

## OP-34

### Efficacy of biofumigation with essential oils in the control of postharvest rots on nectarines

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#### Abstract

The most common postharvest pathogens on nectarines are *Monilinia fructicola* and *M. laxa*, followed by minor pathogens. The efficacy of five essential oils (EOs) was evaluated against postharvest rots on nectarines. Biofumigation of EOs of red thyme, fennel, basil, oregano, and lemon at a concentration of 2% were evaluated to control brown rot. Disease incidence was evaluated after 14 days of storage at 1°C and after further 7 days shelf-life at 20°C. At the end of storage, nectarines treated with fennel EO showed a significant reduction in rots, whereas the other EOs were not compared to the inoculated control. Isolations from fruit rots showed a prevalence of *Monilinia* spp., followed by *Botrytis cinerea* at the end of storage, and of *Monilinia* spp., with minor occurrence of *Penicillium* spp., *Botrytis* spp., and *Rhizopus* spp. at the end of shelf-life. In the second trial, biofumigation was realized with EOs of fennel, basil, and lemon at the same concentration. Disease incidence was evaluated after a longer storage (28 days) at 1°C and after further 5 days shelf-life at 20°C. At the end of storage, nectarines treated with EOs showed a significant reduction in rots, which were caused by *Monilinia* spp. At the end of shelf-life, the agents of rots were *Monilinia* spp., *Penicillium* spp., *Botrytis* spp., *Alternaria* spp., and *Rhizopus* spp.. In the second trial, fruit quality and microbiome composition were analysed at harvest, after 28 days of storage, and after 5 days of shelf-life. The firmness in the treated fruits with EOs was higher compared to the untreated ones. Treatments with biofumigation with EOs are promising tools for the control of postharvest rots.

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