

Abstract:

One of the major postharvest problems of cut tulip flowers is their stem curvature when placed in a horizontal orientation during transport or in flower arrangements. The Ca^{2+} channel blocker LaCl_3 (lanthanum chloride) was tested for prevention of stem bending in cut tulip flowers. Our results indicate that stem bending varies with cultivar and is positively correlated with postharvest stem elongation rate. LaCl_3 prevented stem bending by reducing stem elongation. However, LaCl_3 treated flower stems failed to maintain straight stems when positioned vertically. Further, the gravitropic response of the tested cultivars varied with growing conditions, implying significant environmental effects on this response. LaCl_3 did not affect stem bending during simulated dry transport (3 days, 5 °C and 95 % RH), but cold-stored flowers exhibited less bending compared to fresh flowers held at room temperature. Further, flower longevity was reduced 20 to 40 % by the LaCl_3 treatment with or without simulated transport. Consequently, LaCl_3 would not be useful to prevent stem bending of cut tulip flowers in commercial horticultural practice.