Title	Instrumental and sensory quality characteristics of 'Gala' apples in response to prestorage heat, controlled atmosphere, and air storage.
Authors	Saftner, R. A., Abbott, J. A., Conway, W. S., Barden, C. L. and Vinyard, B. T.
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Abstract

Fruit quality, sensory characteristics and volatiles produced by apple (*Malus domestica* [*M. pumila*]) cv. Gala were characterized following regular atmosphere (RA) storage without and with a prestorage heat treatment (38 deg C for 4 days) or controlled atmosphere (CA) storage at 0 and 2 deg C for 0 to 6 months plus 7-day shelf life at 20 deg C. Static CA conditions were 0.7 kPa O2 plus 1.0 kPa CO2, 1.0 kPa O2 plus 1.0 kPa CO2, and 1.5 kPa O2 plus 2.5 kPa CO2. Most of the more abundant volatiles were esters; the rest were alcohols, an aldehyde, a ketone, and an aryl ether. Respiration and ethylene production rates, internal atmospheres of CO2 and ethylene, and volatile levels were reduced following CA storage compared with RA storage without and with a prestorage heat treatment. Magness-Taylor and compression firmness, titratable acidity, and sensory scores for firmness, sourness, apple-fruity flavour, and overall acceptability were higher for CA- than for RA-stored fruit. Soluble solids content and sensory scores for sweetness were similar among all treatments. Quality and sensory characteristics were generally similar in heated and nonheated RA-stored fruit, and between 0 and 2 deg C in CA- and RA-stored fruit. While one CA regime had a higher CO2 concentration than the others tested, CA effects on quality and sensory characteristics were generally more pronounced at the lower O2 levels. Quality characteristics declined between 2 and 4 months of storage. The results indicate that short-term CA storage can maintain instrumental and sensory quality of Gala.