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## Studies on genetic divergence for yield and yield attributing traits in sesame (*Sesamum indicum* L.) germplasm

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**Abstract :** One hundred and thirty one germplasm accessions were used to assess the nature of genetic diversity in sesame, *Sesamum indicum* L. cass by using Mahalanobis D<sup>2</sup> statistics using all the six characters studied. Seed yield, plant height and seeds per capsule were observed to be the major contributors to the genetic divergence in the germplasm. Grouping of genotypes into clusters using Tocher's method resulted in formation of eight clusters. Maximum intracluster distance was shown by cluster IV while cluster II and VI showed highest inter cluster distance suggesting wide diversity and by utilization of these accessions from these clusters desirable segregants may be evolved through hybridization. Cluster VII exhibited highest means for seed yield and number of capsules per plant. Cluster VIII exhibited highest means for plant height and number of branches per plant. Seed yield contributed maximum to the diversity which is given greater importance in selection of potential parents.

Key Words : Cluster, Genetic diversity, Genotypes, Sesame, D<sup>2</sup> statistic

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## INTRODUCTION

Sesame (Sesamum indicum L.) is an important oilseed crop with 45-54 per cent oil and 20-25 per cent protein. It is rich in minerals too, as it contains good amount of calcium and phosphorus and high level of unsaturated fatty acids. It is cultivated both in tropical and subtropical region. Among the sesame growing countries in the world, India ranks first in area (17.5 lakh hectares) and production (7.39 lakh tones). The success of any crop improvement breeding programme essentially depends on the nature and magnitude of genetic variability present in the crop. Greater success can be achieved through judicious choice of parents for hybridization based on genetic divergence. Therefore, the present investigation was carried out to have detailed knowledge of genetic diversity among the diverse genotypes in sesame, the basis of which would help in selection of superior and desirable genotypes to utilize them in the breeding programme. Crosses between divergent parent usually produce greater heterosis than those between closely related ones (Moll and Stuber, 1971).

## MATERIALS AND METHODS

The material for the present investigation consisted of 131 germplasm lines of sesame obtained from Project Coordinating Unit, All India Coordinated Research Project on Sesame and Niger, Jabalpur, Madhya Pradesh. They were grown at Main Agricultural Research Station, University of Agricultural Sciences, Dharwad, in a augmented unreplicated design during *Kharif* 2009 and 2010. Each line was sown in two row of 4 m length with a spacing of 30 cm x 15 cm, recommended dose of fertilizers and agricultural practices were applied to raise the crop.

Five plants were chosen randomly in each strain to record observations on six characters *viz.*, seed yield (kg/ha), number of capsule per /plant, plant height (cm), number of branches / plant, days to flowering and days to maturity. Of the several