

In-vitro and in-vivo flavour release from six intact and fresh-cut apple cultivars in relation to their textural and physico-chemical parameters

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To gain a better understanding on the genetic basis of apple quality, the volatile organic compound (VOC) profile of six commercial apple cultivars (Fuji, Golden Delicious, Granny Smith, Jonagold, Morgen Dallago and Red Delicious) was determined using Proton Transfer Reaction Quadrupole Mass Spectrometry (PTR-MS). The textural and physicochemical (pH, acidity and water content) properties of the six cultivars were also measured.

Cultivar type strongly influenced volatile release: Fuji and Granny Smith apples had the lowest total concentration of VOC (esters, aldehydes, alcohols and terpenes) whereas Red Delicious had the highest. Differences in VOC release enabled cultivars to be grouped based on their genetic/inherited traits such as Jonagold and Golden Delicious. Dynamic in-vivo nose space analysis allowed cultivars to be characterized on mastication time and in-nose concentration based on four VOC measured (esters m/z 43, 61; acetaldehyde m/z 45; ethanol m/z 47). Firm cultivars (Fuji, Granny Smith) had a longer consumption time and a lower VOC concentration. Softer cultivars (Golden Delicious, Morgen Dallago) were consumed faster, released more VOCs and reached a maximum VOC intensity faster.

Nosespace VOC data on the cultivars, collected with a novel PTR-Time of Flight Mass Spectrometer, PTR-TOF-MS enabled isobaric compounds to be differentiated and provided a more accurate profile solely based on cultivar variation highlighting its potential to rapidly screen samples.

Towards a large axiom SNP array for tetraploid rose

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Rose, as many other important ornamental, vegetable and field crops, is polyploid. This poses constraints in genetic analyses, due to, amongst others, the occurrence of multiple alleles at marker and trait loci, and the existence of multiple allele dosages. As a