

Abstract:

Long-life 'Calibra' tomatoes were selected based on color (65-78° hue angle) and freedom from defects. They were minimally fresh-processed into slices in a clean room at 5 °C. Before slicing, tomatoes were washed in chlorinated (100 ppm) water and air-drained at ambient temperature. Fruit were then cut into slices of about 0.8 cm thickness. Slices were packaged in polypropylene (PP) trays heat-sealed with a 35 μ m PP film. As control a macro-perforated (9 holes of 0.7 mm diameter on 210 cm²) PP film was used. Packages were stored up to 14 days at 5 °C under passive and two active (3 kPa O₂ + 0 kPa CO₂ or 3 kPa O₂ + 4 kPa CO₂, with N₂ as the balance gas) modified atmosphere packaging (MAP) treatments. Changes in microbial counts and sensorial and chemical quality attributes of fresh-cut tomato were evaluated at harvest and after 14 days of storage. At the end of storage, gas composition was 10 kPa O₂ + 12 kPa CO₂ in passive MAP, while atmospheres of 9 kPa O₂ + 8 kPa CO₂ and 6 kPa O₂ + 9 kPa CO₂ were reached in the two active MAP treatments. The levels of C₂H₄ accumulating under passive MAP (12 ppm) were double the levels reached under both active MAP treatments. Compared with control, MAP reduced total microbial counts. After 14 days all treatments were safe, showing levels lower than 10⁵ CFU/g for total plate counts, than 10³ CFU/g for yeasts and than 10² CFU/g for molds. Based on the sensorial quality evaluation, control tomato slices were unsuitable for consumption. Meanwhile slices under all MAP treatments kept a good visual appearance, overall quality and texture, and although only a fair flavour rating was found, they were acceptable for commercial purposes.