Title	Characterization of changes in 'Gala' apple aroma during storage using Osme analysis, a gas chromatography-olfactometry technique.
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Abstract

Changes in the odour-active volatile compounds produced by 'Gala' apples were measured after 4, 10, and 20 weeks' storage at 1 deg C in regular atmosphere (RA) or controlled atmosphere (CA; 1 kPa O_2 and 1 kPa CO_2), and 16 weeks in CA followed by 4 weeks in RA. Aroma was evaluated using the gas chromatography-olfactometry method Osme. Production of volatile esters decreased along with corresponding fruity aromas during CA storage. Hexyl acetate, butyl acetate, and 2-methylbutyl acetate were emitted in the largest amounts and perceived with the strongest intensities from RA-stored fruit. While hexyl acetate and butyl acetate concentrations and aroma intensities decreased during CA storage, 2-methylbutyl acetate remained at the RA concentration until apples had been stored for 16 weeks in CA. Perception intensities of methylbutyrate esters with apple or berry-like odours decreased less than straight chain esters in CA-stored fruit. 4-Allylanisole, beta -damascenone, and 1-octen-3-ol, as well as anunknown compound with a watermelon descriptor, were perceived more in RA-stored fruit than in CA-stored apples. Factor analysis indicated the importance of these compounds in 'Gala' apples stored for 4 weeks in RA. Even though these compounds do not have an apple odour, they contribute to fresh 'Gala' aroma.