cluster A and B were the largest having 5 genotypes each which