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# Effect of Sulphosalicylic acid on membrane stability and vase life of cut spikes of gladiolus genotypes

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SUMMARY
Solution culture studies were carried out on gladiolus cut flowers to evaluate the influence of sulphosalicylic acid on membrane stability and vase life of flowers. All the vase solution showed superiority over control. Sulphosalicylic acid phosphorus + sucrose 4% significantly improved membrane stability in gladiolus cut flowers. Resulted vase life of cut flower extended 4.80 days to 12.00 days. However, among cultivars Sunayana showed best performance in respect of MSI and vase life of cut gladiolus.

Key words : Sulphosalicylic acid, MSI, Vase life cut flower, Sucrose, Vase solutions.

The cut flowers of gladiolus besides for home consumption can be exported to Europe, experiencing winter season when its difficult to grow outdoor and similarly corms of superior grades may also exported as the production of corms and cormels for domestic and foreign requirements has now assumed wider importance globally. Growth and yield performance of a crop basically depends upon the number of metabolic processes which are greatly influenced by a genotype and environment comprised of the weather conditions and also by edaphic factors, where a plant is growing. Therefore, a genotype having high productive potential can produce a desirable trait under favourable environment. Therefore, it is must to screen varieties/cultivars suited to particular locality before recommending them for commercial production at large scale as certain varieties perform well under one particular agro-climatic conditions while some others performs well under other set of conditions, except few, which perform well in all sets of climatic conditions. On the other hand, being highly heterogeneous in nature gladiolus do not perform as stable in the consequent generations. Hence, needs manipulation at agro-technique level for efficient increase in the production and productivity.

In Angiosperms the term flower senescence rarely relate to flower as a whole but more particularly to those parts of flower which are regarded' as attractive i.e. the petals or perianth parts. However, petals are often the plant organ with the shortest life span and as such provide a useful tissue of study in the mechanism underlying control of senescence. It is usually the life span of petals, which determine the effective life of flower. This regulation of petal senescence is of great interest to agriculturist for improving the post harvest longevity of cut flowers. Therefore, the physiological studies on petal senescence should provide insights into the mechanism controlling petal senescence (Mayak and Halevy, 1980) and methods to improve the post harvest longevity of cut flowers.

The senescence of flower petals is associated with a series of physiological and biochemical changes. These include an increase in hydrolytic enzymes, degradation of macromolecules, increased respiratory activity and loss of cellular compartmentalization. Many of these processes are highly regulated and are the results of active metabolism (Mayak and Halevy, 1980).

Senescence in plant is characterized by loss of membrane integrity. This is evident from both progressive and ultrastructural deterioration of the cell and increased leakage of solutes. Of the various postulates concerned with the initiation of senescence in petals, the involvement of free radicals has attracted considerable attention.

## MATERIALS AND METHODS

Spikes of four cultivars Vandana, Suryakiran, Chandani and Sunayna were produced at CCR (P.G.) College Muzaffarnagar for the present work.

The cut spikes of gladiolus were transferred in the vase solution T1 = control, T2 = STS (1 mM), T3 = Sucrose (4%), T4 = Sulphosalicylicacid (100 ppm) T5 = Sulphosalicylic acid (100 ppm) + sucrose (4%) and T6 = STS + sucrose (4%). The observation was recorded on 2, 4, 6, 8 and 10 days after transplanting of spike on membrane stability and vase life of cut gladiolus. The membrane stability index was measure in the fully opened petals using conductivity bridge (CM-180. Conductivity metre, Elico Pvt. Ltd, Hyderabad).

## RESULTS AND DISCUSSION

The data pertaining to membrane stability index of flower petals differ significantly among cultivars. Cultivars Sunayna had lowest stability index followed by Chandni, Suryakiran and Vandana had higher membrane stability index in both the years. There was no significant differences in MSI among stages during their early developmental period but showed high significance at later phases of development in flower kept in both control and treated vase. The flowers maintained high MSI (80%) until they are fully opened (stage IV). There was a sharp decline in MSI after IV$^{th}$ stage till senescence. The MSI at VI$^{th}$ stage was only 39.5% which has declined by 42.28%. The flowers treated

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