

Title Calcium regulates Gladiolus flower senescence by influencing antioxidative enzymes activity

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Abstract

The objective of the present investigation was to study the role of calcium on antioxidative enzymes activity during the post-harvest life of Gladiolus (*Gladiolus grandiflorus*). Among the various calcium (Ca) treatments, 50 mmol l⁻¹ Ca treatments caused the highest increase in the vase life of the spike, from 5.5 days in control to about 9 days. Relative water content and membrane stability index (MSI) decreased from I to V stage. However, significant increase in relative water content and MSI were observed by 50 mmol l⁻¹ Ca as compared to control. Indices of oxidative stress such as lipid peroxidation and lipoxygenase activity increased from I to V stage, but decreased significantly in 50 mmol l⁻¹ Ca treatment. The activities of antioxidant enzymes superoxide dismutase (SOD) and catalase (CAT) decreased initially from stage I to II, followed by an increase in stage III and thereafter started to decline at stages IV and V. Ascorbate peroxidase (APX) activity increased initially from stage I to III and thereafter declined in stage IV and V in both control and treatment. However, Ca with concentration of 50 mmol l⁻¹ increased the activities of SOD, CAT and APX at all the stages. The results revealed that spikes treated with Ca (50 mmol l⁻¹) solution maintained higher level of antioxidant enzymes activity and also showed delayed senescence in comparison to control.

<http://www.springerlink.com/content/d3g1047n528j8884/fulltext.pdf>