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Effect of floral preservatives on quality and vase life of cut flowers tuberose (*Polianthes tuberosa* L.) cv. DOUBLE

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ABSTRACT

The floral preservatives significantly affected the vase life and quality of tuberose spike. Aluminum sulphate @ 500 ppm + sucrose @ 4% (C_6) was found for longest vase life, maximum uptake of water, highest fresh weight of spike as well as lowest loss-uptake ratio and percentage of physiological loss of weight. Whereas, 8-HQS @ 400 ppm + sucrose @ 4% (C_8) was observed for highest percentage of opened florets and lowest percentage of neck bent florets. Similarly maximum circumference of floret and longest vase life of individual floret were noted in treatment C_4 and C_2, respectively. While, lowest loss of water and minimum percentage of abscised florets were registered with treatment C_3 and C_1, respectively.

Key words : Floral preservative, Tuberose, Vase life, Quality.

Flowers are one of the most important and unique gift of nature. They are the adornments of the world with their valuable aesthetic, environmental, economic and medicinal properties. The estimated area under flower growing in the country is about 1.06 lakh hectares (Jain *et al.*, 2003). The cut flowers like rose, gladiolus, tuberose, chrysanthemum etc. have commonly and frequently demanded in both the local as well as international market. Among them, tuberose is one of the most important cut flower. The tuberose is grown on a wide range of soil and climatic conditions, but it flowers best in warm and humid climate. The Double type tuberose is mainly cultivated for cut flowers. The post harvest management is one of the most important factors for cut flower industries. The best quality of the spike is very important for marketing point of view. The components of cut flower quality are size, fragrance and freshness of the flowers. Improvement of the keeping quality and enhancement of vase life of cut flowers are important areas of floricultural research. Presently, our cultivators are not aware about standardized post harvest technology including use of floral preservatives to extend the vase life. So it is great need to standardize the use of floral preservatives.

MATERIALS AND METHODS

The healthy, good appearance, uniform and homogenous spikes were selected and harvested at one or two opened floret stage. The spikes were prepared through trimming, with keeping uniform length. The trial was conducted during the year 2003-04 with C.R.D. (Factorial) design and the same was repeated for second year (2004-05).The treatments comprised of different floral preservatives like Sucrose @ 4% (C_1), Aluminum sulphate @ 500 ppm (C_2), Silver nitrate @ 50 ppm (C_3), 8-HQS @ 400 ppm (C_4), Citric acid @ 300 ppm (C_5), Aluminum sulphate @ 500 ppm + sucrose @ 4% (C_6), Silver nitrate @ 50 ppm + sucrose @ 4% (C_7), 8-HQS @ 400 ppm + sucrose @ 4% (C_8), Citric acid @ 300 ppm + sucrose @ 4% (C_9) and Distilled water as a control (C_{10}). The vase solution was prepared with their respective concentrations. The necessary observations for vase life and qualitative parameters were recorded.

RESULTS AND DISCUSSION

Vase life of spike:

Among different floral preservatives, significantly maximum vase life (13.74 days) was noted in 500 ppm aluminum sulphate + 4% sucrose (C_6) followed by citric acid @ 300 ppm + sucrose @ 4% (C_9) (Table 1). Likewise, minimum vase life (9.50 days) was noted under control (C_{10}). Bacteria or fungi or both proliferate in the vase solution and clog the water conducting tissue eventually restricting the water absorption. When aluminum sulphate is added in the solution, it decreases the pH of petal, stabilizing the anthocyanine and acidifying the holding water, thus reducing the bacterial growth and improving water uptake. It also reduced the transpiration by inducing the stomatal closure. Sucrose is a source of energy and good respiratory substrate for the maintenance of osmotic potential in flowers and improved the ability of the tissue to absorb water, hence maintaining