Title 1-Methylcyclopropene (1-MCP) for maintaining texture quality of fresh-cut tomato.

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Abstract

A study was conducted to determine the effect of 1-methylcyclopropene (1-MCP) on textural changes in fresh-cut tomato (*Lycopersicon esculentum* cv. Florida 47 obtained from Palmetto, Florida and Newport, Tennessee, USA) slices during storage at 5 deg C. The relationship between fruit developmental stage and tissue water soaking development was also determined. Fresh-cut tomato slices prepared from light-red fruits that had been exposed to 1-MCP (1 micro litre litre-1 for 24 h at 5 deg C) retained significantly higher pericarp firmness during storage at 5 deg C for 10 days than slices from nontreated fruit or slices stored at 10 or 15 deg C and they also had a significantly higher ethylene production maximum. 1-MCP (1 or 10 micro litre litre-1 for 24 h at 5 deg C) had no affect on the firmness of fresh-cut, red tomato slices at 5 deg C or on slices prepared from 5 deg C-stored, intact red tomatoes. Nor did 1-MCP treatment have a significant effect on electrolyte leakage of tomato slices or intact fruits stored at 5 deg C. Slices from fruits of the same developmental stage but with higher initial firmness values had less water soaking development and responded better to 1-MCP treatment during 8 days of storage at 5 deg C. 1-MCP (1 micro litre litre-1) was more effective in reducing water soaking in light red stage tomato slices when applied at 5 deg C for 24 h compared with 1-MCP applied at 10 or 15 deg C. Water soaking development was also more rapid in fresh-cut tomato slices as initial fruit ripeness advanced from breaker to red stage. Water soaking development in fresh-cut tomato slices is an ethylene-mediated symptom of senescence and not a symptom of chilling injury as had previously been proposed.