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| Title | Combined effects of 1-methylcyclopropene, calcium chloride dip, and/or atmospheric modification on quality changes in fresh-cut strawberries |
| Author | E. Aguayo, R. Jansasithorn and A.A. Kader |
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**Abstract**

The aim of this study was to determine the effects of 1-methylcyclopropene, 1-MCP (1 μL $L^{-1}$ for 24 h at 5 °C) on quality attributes and shelf life of fresh-cut strawberries. The 1-MCP was applied before (whole product) and/or after cutting (wedges), followed by storage in a continuous flow of air or air +1 μL $L^{-1}$ $C_2H_4$. The combined effects of 1-MCP and $CaCl_2$ dips (1% for 2 min) and/or CA (3 kPa $O_2$ + 10 kPa $CO_2$) were also examined. The application of only 1-MCP before and/or after cutting did not have a significant effect on firmness and appearance quality during storage for up to 12 days at 5 °C. The exposure to a continuous flow of 1 μL $L^{-1}$ $C_2H_4$ in air during storage did not increase the softening rate. 1-MCP applied before cutting or both before and after cutting of the strawberries increased respiration rates but reduced $C_2H_4$ production rates. Exposure to 1-MCP had a synergistic effect when combined with $CaCl_2$ plus CA. The combined treatment of 1-MCP + $CaCl_2$ + CA slowed down softening, deterioration rates, TA and microbial growth. Compared to the control, which had a 6-day shelf life, the shelf life of fresh-cut strawberries subjected to the combination treatment was extended to 9 days at 5 °C.