

Title Tomato Cultivar Differences in Fruit Quality and Shelf Life at Ambient and Low Temperature
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Abstract

Four tomato cultivars (CLN2123A and CLN2498E from AVRDC, Perfect 89 from Syngenta and FM1080 from RIFAV) grown under Vietnam conditions were evaluated for fruit quality and shelf life attributes at 25°C and 10°C. Two harvest maturities were used, mature green and breaker stage. Cultivar differences in firmness, soluble solids content (SSC) and acidity as percent citric acid (PCA) were considerable in mature green fruit and narrowed in breaker fruit. CLN2498E had the highest firmness at mature green stage which decreased by about half at breaker stage comparable to that of Perfect 89. SSC and PCA were highest in FM1080. During storage, firmness decreased due to ripening-associated softening. Softening was slow at 10°C and cultivar differences in firmness were maintained in storage. At 25°C, softening was rapid and at the end of storage, all cultivars regardless of harvest maturity had comparable firmness. SSC generally increased with storage, with Perfect 89 at both harvest maturities showing the highest increase at 10°C. At 25°C, FM1080 had higher SSC than the other cultivars. PCA of breaker fruit of all cultivars did not change much with storage in contrast to that of mature green fruit, except for that of CLN2123A. Mature green fruit of FM1080 showed sharp decrease in PCA at 25°C but not at 10°C. Perfect 89 consistently showed increased PCA regardless of harvest maturity and storage temperature. PCA also increased in CLN2498E but later decreased. Decay of fruit harvested at breaker stage had no marked cultivar variations. For fruit harvested mature green and stored at 25°C, high-firmness cultivars (CLN2498E and Perfect 89) had significantly more decay than the other two cultivars. At 10°C CLN2498E had also the highest decay among cultivars. These results suggest that high fruit firmness, a desirable trait for increased resistance to handling damage, is not correlated with long shelf life.