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# ect of preservative chemicals on post-harvest behaviour of cut rose Etoile De France

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**Abstract :** Blooms of "Etoile De France" a cultivar of rose were treated with vase-solutions containing several proven floral preservative chemicals at various concentrations. Highest water uptake (9.50g) was recorded with distilled water. The total water loss was recorded maximum (9.97g) when placed in distilled water, however it was minimum (2.96g) with the vase solution containing Sucrose (4%) + Silver nitrate (100ppm). The enhancement in the fresh weight was recorded highest (0.70g) in Sucrose (4%) + Silver nitrate (100ppm) treated vase solution. Holding solution containing sucrose (4%) + 8-HQC (300ppm) was proved beneficial for the earliest opening of the flowers (1.00 day) and longer duration of prime beauty (3.50 days). The "bent neck" was recorded minimum with Sucrose (4%) + Aluminium sulphate (0.5%). However the vase- solution treated with Sucrose (4%) + 8-HQC (300ppm) showed the longest post- harvest life (4.50 days) of cut rose flowers. *(Key words : Rose, Post-harvest behaviour, Vase-life)*

Post-harvest losses of flowers are very high due ck of proper knowledge of post-harvest techniques. n average those losses may rise upto 35% nding upon the kind of flowers. Rose is the most rtant modern cut flower throughout the global cultural market including India. This flower has xtensive market within the country, especially in metropolitan cities. The losses may be caused due tack of microorganisms and several physiological ions including vascular occlusions. To check the ses and to improve the post-harvest life of cut bile De France" roses several chemical substances tried in this experiment.

## terials and Methods

Aqueous solutions of the following chemicals e compared : 8-HQS. Silver nitrate, Aluminium hhate, 8-HQC, Nickel chloride at various ncentrations along with sucrose 4%. Distilled water s used as control. The various treatments were ked with some notations.

Sucrose (4%) + 8-HQS (200ppm)
Sucrose (4%) + Silver nitrate (100ppm)
Sucrose (4%) + Aluminium sulphate (0.5%)
Sucrose (4%) + 8-HQC (300ppm)
Sucrose (4%) + Nickel chloride (200ppm) $T_6$ -
trol with distilled water

Conical flask with 100 ml capacity were used ases. Each vase contained 2 blooms and the atments were replicated four times. The design of the experiment was RBD. The experiment was carried out at room temperature (30°C). The cultivar used was 'Etoile De France'. A thin slice was cut at the base before the blooms were placed in different solutions.

Observations were taken on total water uptake, total water loss, water uptake and water loss ratio, changes in fresh weight, days required for opening of flower, flower opening to wilting period, vase-life and 'Bent Neck' percentage.

## Results and Discussion

### *Total water uptake*

Distilled water showed better water uptake (9.50g) followed by sucrose (4%) + 8-HQS (200ppm) and sucrose (4%) + 8-HQC (300ppm). Sucrose (4%) along with nickel chloride (200ppm) recorded the lowest amount of water uptake (2.38g) (Table 1).

### *Total water loss*

Significant difference was observed between various preservative chemical solutions in respect of total water loss. Distilled water (control) recorded the highest water loss (9.97g) which was statistically at par with sucrose (4%) + 8-HQS (200ppm) and sucrose (4%) + 8-HQC (300ppm). However the lowest amount of water loss (2.96g) was recorded with sucrose (4%) + silver nitrate (100ppm).

