Title The susceptibility of kiwifruit to low temperature breakdown is associated with pre-harvest temperatures and at-harvest soluble solids content

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Citation Postharvest Biology and Technology, Volume 43, Issue 3, March 2007, Pages 283-290

Keywords Actinidia; Kiwifruit; Fruit; Low temperature breakdown; Chilling injury; Acclimation; Storage

Abstract

At harvest, kiwifruit may be susceptible to a physiological storage disorder termed low temperature breakdown (LTB). The incidence and severity of LTB in 'Tomua' kiwifruit was quantified following storage at 0 °C. Fruit were harvested at weekly intervals across the period of fruit maturation in 2001 and 2002. The environmental temperatures during the two harvest seasons differed considerably. In 2001, the autumn was warm, and a period of cool (<7 °C) nights in the middle of the harvest period coincided with both a reduced incidence of LTB and an increased rate of soluble solids content (SSC) accumulation. In 2002, there was a more consistent increase in hours <7 °C through the harvest season, coincident with a more consistent reduction in the incidence of LTB and increase in SSC. The incidence of LTB was lower in fruit from later harvests that had a higher SSC at harvest. The combined 2001 and 2002 data for hours <7 °C and SSC at harvest relationships with LTB incidence after storage both fitted sigmoidal models. It is concluded that acclimation by low pre-harvest temperatures increases the rate of SSC accumulation and reduces the susceptibility of 'Tomua' kiwifruit to LTB.