

**Title** The effectiveness of plant essential oils on the control of post-harvest decay of sweet cherry caused by *Monilinia fructicola*

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### **Abstract**

In recent years there is an increasing interest in finding alternatives to chemical fungicides considered as safe, and with negligible risk to human health and the environment. The objective of this study were to determine the effectiveness of the essential oils from thyme (*Thymus vulgaris*), ajowan (*Carum copticum*), clove (*Eugenia caryophyllata*) and cinnamon (*Cinnamomum zeylanicum*) as botanical fungicides in the control of post-harvest decay of sweet cherry (cv. Siah-e-Mashhad) caused by *Monilinia fructicola*. Fruits were inoculated with a suspension of fungal spores (106 spore/ml) and allowed to dry up. Inoculated fruits were sprayed with essential oils at concentration of 0 (control), 200,400 and 600 ppm, and stored in a cold storage (0±1°C) for two months. Results showed that essential oils had good inhibitory effects on fungal growth. The essential oils effect were dose-dependent, since the lower percentage of fruit decay were obtained for the higher dose. In addition, ajowan oil more effective than thyme, cinnamon and clove oil. Therefore, the results of this study showed that essential oils could be used as an alternative to chemical fungicides for control of post-harvest phytopathogenic fungi on fruits and vegetables.