

Genetic divergence for quality and yield characters of gladiolus (*Gladiolus hybridus*. Hort) among the parents and hybrids in diallel cross

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ABSTRACT

An experiment was conducted to study the diversity of growth and flowering traits during 2005 to 2007 utilizing seven varieties viz., American Beauty, Sylvia, Melody, Summer Sunshine, Vedanapoli, Magic and Priscilla and their 21 F_1 's which were evolved by following half diallel analysis. The results indicated that the hybrids American Beauty x Summer Sunshine, American Beauty x Vedanapoli, American Beauty x Priscilla, Melody x Summer Sunshine, Summer Sunshine x Vedanapoli, Summer Sunshine x Priscilla, Vedanapoli x Priscilla were found to be promising for various quality characters and Sylvia x Vedanapoli, Sylvia x Priscilla, Melody x Summer Sunshine and Vedanapoli x Magic were found to be promising for flower and corm yield.

Key words : Diallel, Genetic divergence, Quality, Yield, Gladiolus.

Gladiolus (*Gladiolus hybridus*. Hort) is an important bulbous cut flower crop and it is famous for its keeping quality and in exhaustive range of colours of spike. Modern gladiolus hybrids that are being cultivated seems to have developed genetically from 23 sps. (Arora *et al.*, 2002). Among the cut flower industry, gladiolus occupies fourth place in the international cut flower trade (Bose and Yadav, 1989). The spikes of gladiolus are mainly used for interior decoration and for making bouquets. There are many excellent varieties of gladiolus with magnificent inflorescence, different shades, varying number of florets and size, wide range of keeping quality and adaptability.

In gladiolus the most common method of improvement is through hybridization. Since the gladiolus is highly heterozygous (Misra and Saini, 1990), it becomes more essential to evaluate the wide germplasm before adopting hybridization programme to exploit the wide range of diversity for growth and flowering traits.

MATERIALS AND METHODS

An investigation was carried out on seven gladiolus variety which represents diverse morphological characters. These varieties are crossed by following half diallel method and also the same varieties were selfed. The seeds were sown in seed beds and the material was carried to four cycles in order to obtain required size of corms. 21 hybrids along with parents were planted during January 2007 at the polyhouse at Kittur Rani Channamma

College of Horticulture (University of Agricultural Sciences, Dharwad), Arabhavi in randomized block design with two replications in raised beds with spacing of 30 x 20 cm. The data were collected from five randomly selected plants from each parents and F_1 's. Observations on different growth and flowering parameters were recorded and statistically analyzed to find out the significance of differences, if any (Cochran and Cox., 1964).

RESULTS AND DISCUSSION

The analysis of variance for treatment revealed that all the quality and yield characters were found significant indicating the diversity in the material used for the study (Table 1). In gladiolus, spike length is one of the most important trait and in the present investigation the parents Summer Sunshine and Priscilla produced longer spikes (91.35 cm and 90.38 cm, respectively). While the hybrids American Beauty x Vedanapoli recorded longest spike length (102.70 cm) followed by Melody x Summer Sunshine (100.11 cm), Summer Sunshine x Priscilla (99.21 cm) and Vedanapoli x Priscilla (95.60 cm). Where as, the shortest spike length was observed in Sylvia x Melody. The range for spike length varies from 67.26 to 102.70 cm. Similar wide range of spike was recorded by Sindhu and Verma (1995), Lal *et al.* (1984) and Misra (1997).

The maximum length of rachis (39.74 cm) was recorded by Summer Sunshine followed by Melody (37.83 cm) and Vedanapoli (37.22 cm) and in the hybrids, Melody x Summer Sunshine recorded maximum rachis length (41.14 cm) followed by Summer Sunshine x Priscilla