### *Water uptake and water loss ratio*

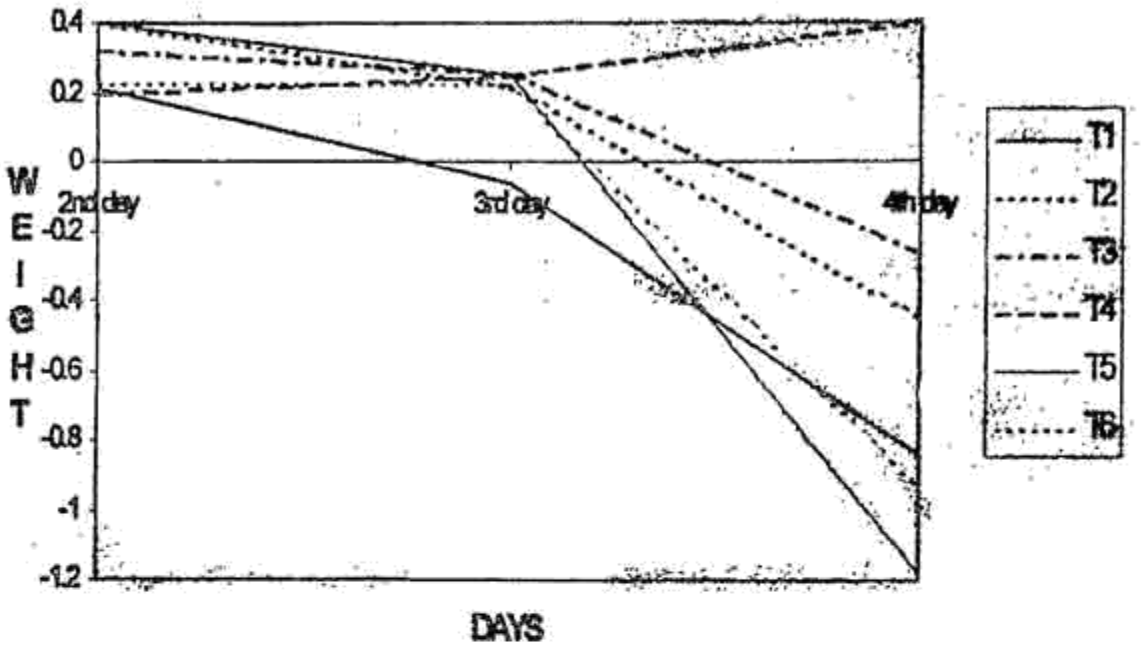


Fig.1 : Changes in fresh weight of cut-rose cv. Etoile De France as influenced by the flower preservati chemicals

Water uptake and water loss ratio is an indication of water balance within the cut bloom. It was highest (1.08) in the case of sucrose (4%) + silver nitrate (100ppm) which showed highly positive water balance indicating better water status within the cut rose. On the other hand sucrose (4%) + nickel chloride (200ppm) showed most negative water balance (0.71).

*Changes in fresh weight*

Results revealed that sucrose (4%) + silver nitrate (100ppm) showed the highest increase (0.70g) and lowest decrease (-0.83g) of fresh weight of the cut rose flowers. Changes in fresh weight of rose was found to be non-significant except in case of 4th day. However, in the second day both sucrose (4%) + silver nitrate (100ppm) and sucrose (4%) + nickel chloride (200ppm) showed the highest increase in the fresh weight (0.40g) and sucrose (4%) + 8-HQC (300ppm) showed the lowest (0.20g). In the third day sucrose (4%) + aluminium sulphate (0.5%) showed the highest increase in the fresh weight (0.26g) followed by sucrose (4%) + 8-HQC (300ppm) and sucrose (4%) + nickel chloride (200ppm) (0.25g), but sucrose (4%) + 8-HQS (200ppm) showed decrease in fresh weight (-0.06g). In the 4th day only sucrose (4%) + 8-HQC (300ppm) showed increase in the fresh weight (0.40g). On the 5th day all the treatments showed decrease in the fresh weight. Only sucrose (4%) + 8-HQC (300ppm) showed a steady increase in fresh weight upto 4th day (Fig 1 and Table 2).

*Days required for opening of flower*

Sucrose (4%) + 8-HQC (300ppm) recorded the lowest days (1) required for opening of the flowers.

*Flower opening to wilting period*

It has been found from the observation that sucrose (4%) + 8-HQC (300ppm) took longer time from flower opening to wilting (3.50 days) and distilled water took the lowest (1.25 days).

*Vase-life*

The highest days of vase life (4.50) was obtained with sucrose (4%) + 8-HQC (300ppm) treated holding solution and the lowest with distilled water (3.00 days) (Fig 2).

*'Bent Neck' percentage*

This problem is less with the application of sucrose (4%) + aluminium Sulphate (0.5%).

Flowers treated with distilled water absorbed and also lost the highest amount of water might be due to enhanced respiration rate because there was no antirespiratory substance in the vase-solution.

Most stable water balance and highest increase

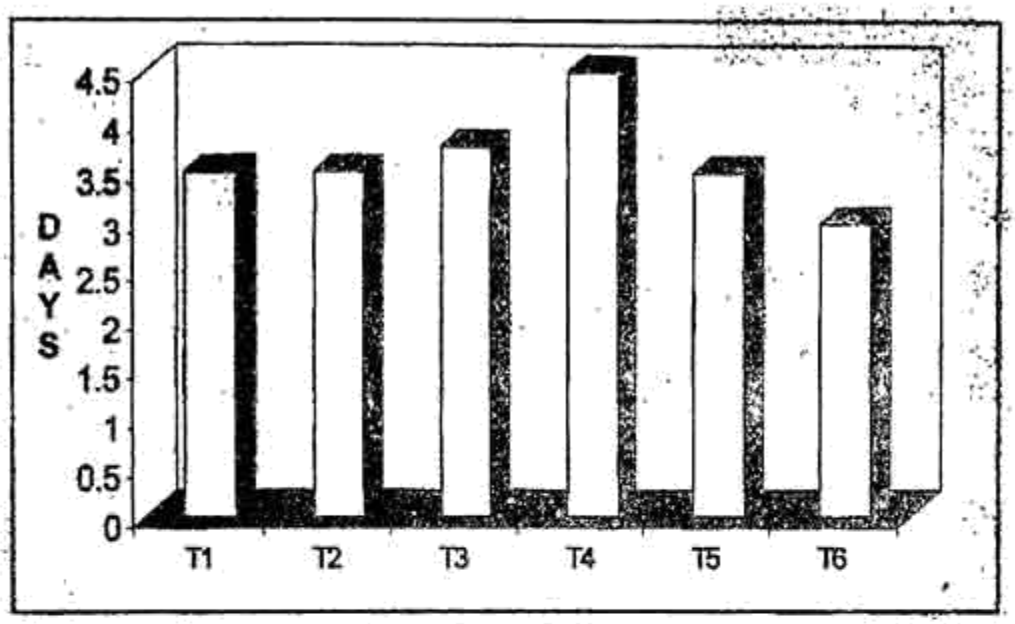


Fig.2 : Influence of different flower preservative chemicals on the vase-life of cut-rose cv. Etoile De France.

