

Special Research Report #427: Postproduction

Optimizing Postharvest Life of Cut Trachelium

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BACKGROUND

Each year a large number of new cultivars and species are made available from plant breeders, propagators, and suppliers. Specific postharvest information must be obtained for these new species as they are made available to the market. One cut flower new to the United States, trachelium (Photo 1), produces tall slender (but strong) stems topped by masses of tiny star-shaped florets that form a flatten head ranging from 3-6 inches in diameter. The purple, rose or white flowers can be

Photo 1. Trachelium 'Jemmy Royal Purple'.



used as fillers in bouquets or arrangements, blending softly with most colors. This study determined the optimum handling procedures to extend the postharvest life of cut trachelium stems.

MATERIALS AND METHODS

Trials were conducted in 2004. Greenhouse-grown trachelium 'Jemmy Royal Purple' stems were harvested when 25% of the florets in a head were open. The stems were subjected to a range of tests to determine ethylene sensitivity, optimum cold storage duration, and the effect of pretreatments and pulses, vase solutions and substrates, and commercial preservatives. After treatments, stems were placed at 68±4°F under approximately 200 ftc light for 12 hrs/day.

Flowers were monitored daily to determine the end of *wholesale/retail vase life*, which was designated as the first day a change was noticed in the flower or inflorescence that would typically prevent the flower from being sold by a wholesaler or retailer. This occurred when the florets were no longer uniform in appearance. The *consumer vase life* was designated as the

day a consumer would have disposed of the stem. This occurred when the undersides of the florets turned brown or when the florets closed and/or did not continue to open.

RESULTS

Pretreatments

Pulsing with either 10% or 20% sucrose for 24 hours reduced the vase life.

Ethylene Sensitivity

Trachelium was sensitive to ethylene at 0.1 or 1.0 ppm. The florets either closed entirely or did not continue to open (Photo 2). The application of 1-MCP or STS prevented the open florets from closing and promoted opening of new florets.

Photo 2. Cut trachelium 'Jemmy Royal Purple' flowers did not continue to open when exposed to ethylene.

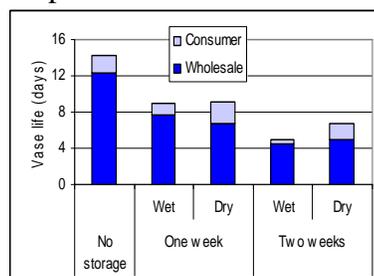


Pretreatments/Simulated Shipping and Storage

Stems were pretreated with STS, 1-MCP, or water and stored at 41°F for four days dry or wet in a holding preservative or high quality water. Stems tolerated 4 days of storage regardless of pretreatment and produced a vase life of 9-13 days. However, fewer of the florets opened on the stems that were stored than on unstored stems. A subsequent test was conducted with stems harvested when 75% of the florets were open and stored at 34, 41 or 68°F for three days in water. The wholesale/retail vase life for the stems stored at 34°F and 41°F was 4 days and the consumer vase life was 9 days. Those stored at 68°F had a 2 and 6 day wholesale/retail and consumer vase life, respectively.

In a longer term storage study at 34 °F, the 14 day consumer vase life of unstored flowers was reduced to 9 days and 5-7 days after 1 and 2 weeks, respectively (Fig. 1).

Fig. 1. Effect of wet or dry cold storage on vase life of trachelium ‘Jemmy Royal Purple’.

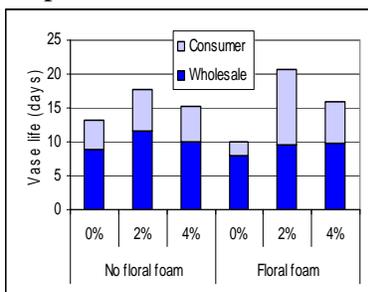


Holding Solutions

Stems held in 2 or 4% sucrose

had a longer wholesale/retail and consumer vase life compared with water only (Fig. 2). The use of floral foam was not detrimental when used with sucrose solutions. However, floral foam without sucrose reduced the consumer vase life.

Fig. 2. Effect of floral foam and sucrose in the vase solution on trachelium ‘Jemmy Royal Purple’.



The use of commercial holding solutions produced varied results based on the product. Stems in Chrysal Professional 2 Processing Solution had a wholesale/retail vase life of 10 days and a consumer vase life of 18 days compared with 9 days wholesale/retail vase life and 15 days consumer vase life for the controls in water. Stems held in Floralife Professional had a wholesale/retail vase life of 8 days and a consumer vase life of 11 days. Combining the commercial hydrators with holding solutions produced a wholesale/retail vase life of 8-9 days and a consumer vase life of 11 days for both products.

CONCLUSIONS

Trachelium ‘Jemmy Royal Purple’ is a showy filler flower

with a consumer vase life of up to 15 days that can be increased to 18 days with 2% sucrose in the vase solution. Stems may be used in floral foam with a 2% sucrose holding solution. If stored at 34°F, the stems should be cut at the proper stage of openness because the florets do not open well after storage. However, consumer vase life was unaffected by cold storage. Trachelium is sensitive to ethylene and anti-ethylene agents should be used. With proper handling trachelium is suitable for both local and wholesale marketing.

The optimum handling procedures for cut trachelium ‘Jemmy Royal Purple’ are to:

1. cut into clean high quality water,
2. place in 2% sucrose solution, especially if using floral foam,
3. cold store at 34 °F for one week or less.

IMPACT TO THE INDUSTRY

Trachelium ‘Jemmy Royal Purple’ can be an attractive filler flower. It is critical to the industry to maintain a constant supply of new, successful cut flowers with proper postharvest handling information.

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