

**Title** Control of postharvest decay of Thompson seedless table grape by natural products

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### **Abstract**

Post-harvest losses particularly due to fungal invasions, is a major factor in limiting the shelf life of many fruits and vegetables. The antifungal properties of essential oils on the control of some fungal diseases on fruits and vegetables have been determined. In order to examine the effectiveness of essential oils to maintenance quality of 'Thompson seedless' table grapes and study the possibility of controlling these fungi without using synthetic fungicides, antifungal effects of essential oils of fennel (*Foeniculum vulgare* MILL.) and summer savory (*Satureja hortensis* L.) were studied in a series of in vivo (during cold storage of table grape) experiment. The calculated concentrations (0, 200, 400 and 600  $\mu\text{l l}^{-1}$ ) of essential oils were sprayed on harvested clusters and kept in cold storage (0-1°C) for 2 month. The results indicated that spraying of essential oils had good inhibitory effects on the disease severity, rachis browning and weight loss of fruit. Essential oil treatments reduced the disease severity of the fruits and fennel oil had greatest effects. Also, fennel oil at 400 and 600  $\mu\text{l l}^{-1}$  concentrations had greatest effect on the weight loss and rachis browning of fruits, respectively. The results of this study showed that some of essential oils such as fennel and summer savory oils have a good potential in maintaining the quality and/or shelf life of fruits and vegetables, so essential oils could be used an alternative to chemical fungicides or as a new method for the control of post-harvest fungal diseases on table grape in IPM program.