

Title Evaluation of the fungicidal properties of essential oils to postharvest decay and quality of sweet cherry

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Abstract

The aim of the study was to determine the antifungal effects of the essential oils against fungal pathogen *Botrytis cinerea* the causal agent of grey mould disease of sweet cherry (*Prunus avium* L.) under in vitro and in vivo conditions. Treatments consisted of three essential oils (fennel, black caraway and peppermint) and five concentrations (0, 200, 400, 600 and 800 $\mu\text{L.L}^{-1}$). The results of in vitro showed that black caraway essential oil had the best fungicidal effect compared with other essential oils. The growth of grey mould was completely inhibited by black caraway essential oil at 400 $\mu\text{L.L}^{-1}$. It was observed (in vivo) that black caraway, fennel and peppermint essential oils at all concentrations inhibited grey mould growth on sweet cherry fruits compared with the control. The essential oils application decreased weight loss percentage significantly and increased storage life. The black caraway essential oil in concentration of 800 $\mu\text{L.L}^{-1}$ significantly maintained higher total soluble solids, titratable acidity, anthocyanin and carbohydrate content compared with other treatments. Thus, these results showed that essential oils have strong impact on managing postharvest decay and fruit quality of sweet cherry.