

Title Quantification of juiciness and mealiness in tomato

Author B. Brückner, R. Schrödter, D. Schwarz

Citation Book of Abstracts, Southeast Asia Symposium Quality and Safety of Fresh and Fresh Cut Produce Greater Mekong Subregion Conference on Postharvest Quality Management in Chains, August 3-5, 2009, Radisson Hotel, Bangkok, Thailand.

Keyword juiciness; mealiness; tomato

Abstract

Tomato flavor is of eminent importance for the consumption quality experienced by consumers. It has been shown that beside other factors juiciness and mealiness of tomatoes play an important role for flavor perception as a quality criterion itself and by influencing the perception of other flavor constituents like sweetness.

Reduced juiciness is often associated with a higher degree of mealiness, a frequent texture defect in tomato. It is often described as the result of reduced adhesion between cell walls and is usually not measured by instruments. We developed a rapid instrumental method to quantify juiciness using the separation of free juice and non liquid tissue fragments under mechanical pressure.

Several cultivar, were grown at two different temperature regimes in the greenhouse and collected over several weeks during the production period. Fruit were analysed by a trained descriptive sensory panel for texture, flavor, odor and appearance descriptors. For the instrumental measurement of mealiness pericarp disks of fruit were compressed to a maximum force. From the mass of the non-liquid residue (cell wall fragment, intact cells) the relative mass of the released juice was calculated.

Due to the growing conditions and selected cultivar different magnitudes of juiciness was identified both, by the descriptive sensory panel and by the instrumental measurement. A highly significant correlation was observed between instrumental readings and sensory juiciness and mealiness.