**Table 1.** Effect of different flower preservative chemicals on the post-harvest life of cut roses cv. Etoile De France.

| Treatments | Total water uptake (g) | Total water loss (g) | Water uptake & water loss ratio | Increase in fresh weight (g) | Decrease in fresh weight (g) | Days required for openg. of flower | Opening to wilting (days) | Vase-life (Days) | Bent Neck (%) |
|---|---|---|---|---|---|---|---|---|---|
| $T_1$ | 7.00 | 8.13 | 0.86 | 0.36 | 1.31 | 1.25 | 2.25 | 3.50 | 100 |
| $T_2$ | 2.83 | 2.96 | 1.08 | 0.70 | 0.83 | 1.50 | 2.00 | 3.50 | 50 |
| $T_3$ | 4.25 | 5.03 | 0.83 | 0.68 | 1.45 | 1.75 | 2.00 | 3.75 | 0 |
| $T_4$ | 7.00 | 8.14 | 0.84 | 0.64 | 1.54 | 1.00 | 3.50 | 4.50 | 100 |
| $T_5$ | 2.38 | 3.48 | 0.71 | 0.65 | 1.09 | 1.25 | 2.25 | 3.50 | 50 |
| $T_6$ | 9.50 | 9.97 | 0.95 | 0.46 | 0.93 | 1.75 | 1.25 | 3.00 | 100 |
| Sem± | 0.89 | 0.92 | 0.07 | 0.17 | 0.22 | 0.21 | 0.35 | 0.27 | - |
| CD at 5% | 2.69 | 2.76 | 0.21 | NS | NS | NS | 1.04 | 0.81 | NS |

in fresh weight of cut blooms with silver nitrate might be due to antimicrobial and antirespiratory properties of the chemical. Ferreira and Swardt (1981 a, b) reported that silver nitrate along with other preservative chemicals significantly increased the vase-life of cut 'Sonia' roses.

Quinoline salts reduce the vascular blockage property by its germicidal activity which may cause retardation of microbial growth at the cut end. Besides 8-HQC has the cytokinin like property which may enhance the vase-life. Due to those reasons 8-HQC effectively reduced the time required for opening of flowers and increased the vase-life of the cut blooms. Marousky (1971) reported that 8-HQC (8-Hydroxy Quinoline Citrate) inhibited the growth of all bacteria, fungi and yeast commonly found in cut flower vase-

Table 2 : Changes in fresh weight of cut roses under holding solutions.

| Treatments | 2nd day | 3rd day | 4th day |
|---|---|---|---|
| $T_1$ | 0.21 | -0.06 | -0.84 |
| $T_2$ | 0.40 | 0.22 | -0.45 |
| $T_3$ | 0.32 | 0.26 | -0.26 |
| $T_4$ | 0.20 | 0.25 | 0.40 |
| $T_5$ | 0.40 | 0.25 | -1.18 |
| $T_6$ | 0.23 | 0.23 | -0.93 |
| Sem± | 0.10 | 0.11 | 0.24 |
| CD at 5% | NS | NS | 0.72 |

NS = Non significant

solution. 8-HQC along with Alar ® and Sucrose resulted better keeping quality in roses (Metzzer, 1972).

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# Characteristics and the yield potential of different pepino accessions

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**Abstract :** Pepino *Solanum muricatum* is a small herbaceous perennial minor fruit cum vegetable crop with multiple possibilities for consumption. Special features include its high yield potential, easy propagation by stem cuttings, perennial nature, fast growing and high response to intensive cultivation and fertilizer application and above all the habit of flowering and fruit set round the year. As on date 9 promising accessions have been established based on plant and fruit morphology, yield performance and quality traits. These accessions also offered differing preference for different utilities such as dessert fruit, squash etc. *(Key words : Pepino, Solanum muricatum, Fruit morphology, Solanaceae, Minor fruit)*

Pepino *(Solanum muricatum)*, often referred as Melon Pear, is a small herbaceous perennial belonging to Solanaceae. It is sub-tropical, medium to large sized minor fruit species native to Northern Andes, South America. For the first time in India it was introduced at Horticultural Research Station, Ooty during the later parts of 1994.

Pepino is a nutritious vegetable cum fruit crop with multiple possibilities for consumption like green and cooked vegetable, vegetable salads, pachadies, fresh fruit (dessert), fruit salad, delicious fruit juice, squash etc. Pepino fruits are highly juicy and moderately sweet and possesses characteristic pleasing aroma like that of melon fruit. These fruits are rich