

Hutchinson, M.J., Muchiri, J.N. and Waithaka, K. **2013.** Effects of Chemical Preservatives and Water Quality on Postharvest Keeping Quality of Cut Lisianthus (*Eustoma grandiflorum* L.). Botswana Journal of Agriculture and Applied Sciences Vol. 9(1): 8-18.

ABSTRACT:

This study was carried out to investigate effects of various chemicals added to vase solutions and also effects of water quality on the post-harvest physiology of Lisianthus (*Eustoma grandiflorum* L.) cut stems. The vase life, floret opening and water balance of Lisianthus cut stems were improved when cut flowers were held in vase solutions containing either 8-HQC, AgNO₃, NaOCl or their combinations. Vase solution containing 8-HQC at 250 ppm and NaOCl at 50 ppm produced the best results whereby vase life increased from 10 to 29 days, floret opening from 46 to 82%. Cumulative water uptake increased from 114 to 236 gm/hr per inflorescence compared to control cut flowers held in de-ionized water. The rate of water uptake, however, declined as flowers senesced in all vase solutions. However, Al₂(SO₄)₃ alone or in combination with NaOCl did not improve the vase life of cut flowers. Vase life and floret opening of cut flowers held in vase solutions made with water from various sources decreased significantly (P>0.05) compared to those held in de-ionized water. However, there was a significant (P<0.05) increase of the same parameters when 8-HQC and NaOCl were incorporated in vase solutions made from the various water sources and pH adjusted to 3.5. In conclusion, incorporation of 8-HQC and NaOCl into vase solutions improved the postharvest physiology of cut Lisianthus flowers. Incorporating biocides in vase solutions, made with water from any source and adjusting their pH to 3.5, improved the vase life, floret opening, and water uptake of cut flowers by two-fold regardless of the water source and quality.