Title	Control of *Penicillium expansum* in pears and apples by trans-2-hexenal vapours
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Abstract

The effects of *trans*-2-hexenal vapour treatment on *Penicillium expansum*, patulin content and fruit quality were evaluated in several cultivars of pears ("Abate Fetel", "Bartlett" and "Kaiser") and apples ("Golden Delicious" and "Royal Gala"). Fruit, wound-inoculated or non-inoculated, were treated at 20 °C with different concentrations of *trans*-2-hexenal over a 24 h period. Blue mould control, ranging from 50 to 98% (depending on cv), and reduction of patulin content were achieved when fruit were exposed to vapours from 12.5 μL L^{-1} of *trans*-2-hexenal 24 h after pathogen inoculation. In contrast, treatments applied 2 h after inoculation exhibited less efficacy or stimulated *P. expansum* infections. *Trans*-2-hexenal (12.5 μL L^{-1}) did not affect fruit appearance, colour, firmness, soluble solids content or titratable acidity. Only in "Abate Fetel" pears phytotoxic symptoms developed within 3 days of treatment. Off-odours developed just after treatment, but the intensity decreased or disappeared during shelf-life. After 7 days at 20 °C following treatment (12.5 μL L^{-1}) no significant differences in *trans*-2-hexenal content or in sensory traits were detected by a trained panel between untreated and treated "Golden Delicious" apples, while maintenance of off-flavours was perceived in "Bartlett", "Abate Fetel" and "Royal Gala" fruit.