

Title Methyl jasmonate-induced suppression of anthracnose rot in tomato fruit
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Abstract

Anthracnose rot (*Colletotrichum coccodes*) development *in vitro* or in tomato fruit (*Lycopersicon esculentum* L.) was evaluated after treatment with methyl jasmonate (MJ; $44.8 \mu\text{l l}^{-1}$) or chlorine (48 ml l^{-1}) and storage at 12 °C and 95% relative humidity during or following exposure to the volatiles. Fruit treated with MJ-vapours reduced fungal spore germination/production, but had no effect on fungal mycelium growth. Fruit lesion development accelerated after fruit exposure in pure (100% v/v) volatile vapours. However, sanitary dips of pre-treated fruit with MJ resulted in 20% suppression of fungal development in wound-inoculated fruit and storage in 'ambient air'. The benefits associated with volatile-enrichment which was maintained in fruit pre-exposed to vapours, resulted in suppression in spore germination and spore production. However, studies performed on fungi raised on Potato Dextrose Agar revealed fewer direct effects of volatiles on fungal colony development and spore germination *per se*, implying that suppression of pathogen development was due in a large part to the impact of volatiles on fruit–pathogen interactions and/or 'memory' effects on fruit tissue. Work is currently focussing on the mechanisms underlying the impact of volatiles on disease development. The results of this study indicate that volatiles may be considered as an alternative to the traditional post-harvest sanitizing techniques. Each commodity needs to be individually assessed, and the volatile concentration and sanitizing technique optimized, before the volatile treatment is used commercially.