Title Postharvest control of brown rot and Rhizopus rot in plums and nectarines using carnauba wax

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Abstract

The effects of *Copernicia cerifera* wax (carnauba wax) on the development of *Monilinia fructicola* and *Rhizopus stolonifer in vitro* and on infection in nectarines and plums were investigated. Inhibition of mycelial growth and spore germination were assessed on potato dextrose agar amended with carnauba wax at concentrations of 1%, 2%, 3% and 4.5%. The spore germination of both fungi on nectarines covered with carnauba wax was evaluated by scanning electron microscopy. The post-infection and protective effects of carnauba wax (4.5% and 9%) toward brown rot and Rhizopus rot in plums and nectarines were investigated. In the protective tests, fruit were wounded, covered with carnauba wax and then inoculated. For the post-infection tests, fruit were wounded, inoculated and then covered with carnauba wax. There was no mycelial growth of *M. fructicola* at any of the wax concentrations. *R. stolonifer* was completely inhibited by carnauba wax at all concentrations except at 1%. There was no germination of spores *in vitro* for both *M. fructicola* and *R. stolonifer* at any concentrations of carnauba wax. There was 50% inhibition of spore germination for *M. fructicola* and 90% for *R. stolonifer* on the surface of nectarines covered with 9% carnauba wax. Protective application of 4.5% and 9% carnauba wax significantly reduced incidences of both diseases in nectarines and plums. Post-infection control of both diseases by the application of wax was inefficient.