Title Postharvest characteristics and treatments to overcome latex exuded from cut flowers of lotus

Author A.C.R. Pinto, S.C. Mello, A.P. Jacomino, K. Minami and J.C. Barbosa

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Abstract

Lotus (*Nelumbo nucifera* Gaertn.) is a perennial herbaceous aquatic ornamental plant with potential to be used as a new cut flower for the Brazilian ornamental market. It shows exotic and attractive flowers and has a strong market appeal, once it is known as a symbol of purity, holiness and immortality. However, flowers have a short-vase life. Lotus flower stem exudes a large quantity of sticky milky sap from the cut surface, which is produced in laticifers, spatially associated with both xylem and phloem. It has been reported that latex coagulates on the cut surface preventing or reducing water absorption and reducing flowers' vaselife, requiring treatments to stop the flow of latex. The objective of this study was to report observations of lotus postharvest characteristics and evaluate treatments to overcome latex flow. The experiment was conducted as a complete randomized design with three replications of four stems in each vase and eight treatments; a control (distilled water), pretreatment of cut stem-ends with hot water (40°C/1 minute), boiling water (3 seconds), isopropyl alcohol 90% (10 minutes) or citric acid (pH = 2.8/1h) and, maintenance of stems in a holding solution of Tween® 20 (0.01%), citric acid (200 mg L^{-1}) or Tween® 20 (0.01%) plus citric acid (200 mg L^{-1}). Treatments had no significant effect on flowers vaselife which was only about three days, although isopropyl alcohol, hot and boiling water completely stopped latex flow. Cut stem-ends pretreated with citric acid (pH = 2.8/1 h) showed a significantly higher relative water content of petals compared to others treatments. The senescence symptom of lotus cut flowers was mainly characterized by abscission of turgid petals and dehiscence of stamens without any visual change of petal color and brightness.