Effects of Saline Water on Keeping Life of Cut Roses and Carnations — a Preliminary Report

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A series of preliminary tests were undertaken to study the effects of saline water on keeping life of cut roses and carnations. The tests were not designed to be comprehensive with regard to the many types of saline water, but simply to get a feel of the response of cut roses and carnations to saline water. Two simulated water sources were used, one high in sodium bicarbonate and the other high in sodium chloride.

Keeping life for individual flowers was determined as the difference between the day the flower was placed in the keeping room and the day the flower was removed from the vase at senescence. Flowers were checked daily and considered senesced when the petals lost their turgidity. All flowers were recut to the same length before being placed in a vase.

Sodium Bicarbonate Water Studies

Waters high in sodium bicarbonate are common not only in the Denver area but in many areas. The following treatments were utilized to study the effects of a high sodium bicarbonate water on keeping life of cut roses and carnations. 400 ppm HQC was used in all treatments to provide a bacteria free solution.

1. Distilled water
2. 8 Me/L sodium bicarbonate
3. 16 Me/L sodium bicarbonate
4. 32 Me/L sodium bicarbonate

Roses were shown to be detrimentally affected by the provided treatments but carnations were unresponsive (Table 1). Eighteen and nine flowers of carnations and roses per treatment respectively were used.

Table 1. Effects of sodium bicarbonate water on keeping life of cut roses and carnations

Treatment	Roses	Carnations (mean life in days)
1. Distilled water	7.4	8.3
2. 8 Me/L sodium bicarbonate	5.7	8.1
3. 16 Me/L sodium bicarbonate	5.3	8.4
4. 32 Me/L sodium bicarbonate	4.2	8.2

Previous unpublished work at Colorado State University with roses had suggested that use of a preservative in the final holding solution could overcome the detrimental effects of the saline water. The following treatments of 18 flowers per treatment were designed to follow up on this work. The preservative used was 400 ppm HQC + 5% sugar.

1. Distilled water + preservative
2. 16 Me/L sodium bicarbonate
3. 16 Me/L sodium bicarbonate + 400 ppm HQC
4. 16 Me/L sodium bicarbonate + preservative

Results presented in Table 2 clearly indicate that the preservative did overcome the detrimental effects of the sodium bicarbonate water.

Sodium Chloride Water Study

Treatments of 15 flowers each with sodium chloride were designed to see if roses were as sensitive to

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Table 2. Effects of preservative on keeping life of cut roses in sodium bicarbonate water.

Treatment	Mean life in days
1. Distilled water + preservative	8.2
2. 16 Me/L sodium bicarbonate	4.3
3. 16 Me/L sodium bicarbonate + 400 ppm HQC	4.8
4. 16 Me/L sodium bicarbonate + preservative	8.8

another type of saline water. 400 ppm HQC was used in all treatments.

1. Distilled water
2. 8 Me/L sodium chloride
3. 16 Me/L sodium chloride
4. 32 Me/L sodium chloride

Results of these treatments indicate that roses are not as sensitive to the high sodium chloride water as was shown in the sodium bicarbonate water (Table 3). However, a reduction did occur.

Table 3. Effects of sodium chloride on keeping life of cut roses.

Treatment	Mean life in days
1. Distilled water	8.8
2. 8 Me/L sodium chloride	8.5
3. 16 Me/L sodium chloride	7.7
4. 32 Me/L sodium chloride	7.4

Summary

These preliminary results suggest that cut roses are detrimentally affected by water with a high sodium bicarbonate content. Carnations were not affected by the sodium bicarbonate treatments. Use of a preservative of 400 ppm HQC and 5% sugar overcame the detrimental effects of the high sodium bicarbonate on cut roses. Although some reduction occurred, sodium chloride water was not as detrimental in its effect on keeping life of cut roses.

Your Editor,

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