

Title Using Sanitizers and Heat Treatments to Enhance Microbial Safety of Fresh-cut Mangoes
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Abstract

Inactivation of artificially contaminated on and in Numdokmai mangoes (*Mangifera indica*) either with single strain of *Salmonellae* using sanitizers or heat treatments were investigated. Results showed *Salmonellae* survived on and in mangoes at 30°C and 15°C, for up to 5 and 9 days until spoilage. Washing contaminated mangoes with sodium hypochlorite (200 ppm, pH 4 for 10 min) reduced *Salmonellae* cells on surface by 2.0 to 3.0 log from initial population of 3.0 to 4.0 log CFU/fruit. Hydrogen peroxide at 1.5, 3 and 5% for 10 min or hot water (60°C, 15min and 62°C, 4 min) also reduced cells by 2.0 to 4.0 log. However, chlorine dioxide (5, 10, 20 ppm for 30 min) and H₂O₂ (1, 5, 10% for 30 min) did not inactivate internalized cells in mangoes. Cross-contamination examination by cutting washed mangoes to get the half-piece (with rinds remaining) showed no growth after storage for 24 h at 15°C. However, cells revived after 48 to 72 h. While fresh mangoes prepared from fruit washed with 200 ppm sodium hypochlorite 200 ppm for 10 min and H₂O₂ 5% for 10 min and stored at 30°C and 15°C for up to 72 h showed negative *Salmonellae* detection, cells were found from hot water treated mangoes (60°C for 20 min) by tryptic soy broth enrichment. Use of sanitizers and heat treatments in appropriate conditions could enhance food safety in fresh-cut fruit preparation; however the shelf life of this product should be considered due to the possible recovery of injured cells.