

**Title** Effect of postharvest technologies (1-methylcyclopropene and controlled atmosphere) on fresh-cut apples

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### **Abstract**

Postharvest technologies significantly affect storage life of fresh apples and quality of processed apples. Controlled atmosphere storage is effective in extending the shelf-life of apples but results in apples that are not in the best condition for further processing. Application of 1-Methylcyclopropene (MCP) is a new technology. Information relating on its effect on apple quality resistance to browning is limited. The study was conducted to evaluate the quality of fresh-cut apples (FCA) from apples treated with different postharvest technologies including MCP and Controlled atmosphere individually. Jonagold apples were placed in controlled atmosphere storage (CA) and MCP treated apples were placed in refrigerated air (AM) or controlled atmosphere (CAM). After 3, 5, 7 and 9 mo storage, the internal ethylene content (IEC) of the apples was measured. The apples were then cored, sliced, and dipped in water or antibrowning agent. The texture and color of the fresh-cut apples were evaluated during a 14-d simulated retail holding period. During 7 mo storage, IEC of apples from all postharvest treatments were very close. At 9 mo storage, IEC of AM increased significantly. After 3 mo storage, FCA from AM turned brown faster than CA. The trend reversed after 5, 7 and 9 mo storage. FCA from CAM underwent the most browning. A similar trend but to a less extent was found in slices treated with the antibrowning agent. FCA from CAM had significantly better texture than the slices from AM and CA. MCP treatment is as effective as CA storage in terms of ethylene production and texture retention. The combination of the 2 was more effective than individually but the fresh-cut apples from the combination treatments were more sensitive to browning.