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Path coefficient analysis studies in gladiolus

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Abstract : Path coefficient analysis was worked out for spike length and number of florets per spike in twelve genotypes of gladiolus (*Gladiolus x hybridus* Hort.). Plant height and rachis length exhibited direct effect on spike length; while spike length, rachis length and plant height had direct influence on number of florets per spike. Improving plant height and rachis length can bring about improvement in spike length. Similarly, improvement in spike length, rachis length and plant height directly increased number of florets per spike.

Key words : Gladiolus, Number of florets per spike, Path coefficient, Spike length

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Gladiolus (*Gladiolus x hybridus* Hort.) is an important bulbous cut flower for beauty and perfection. It is a popularly known as 'Queen of the bulbous flowers' because of attractive spikes, having florets of different colours and longer keeping quality. It is very popular for interior decoration and flower arrangements due to its impressive and vibrant coloured spikes which are in great demand in both domestic and international markets. Development of high yielding varieties with better quality blooms has been main objective of most of the breeding programmes. Heritable traits of yield and flower quality are complex characters and are known to be collectively influenced by various polygenically inherited traits which are highly vulnerable to environmental effects. Hence, for an effective and efficient selection of genotypes in gladiolus for yield and quality parameters, the knowledge of direction and magnitude of association between yield and its components and quality components and within components themselves become necessary. The path coefficient analysis method splits the correlation coefficients into direct and indirect effects which help in assessing the relative influence of each important character on the ultimate yield and flower quality. With this background information, a study on path coefficient analysis was undertaken in gladiolus.

RESEARCH METHODS

A field trial on twelve genotypes of gladiolus was conducted at the Research Farm of Department of Floriculture and Landscaping, College of Horticulture and Forestry, Jhalarapatan, Jhalawar (Rajasthan) during 2008-09. The experiment was laid out in randomized block design (RBD) with three replications. Healthy and uniform size corms of 3-5 cm diameter were planted at 6-8 cm depth in plots of 1.55 m x 1.10 m size at spacing of 40 cm between rows and 25 cm between plants. The data on plant height, number of leaves, days to slipping, rachis length, leaf area, spike length, size of floret, corm diameter, corm weight, cormels weight per plant, number of florets per spike, spike diameter, number of florets remaining open at one time, size index of corm and number of shoots per plant were recorded on five randomly selected plants. Path coefficient analysis was carried out using phenotypic correlation coefficient for spike length and number of florets per spike as dependent variables as suggested by Wright (1921) and illustrated by Dewey and Lu (1959).