

Title Quality of fresh-cut tomato as affected by type of cut, packaging, temperature and storage time

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Abstract

Long-life 'Calibra' tomatoes (*Lycopersicon esculentum* Mill.) were minimally fresh processed in slices or wedges and packaged in polypropylene (PP) trays. Passive and active (3 kPa O₂+0 kPa CO₂ and 3 kPa O₂+4 kPa CO₂) modified atmosphere packages (MAP) were used at 0 and 5 °C. After 14 days, the gas composition within passive MAP packages was 11–13 kPa O₂+5.5–6 kPa CO₂ and 8–9.5 kPa O₂+10.5–11.5 kPa CO₂ at 0 and 5 °C, respectively. The gas composition reached in active MAP at both temperatures for both types of cuts was around 7–10.5 kPa O₂ and 7–9 kPa CO₂. The highest C₂H₄ level (15 mL L⁻¹) was found in passive MAP at 5 °C, while in active MAP at both temperatures about 6 mL L⁻¹ C₂H₄ accumulated. After 7 days of storage at 0 °C, the tomato pieces showed better aroma, appearance and overall quality than those stored at 5 °C. No difference between MAP treatments was found, although both led to a better appearance and overall quality than controls in air. After 14 days at 0 °C, only MAP treatments kept a good flavour, overall quality and texture, with no differences between them. After 14 days at 5 °C in all treatments, the flavour fell below a fair condition and the slices showed a slight senescence. MAP significantly reduced total plate counts (TPC) of slices at 5 °C, although only active MAP reduced TPC in wedges after 14 days at 5 °C. A visibly better appearance and overall quality was found in slices than in wedges. The main factors influencing the quality of tomato pieces were the storage duration and temperature. To keep the quality of fresh-cut tomatoes, one should consider three factors for selection: a suitable low chilling sensitive tomato cultivar, an adherent placenta and optimal maturity stage at harvest.