

CONTROL OF POST HARVEST GREEN MOLD OF ORANGES AND TANGERINES BY HEAT TREATMENTS, AND CARBONATE AND BICARBONATE SALTS *

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Abstract

Control of citrus green mold caused by *Penicillium digitatum*, was evaluated on artificially inoculated oranges and tangerines immersed in 3 and 4% sodium bicarbonate (SB)(wt/vol) and potassium bicarbonate (PB)(wt/vol), with or without 200 ppm sodium hypochlorite for 60 or 180s; in 3 and 4% sodium carbonate (SC)(wt/vol) and potassium carbonate (PC)(wt/vol) at 25, 37, 45 or 53°C for 60, 180 or 300s; and kept in hot air (37°C) for 24, 48 or 72h. Hot air and water experiments were done in two sets of before and after treatment inoculations. After 3 weeks of storage at 10°C and 80% RH, the incidence of decayed fruits was determined. Results revealed that SB 4 and 3% for 180s reduced decay in Tompson Navel by 67, 65.11% and Shahsavari oranges by 80.16 and 76.04% respectively. SB4% and SB3%+ NaClO 200ppm for 60s reduced decay in tangerines by 59.84 and 58.43% respectively. Control treatments caused 100%, 97-98%, and 89-90.5% decay respectively. In before treatment inoculations, PC and SC 4% at 53°C for 180s, PC3% at 45°C for 300s, PC and SC 3 and 4% at 53°C for 300s reduced decay in Tompson Navel by 100%. SC3% at 53°C for 60 and 180s, PC3% at 45°C for 180s, PC4% and SC 3 and 4% at 53°C for 300s reduced decay in Shahsavari oranges by 100%. PC and SC 4% at 53°C for 180s, PC 4 and 3% and SC4% at 53°C for 300s and PC3% at 37°C for 180s reduced decay in tangerines by 85, 82.5, 80, 77.5, 75, and 75% respectively. Control treatments caused 92%, 100%, and 80% decay respectively. In before treatment inoculations, Hot air for 72, 48 and 24h in Tompson Navel; for 72, 24 and 48h in Shahsavari oranges; and for 48, 72 and 24h in tangerines reduced decay by 95, 95 and 92%; 100, 85.14 and 66.22%; and 100, 95 and 33% respectively. Control treatments caused 100%, 74%, and 100% decay respectively. However, some damages observed on fruits treated with hot air for 72h.

Keywords: *Penicillium digitatum*, Hot water and hot air treatment, Tompson navel oranges, Unshu tangerines, Mahali oranges.

See Persian text for figures and tables (Pages ۱۶۵ -۱۸۱).

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