Title Ethylene sensitivity and changes in ethylene production during senescence in long-lived *Delphinium* flowers without sepal abscission

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Abstract

We investigated changes in ethylene production, sensitivity, effects of ethylene inhibitors and levels of ethylene receptor genes to determine factors responsible for long-lived flowers in a *Delphinium* line 'B-10'. Flower longevity of 'B-10' was clearly longer than that of the control cultivar 'Bellamosum', and sepals of 'B-10' did not abscise. 'B-10' did not show the climacteric-like ethylene production during flower senescence but constitutively produced ethylene from days 0 to 9. The ethylene inhibitors silver thiosulfate (STS) and aminoethoxyvinylglycine (AVG) extended flower longevity in both cultivars. Exogenous ethylene treatment did not affect flower longevity but did increase ethylene production in 'B-10'. These results suggest that low sensitivity to ethylene is responsible for long-lived 'B-10' flowers, and may suppress climacteric-like ethylene production.