

Title Effects of combined methyl jasmonate and ethylene-inhibitor treatments against *Botrytis cinerea* infecting Geraldton waxflower

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Abstract

Infections by *Botrytis cinerea* cause ethylene-mediated flower fall in cut Geraldton waxflower (*Chamelaucium uncinatum*). Methyl jasmonate (MJ) is a known host plant defence elicitor, and MJ treatments have demonstrated potential to suppress *Botrytis* on waxflower. However, MJ can also induce waxflower flower abscission. Flower fall in waxflower can be prevented by treatments with anti-ethylene agents. Pot and field experiments were conducted to determine if combining MJ and anti-ethylene treatments could suppress *Botrytis* and prevent flower fall. Waxflower 'My Sweet Sixteen' plants were spray-treated pre- and postharvest with MJ (1000 μM), treated postharvest with either 1 methylcyclopropene (MCP fumigation; $0.08 \mu\text{l L}^{-1}$) or silver thiosulphate (STS pulse; 0.5 mM), and then challenged with *Botrytis*. Pre- and postharvest MJ treatments reduced *Botrytis* development, but increased flower fall. In combination with MJ treatment, MCP treatment did not reduce either *Botrytis* disease or flower fall. MJ in combination with STS reduced ($P < 0.05$) disease severity for up to 6 days on sprigs harvested from pot-grown plants. However, this combination tended to increase *Botrytis* disease severity on sprigs from field-grown plants 6 days after inoculation. This inconsistency between pot- and field-grown plants suggests an overriding influence of environment and/or plant management on inducible host defence.