

Title Effects of Chlorine and Bicarbonate Wash on Tomato Fruit Decay and Shelf Life during Storage in Simple Evaporative Coolers

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Abstract

Tomato fruit at breaker stage of four cultivars (TLCV15 and CLN1462A from AVRDC and two local cultivars, TMK1 and T56) grown under Cambodia conditions were washed in water, 2% bicarbonate solution (using food-grade baking soda) for 2 min, or 200 ppm sodium hypochlorite (NaOCl, using commercial bleach) for 3 min before storage at ambient or in two types of simple evaporative cooler (EC), brick-walled EC and box-type EC. Fruit decay differed with cultivar and storage condition. In TMK1, bicarbonate and NaOCl wash reduced decay, with NaOCl being more effective except in brick-EC. In T56, decay was serious only in brick-EC and was comparably reduced by bicarbonate and NaOCl wash. In TLCV15, only bicarbonate wash decreased decay in both types of EC while at ambient, decay incidence was very minimal with the wash treatment having no additional benefit. Decay incidence in CLN1462A fruit was low and was further reduced by bicarbonate and NaOCl wash. EC storage slowed down ripening in all cultivars except CLN1462A, manifested as longer periods to reach full ripe stage compared to fruit kept at ambient. Bicarbonate and NaOCl wash had no clear effect on ripening as well as on firmness, soluble solids content, acidity, pH, and sensory appearance and flavor at full ripe stage. In general, the physicochemical and sensory qualities of ripe fruit of all cultivars were not adversely affected by the storage and decay control treatments.