



## RESEARCH PAPER

# Analysis of genetic diversity in gladiolus (*Gladiolus hybridus*) by multivariate analysis under sub-tropical conditions of Punjab (India)

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**Abstract :** The present study was under taken to analyze the genetic diversity in fifty seven genotypes of gladiolus through multivariate analysis. The genotypes were grouped into five different clusters with highest inter cluster distance reported between IV and V and lowest between II and IV. The highest intra cluster distance was observed within cluster II and lowest within cluster V. Based on cluster means, the important cluster was observed to be cluster IV for leaf breadth, number of days taken to sprouting, heading, colour bud show and opening of first floret, stem, spike and rachis diameter, equatorial and polar diameter of corm and spike length and cluster III for leaf length, number of leaves per plant and durability of floret. Hence, selection of parents from clusters III and IV could be utilized for hybridization with parents of other clusters to achieve more improvement in vigour and yield. The results of principal component analysis showed that first 3 principal component axes explained 68.77 per cent of total variation in the germplasm. The greater part of this variation was loaded from equatorial and polar diameter of corm, days taken to opening of 1<sup>st</sup> floret and colour bud show, spike and stem diameter.

**Key Words :** Gladiolus, Genetic diversity, Mahalanobis D<sup>2</sup> static, Principal component analysis

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