

**Title** Control of *Monilinia* spp. on stone fruit by curing treatments. Part II: The effect of host and *Monilinia* spp. variables on curing efficacy

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### Abstract

In previous experiments, we identified that a postharvest curing treatment (50 °C for 2 h and 95–99% RH) satisfactorily controlled brown rot on several peach and nectarine varieties. In the present complementary study, the effect of fruit maturity, fruit with natural infection, time of infection and inoculum concentration on the curing efficacy was investigated. Different maturity levels affected curing efficacy. As fruit maturity increased, the efficacy of a postharvest curing treatment decreased from 95% control of brown rot (harvest mature fruit) to 65% (the most advanced mature fruit). The effect of *Monilinia fructicola* infection time prior to treatment also affected the curing efficacy. When the infection time was increased from 0 to 48 h, brown rot control decreased from 90% to 64%. A factorial experiment design was used to investigate the effect of *M. fructicola* conidial concentrations ( $10^3$ ,  $10^4$ ,  $10^5$  and  $10^6$  conidia mL<sup>-1</sup>) at different exposure times (1, 2, 3 and 4 h) on curing efficacy. Overall, longer curing exposure times (3 or 4 h) were required when higher conidial concentrations were applied to the wounded fruit. At the lowest *M. fructicola* conidial concentration tested ( $10^3$  conidia mL<sup>-1</sup>), 2 h of curing exposure resulted in 100% and 94% brown rot control in ‘Andros’ peaches and ‘Flames Kid’ nectarines, respectively. A high level of brown rot control was also achieved when naturally infected fruit with *Monilinia* spp. were cured. When fruit with natural inoculum were surface sterilized prior to the curing treatment, complete brown rot control resulted. This findings support our earlier demonstration that a postharvest curing treatment is an attractive non-chemical strategy for use in conventional and organic stone fruit brown rot management.