Postharvest evolution of aromatic and nutritional quality for various strawberry cultivars in France

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Abstract

Strawberry (*Fragaria × ananassa* Duch.) is widely popular in France and the national production has an important economic role. Strawberries are consumed as fresh fruits but are also frequently found in processed products and/or some concentrated flavor preparations. Strawberry has a typical aroma, nearly 400 volatiles have been reported, and contains high levels of micronutrients and phytochemical compounds such as vitamin C and polyphenols, important compounds both for the metabolism of the plant and for the nutritional and organoleptic quality of this fruit. Because French consumers are paying more and more attention to the health benefits and the quality of their food, the aim of this research was to study the effect of the cultivar and the harvest date on the levels of physicochemical characteristics (firmness, sugars, acids), volatile components and compounds of nutritional interest (vitamin C and polyphenols) in five June-bearing cultivars widely cropped in France ('Ciflorette', 'Cléry', 'Darselect', 'Darselect Bright', 'Gariguette'). The effects of a distribution chain (from picking to consumer), including storage and a standardized transport simulation, were also studied. The cultivars were cropped at the Ctifl Center of Balandran (south-east of France) in soil under plastic tunnel, and harvested at maturity over two seasons, 2010 and 2011. The results have shown that levels of physicochemical characteristics, volatiles and compounds of nutritional interest strongly depend on cultivar and less on harvest date. The changes observed in the levels of vitamin C and polyphenols during the process of fruit distribution were in general fairly limited, whereas those of volatiles, particularly furanes, increased.