ABSTRACT

Cut chrysanthemum (*Chrysanthemum moriifolium* Ramat. cvs. WHITE FIZII and PEACH FIZII) flowers grown under greenhouse condition were treated with silver nitrate ($AgNO_3$ at 10, 20, 30 ppm) and Silver thiosulphate (STS at 0.2, 0.4, 0.6

Chrysanthemum, Queen of the East, belongs to the family asteraceae, is a commercial cut flower next to rose in value of crop produced. Cut flowers are living, actively metabolizing heterogeneous organs, composed of floral and foliar parts each of which may be at different physiologically developing stage. The termination of vase life of many flowers is characterized by wilting and senescence of petals. Silver nitrate is one of the most effective bactericide in most commercial preservative formulations (Nowak and Rudnicki, 1990). Silver nitrate is relatively immobile in the stem but STS moves readily in the stem. Halevy and Mayak (1981) reviewed the role of Ag as a bactericide, antagonistic to ethylene production in cut flowers during senescence. The STS is less phytotoxic, mobile in plant transport system (Veen, 1987) and improve the keeping quality of roses. The main effects of sucrose supply for cut flowers were to inhibit the physiological deterioration (Hayashi and Todoriki, 1996), to maintain respiratory substrates, cyotokinin (D'Hont *et al.,* 1991) and to enhance protein synthesis. Silver nitrate in combination with sucrose significantly increased the vase life of cut flowers (Kesta *et al*., 1993).

The 8-HQS has strong inhibiting effects on fungi, yeast and bacteria. The efficiency of 8-HQS on prolonging the vase life of cut roses was reported to be due to decreased vascular blockage in the stem, increased water absorption and stomatal closure. The vase life of rose cvs. PROMINENT and SONIA, was significant in holding solution containing silver nitrate in combination with 8-HQS, citric acid and sucrose (Ferreira and Swardt, 1981).

MATERIALS AND METHODS

The cut chrysanthemum cvs. WHITE FIZII and PEACH FIZII flowers were received from the Dutch flowers for vase life study, which were harvested when the flowers were fully opened and brought to the laboratory within 24 hours. The flowers were sorted out for uniform flower size so as to maintain uniformity within the replications. The stems were then cut to a uniform length of 50 cm and stripped off all but the top five pairs of leaves in both the cultivars. Then each flower stock was placed in a 500 ml bottle containing 250 ml of aqueous solutions of silver nitrate and STS used individually or in combination with sucrose and or 8- HQS, distilled water or deionized water as control.

Each treatment unit considered of five flowers with each flower representing a replication. Observations on water relations and vase life were recorded.

RESULTS AND DISCUSSION

In both the cultivars, the treatments significantly influenced the water uptake as compared to control. The maximum water uptake (69.6 g/fl) in cv. WHITE FIZII was recorded in 30 ppm $AgNO_3$. While, Peach Fizii registered water uptake of 102.2 g/fl. in 0.4 µM STS solution (Table 1). Addition of sucrose (4%) to 20 ppm $AgNO_3$ witnessed the water uptake of 185.0 g/fl in cv. WHITE FIZII, whereas, the same concentration of $AgNO_3$ with 2% sucrose resulted 159.2 g/fl water uptake in cv. PEACH FIZII (Table 2). The vase solution comprising of 20 ppm $AgNO_3$ +2 % sucrose +100 ppm 8-HQS registred the water uptake of