

Effect of sulphosalicylic acid on antioxidant activity of cut gladiolus spikes of different genotypes

NARENDRA KUMAR AND R.K. SINGH

See end of article for authors' affiliations

Correspondence to :
Narendra Kumar
Department of Horticulture,
C.C.R. (P.G.) College,
MUZAFFARNAGAR (U.P.)
INDIA

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ABSTRACT

Cut flower of gladiolus were placed in various vase solutions to determine the effect of chemicals on opening florets, SOD activity and catalase activity in petals during senescence. Results showed that Cv. Sunayana performed better than other cultivars. Maximum number of florets, higher SOD activity and catalase activity was observed in Sulphosalicylic + 4% sucrose vase solution, while least valued of these enzymes were determined in control.

Key words: SOD, Floretic Sulphosalicylic acids, Sunayana.

Gladiolus are normally harvested with relatively few open florets, and the life of the flower is a function both of the life of individual florets, and of the post-harvest expansion and opening of the buds remaining on the spikes. Ideally, many of the florets on the spike should open before the senescence of the bottom florets, because the dead florets are unattractive. Senescence of the bottom florets marks the end of the flower spike's commercial display life. The typical life of these florets on a spike placed in water is 4-6 days. Modest increase in the life of gladiolus flowers has been gained by pulsing with sucrose, or using vase-preserved containing sucrose. Little has been done to examine the physiological basis of senescence in gladiolus, and very little work has been reported on the physiology of individual florets. This is surprising, since gladiolus flower spikes offer an interesting model for studies of flower senescence. Individual florets provide a graded series of stages of development and senescence in an identical genetic and environmental background (Reid *et al.*, 1992).

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. Activated oxygen species such as O_2 or H_2O_2 and their interaction products react with proteins, lipids and nucleic acids and accumulation of these free radicals may initiate senescence. These activated oxygen species inactivate

certain enzymes and in the case of OR- and R02- initiate lipid peroxidation.

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 T_1 = control, T_2 = STS (1 mM), T_3 = Sucrose (4%), T_4 = sulphosalicylic acid (100 ppm), T_5 = Sulphosalicylic acid (100 ppm) + sucrose (4%) and T_6 = STS + sucrose (4%). The observation were recorded after 2, 4, 6 and 8 days for uptake of vase solution and SOD and catalase activity in petals and per cent open florets of different cultivars.

RESULTS AND DISCUSSION

Fully opened florets :

The data pertaining to fully opened florets showed significantly different pattern among various cultivar of gladiolus in both the years. Maximum florets (10.95 and 10.99) was opened in case of Sunayna followed by Chandni (10.44 and 10.48), Suryakiran (10.10 and 10.16) and minimum florets open in case of Vandana (9.77 and 9.86) during 2002-03 and 2003-04, respectively.

It is clear from the Table 1 that sulphosalicylic acid (100 ppm) + sucrose (4%) performed better response than other vase solution in both the years. Maximum number of florets (13.32 and 13.33) was opened in case of Sunayna cultivar with salicylic acid (100 ppm) + sucrose (4%) while it was noted minimum (7.71, 7.49) fully opened flowered in Vandana under distilled water in both the years.