

Title Changes in abscisic acid during leaf yellowing of cut stock flowers
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Abstract

Leaf pigments, such as chlorophyll and carotenoids, are essential plant molecules. They provide carbohydrates and energy during all plant life. Leaf pigments are also important parameters of decorative plants, such as floriculture items, cut foliage and flowers. Leaf yellowing is a form of senescence caused by an internal hormone imbalance, such as a lack of cytokinins. The aim of this study was to investigate the changes in total carotenoids and endogenous ABA in cut flower stock leaves during post-harvest life. The effect of pulse treatment with 5 or 10 mM thidiazuron (TDZ), 150 mg l⁻¹ 8-hydroxyquinoline sulphate (8-HQS) and combinations of TDZ with 8-HQS on total carotenoids and ABA concentration was also investigated. Results showed that total carotenoids drastically decreased from 1548 mg cm⁻², until reaching 565 mg cm⁻² at the end of vase life. Endogenous ABA strongly increased at the same time, going from 167 ng g⁻¹ DW at the beginning of the experiment to 1322 ng g⁻¹ DW at the end of vase life. The TDZ inhibited carotenoid degradation, but did not affect the ABA concentration, while the 8-HQS did not prevent carotenoid degradation and the ABA concentration was only slightly affected. ABA seems to be a secondary senescence bio-product that may have a synergic effect with other senescence inducers dramatically accelerating leaf senescence.