Title Effects of chlorine and bicarbonate wash on fruit decay and shelf life of four tomato cultivars stored in simple evaporative coolers

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Abstract

Four cultivars of tomato fruit (TLCV15 and CLN1462A from AVRDC and two local cultivars, TMK1 and T56) grown under Cambodia conditions were harvested at breaker stage and were washed either in 2% bicarbonate solution for 2 min, 200 ppm chlorine for 3 min or water (control) before storage at ambient and in two types of simple evaporative cooler (EC), the brick-walled EC and box-type EC. Fruit decay differed with cultivar and was higher in the EC than at ambient. Bicarbonate decreased decay of EC-stored fruit of all cultivars. Efficacy of chlorine in reducing decay was not consistent and depended on cultivar and EC condition. At ambient, decay was not affected by bicarbonate and chlorine treatment, except in TMK1 in which decay was reduced more effectively by chlorine than bicarbonate. Chlorine and bicarbonate had no considerable effects on other shelf life attributes. EC storage slowed fruit color development in all cultivars, except CLN1462A, and reduced weight loss, with the brick-walled EC being more effective than the box-type EC. At the ripe stage, firmness, soluble solids content, acidity, and sensory flavor were not adversely affected by EC storage and chlorine treatment, but cultivar differences were evident.