

Title Abscisic acid drenches can reduce water use and extend shelf life of *Salvia splendens*
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Abstract

Inadequate watering of potted ornamental plants during retail can cause a decline in quality as well as plant death. Abscisic acid (ABA) is the main phytohormone controlling plant responses to drought stress, including regulation of stomatal opening and closure. ABA may become available for the greenhouse industry in 2010. The objective of this study was to determine whether exogenous ABA applications can be used to induce stomatal closure and reduce water loss from the substrate. We drenched salvia (*Salvia splendens* F. Sellow. ex Roem & Shult.) 'Bonfire Red' with 50 mL of ABA solutions at concentrations of 0, 250, 500, 1000, and 2000 mg L⁻¹, after which plants were no longer irrigated. ABA drenches slowed down substrate water loss by reducing transpiration in a dose-dependent manner. Stomata closed within 3 h after ABA treatment, decreasing transpirational water loss. However, ABA drenches also caused abscission of lower leaves, resulting in approximately 60% leaf loss with 2000 mg L⁻¹ ABA. ABA drenches with 250 mg L⁻¹ and 500 mg L⁻¹ increased the shelf life of salvia 'Bonfire Red' by 3 days, without excessive leaf abscission. ABA can be used to increase the shelf life of salvia, but the lowest effective concentration should be used to minimize leaf abscission.