Title Role of ethylene and 1-MCP in flower development and petal abscission in zonal geraniums.

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Abstract

Geraniums are sensitive to ethylene during shipping and respond by abscising their petals. Treatment of stock plants with ethylene (ethephon) in order to increase cutting yield resulted in earlier flowering in *Pelargonium hortorum* 'Kim' and 'Veronica', but did not result in increased susceptibility to petal abscission following exposure to 1.0 micro l.l-1 ethylene. Treatment of 'Kim', 'Veronica', 'Fox', and 'Cotton Candy' with 1.0 micro l.l-1 ethylene resulted in increased petal abscission within one h, with 'Fox' being the most sensitive and 'Kim' the least. Pretreatment of florets with 1-MCP for 3, 6, 12, or 24 h at concentrations of 0.1 or 1.0 micro l.l-1 decreased petal abscission in all cultivars following exposure to 1.0 micro l.l-1 ethylene. Treatment with 0.1 micro l.l-1 1-MCP for 1 h reduced petal abscission rates in ethylene treated florets to that of non-ethylene treated controls in all cultivars except Fox. 'Fox' florets, which are more sensitive to ethylene, required 12 to 24 h of exposure to 1-MCP to reduce petal abscission rates to that of control flowers. Pretreatment of geranium plants with 1-MCP can be used to reduce petal shattering during shipping. Chemical names used: 2-chloroethanephosphonic acid (ethephon); 1-methylcyclopropene (1-MCP).