DIFFERENTIAL POTENCIES OF S-ABA AND THE ABA ANALOG PBI-429

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Naturally-occurring abscisic acid (S-ABA) effectively reduces water use of nearly all plants that we have evaluated, but for some crops can cause additional treatment effects such as pansy leaf yellowing. Dose responses of S-ABA and the ABA analog PBI-429 were assessed for paired treatment effects such as transpiration and growth rate, shelf life and leaf yellowing, and cold stress tolerance and germination delay to establish relative potencies. Differential potencies (differences in relative potencies) of treatment effects may suggest mode of action as well as commercial benefits. For reductions of both transpiration and growth of tomato, PBI-429 is about 10 times more potent than S-ABA suggesting that the two compounds work similarly. In contrast, while PBI-429 is about 10 times more potent than S-ABA for extending pansy shelf life, the compounds are equally potent for inducing pansy leaf yellowing. The differential potencies for the two S-ABA treatment effects suggest that leaf water loss and yellowing may be separable.