

**Title** Flower abscission, flower opening and petal color development in cut phlox flower heads: effect of methyl jasmonate, gibberellic acid and sucrose

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### **Abstract**

*Phlox paniculata* John Fanick is a promising new selection for cut flowers from Texas which produces dense terminal clusters of flowers in shades of red, pink, and white with a dark red eye. From the postharvest standpoint, extended shelf life coupled to stable flower traits derives maximum consumer satisfaction. This work was initiated to evaluate the effect of methyl jasmonate (MJ), gibberellic acid (GA) and sucrose (SUC), alone and in combination, in postharvest flower abscission, flower opening and color development in cut phlox flower heads. GA induced abscission of open flowers and inhibited development of flower color. Although flower buds continued to open, the flowers remained small and were almost white in color. Addition of SUC in the vase solution antagonized the effect of GA. The flowers increased in size, the corolla tube elongated considerably and the light pink petals with pink eye imparted a quite distinctive and attractive appearance to the flowers. Presence of MJ (50-200  $\mu\text{M}$ ) in the vase solution promoted the abscission of open flowers and strongly inhibited flower bud growth and opening. SUC almost completely reversed the effect of MJ on flower opening and pigmentation. At high concentrations of MJ (100, 200  $\mu\text{M}$ ), in presence of GA, the flowers buds elongated considerably and exhibited elongated corolla tubes, but none of the flower buds opened. SUC in the presence of MJ (50  $\mu\text{M}$ ) and GA antagonized the effect of these chemicals on the flower bud opening and flower color development, but completely failed to reverse the effect of high MJ (100, 200  $\mu\text{M}$ ) concentration when GA was also added to the vase solution. These results indicate that suitable management of growth regulators and SUC in the vase solution is necessary to beneficially modulate postharvest performance, display life and longevity of cut phlox flowers.