Effects of Peroxyacetic Acid, Peroxycitric Acid, Sodium Bicarbonate, Potassium Sorbate, and Potassium Metabisulfite on the Control of Green Mold in *Sai Nam Phueng* Tangerine Fruit

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ABSTRACT

The efficiency of peroxyacetic acid (PAA) at concentrations of 0.01 and 0.02% w/v; peroxycitric acid (PCA) and potassium metabisulfite (KMS) at concentrations of 0.01, 0.02, 0.03, 0.04 and 0.05% w/v; and sodium bicarbonate (SBC) and potassium sorbate (KS) at concentrations of 1.0, 1.5, 2.0, 2.5 or 3.0% w/v on controlling green mold on 'Sai Nam Phueng' tangerine fruit was investigated. Fruit inoculated with Penicillium digitatum sp. were dipped into test sanitizing solutions for 3 min and stored at 25±2°C, 95±3% RH for 5 days. The evaluation was based on disease incidence, disease severity (wound diameter) and percent of sporulation compared with control 1 (neither washed nor dipped into distilled water) and control 2 (dipped into distilled water for 3 min). The lowest concentration of each solution that provided the best result was subsequently used to search for the most effective dipping time (1, 3, or 5 min). The pretreated fruits were then stored at 25±2°C, 95±3% RH for 5 days. The solution efficiencies were compared to choose the optimal solution for green mold disease control and then tested again at 5±2°C, 65±3% RH for 25 days. The results indicated that the treated fruit showed significantly less severe symptoms of infection of green mold than the control fruits. The most effective solution to control green mold was the mixed solution of 1.5% KS and 0.02% PAA w/v and dipping time of 5 min which could reduce disease incidence from 94.00% of control 1 and 100.00% of control 2 to 53.33% of treated fruit when stored at 25±2°C, 95±3% RH for 5 days and could reduce disease incidence from 97.33% of control 1 and 100.00% of control 2 to 45.33% of treated fruit when stored at 5±2°C, 65±3% RH for 25 days.

Keywords: Green mold, *Penicillium* sp., Tangerine, Antimicrobial substances