

Impact of preharvest salicylic acid treatment on growth characteristics and vase life of lisianthus (*Eustoma grandiflorum* cv. *Miarichi Grand white*) cut flowers

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Abstract

This experiment was conducted to evaluate the effect of foliar application of salicylic acid at the pre-harvest stage on vegetative quality and post-harvest traits of lisianthus cultivar "Miarichi Grand white" cut flower. Lisianthus seedlings were planted in a greenhouse in the pots containing soil, sand and peat (1:1:1 v/v). The pre-harvest treatments, at the bud-initiation stage, included four salicylic acid concentrations (0 (distilled water), 0.5, 1, and 2 mM). Vegetative quality attributes such as bud length and diameter, flower-stem length, flower-stem fresh and dry weight, leaf area and chlorophyll content were evaluated. Results showed that application of salicylic acid increased all these traits as compared to the control. Also, salicylic acid at 0.5 mM concentration was the most effective treatment in this study. To investigate the effects of pre-harvest salicylic acid on post-harvest characteristics of lisianthus cut flower, flowers were harvested when two buds were fully opened. Results revealed that pre-harvest treatment lead to increased vase life, relative fresh weight and relative water uptake as compared to the control. Also, reduced electrolyte leakage, less accumulation of malondialdehyde, reduced lipoxygenase enzyme activity, less accumulation of H₂O₂, and increased catalase and ascorbate peroxidase antioxidant enzymes were observed in the 0.5 mM salicylic acid concentration, as compared to the control. These results suggest that preharvest salicylic acid treatment can be used as a useful technology for extending vase life of lisianthus cut flowers by enhancing antioxidant system activity and thus maintaining membrane integrity.

Keywords: Water uptake, Vase life, Antioxidant activity, Malondialdehyde, Electrolyte leakage, Growth characteristics.

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