Title Physicochemical measurements in 'Mondial Gala®' apples stored at different atmospheres: Influence on consumer acceptability

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Abstract

Standard quality parameters, consumer acceptability, emission of volatile compounds and ethylene production of 'Mondial Gala®' apples (*Malus* × *domestica* Borkh.) were determined in relation to storage atmosphere, storage period and shelf-life period. Fruit were harvested at the commercial date and stored in AIR (21 kPa O_2:0.03 kPa CO_2) or under three different controlled atmospheres (CAs): LO (2 kPa O_2:2 kPa CO_2), ULO1 (1 kPa O_2:1 kPa CO_2), or ULO2 (1 kPa O_2:2 kPa CO_2). Fruit samples were analysed after 12 and 26 weeks of storage plus 1 or 7 d at 20 °C.

Apples stored in CA maintained better standard quality parameters than AIR-stored fruit. The volatile compounds that contributed most to the characteristic aroma of 'Mondial Gala®' apples after storage were butyl, hexyl and 2-methylbutyl acetate, hexyl propanoate, ethyl butanoate, ethyl hexanoate, ethyl, butyl and hexyl 2-methylbutanoate. Data obtained from fruit analysis were subjected to principal component analysis (PCA). The apples most accepted by consumers showed the highest emission of ethyl 2-methylbutanoate, ethyl hexanoate, *tert*-butyl propanoate and ethyl acetate, in addition to the highest titratable acidity and firmness values.