

Effect of floral preservatives on vase life of gladiolus (*Gladiolus grandiflorus* L.)

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ABSTRACT

During the present study conducted on White Prosperity gladiolus, the treatment of 4% sucrose +250 ppm 8-hydroxy quinoline citrate tended to increase the days to basal floret opening (4.72 days), floral size (12.76 and 14.58 cm) of fifth and second floret, respectively, length of spike (9.84 cm), vase life (10.07 days), vase solution uptake (31.30 ml) and longevity of first five florets was registered to be the highest in spikes treated with 4 % sucrose + 300 ppm $Al_2(SO_4)_3$. The minimum values for these traits were recorded in untreated control.

Key words : Vase life, Gladiolus, Preservatives, $HgCl_2$

Gladiolus (*Gladiolus grandiflorus* L.), the queen of bulbous flower grown in many parts of the world for cut flower, garden display, maintaining ecological balance and checking pollution in the atmosphere. It plays vital role in making environment beautiful and refresh mind of human beings. Flowers have become an integral part of our trade. About 45 % of world trade floricultural products go to cut flower. Gladiolus occupies 4th place in international market for floricultural trade (Bose and Yadav, 1989). There are more than 30000 commercial cultivars of gladiolus who have developed through natural and man made crosses involving about two dozen species. It is being grown throughout India on around 1270 hectare area. In India, it occupies prime position in floriculture industry and ranks next to rose.

In cut flower industry, the most important aspect is post harvest handling in order to maintain flower freshness and original colour of the flower for longer period after cutting from the mother plant. Two sets of factors are responsible for keeping quality and vase life of cut flowers viz., internal mechanism that includes maintenance of optimum water balance between water uptake and water loss, stem plugging, respiration rate and production of toxic substances like ethylene and external factors that include environmental condition and microbial attack on cut end. There are various modern techniques of post-harvest handling of cut flowers such as optimum stage, breeding for improved cut flowers, conditioning, pre-cooling, impregnation, pulsing, bud opening, standard vase solution, increase absorption, storage, gamma irradiation and control of vase microbes are useful for lengthening quality and vase life of cut flowers (De *et al.*, 1999).

The use of floral preservatives is the most economical practical methods for extending post harvest life of

gladiolus cut flower (Salunkhe *et al.*, 1990). Several types of floral preservatives in the form of germicides, ethylene antagonists and source of energy (sucrose) are in use to preserve flower quality and extending post harvest longevity of cut flowers (Shukla and Kher, 1999). Use of cheaper and easily available biocides such as aluminium sulphate, sodium hypochloride, cobalt chloride, citric acid, bleach solution, 8-hydroxy quinoline citrate etc. have been used to extend the vase life and keeping quality of cut flowers from fair to good success after cutting from the mother plant. The present investigation was carried out to determine the most suitable floral preservatives for cut flowers.

MATERIALS AND METHODS

The present study on variety 'White Prosperity' was conducted at the Horticulture Research Farm of Shri F.H. (P.G.) College, Nidhauri Kalan, Etah (U.P.) (affiliated to Dr. B.R. Ambedker University, Agra). The corms were planted at spacing of 40 cm x 15 cm and at a depth of 7 cm. The application of recommended doses of NPK and other cultural operations were followed under strict schedule of operations. Five spikes of gladiolus under a treatment having 15-18 florets were harvested with the help of scateur at 8.30 A.M., when basal florets started showing colour at bud break. Immediately after harvesting, spikes were placed in a bucket containing water and brought to the laboratory. Stem length of the spikes were maintained at 30 cm from the cut end of the base to the lower most floret bud. The cut end of the spikes were dipped in disinfectant *i.e.*, $HgCl_2$ solution (1%) to remove outside infections. Then the racking base of each spike was slantingly cut with the help of sharp blade to increase absorption area. There were 15 treatments,