

Title Chilling-injury of harvested tomato (*Solanum lycopersicum* L.) cv. Micro-Tom fruit is reduced by temperature pre-treatments

Author Kietsuda Luengwilai, Diane M. Beckles and Mikal E. Saltveit

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Abstract

Heat-shocks were used to reduce the development of chilling injury symptoms during ripening of tomato fruit (*Solanum lycopersicum* L. cv. Micro-Tom). Mature green tomatoes were immersed in 30–50 °C water for 3–9 min before being chilled at 2.5 °C for 0, 0.5, 1, 2, 3, or 14 days, and then held at 20 °C for an additional 7–14 days. The affect of both heat-shock and chilling treatments were independent of fruit weight. Measured at 20 °C after 14 days of chilling, fruit exposed to 40 °C for 7 min exhibited reduced chilling injury symptoms, as measured by their advanced ripening score and decreased rate of ion leakage into an isotonic 0.2 M mannitol solution. Reduced rates of leakage from the symplastic compartment probably contributed to the 2-fold decrease in the amount of ions in the apoplastic space, when compared to the control. A subsequent paper will report the results of metabolic profiling of Micro-Tom tomato fruit subjected to treatments that significantly decreased their development of chilling injury symptoms.