

Title Effect of methyl jasmonate on properties of intact tomato fruit monitored with destructive and nondestructive tests

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Abstract

In this work, the effect of temperature, surface treatment and storage time on micromechanical, physical and biochemical properties of intact tomato samples during ripening using destructive and nondestructive tests was studied. The relation between firmness testing and the ripening process of fresh tomato cultivars treated with Methyl jasmonate (MeJA) 220 $\mu\text{L/L}$ was analyzed. Determinations of firmness with nondestructive acoustic impact and destructive puncture Magness–Taylor tests were compared. It was found that the Magness–Taylor test carried out on whole tomatoes are mainly sensitive to turgor reduction while the acoustic impact test was found to be mostly related to the global firmness variation and to the ripening of tomatoes. The firmness data was correlated with color changes (L^* , a^*/b^* and hue angle) and CO_2 and C_2H_4 emissions. The results indicate that MeJA treatment has minimal effects on the ripening process of intact tomatoes. However, from nondestructive measurements, MeJA was found to have the effect of reducing the variation of properties among samples, especially in those stored at 10 °C.