

Aromatic profile and antioxidant properties during blackberry (*Rubus glaucus* Benth.) fruit ripening

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Abstract

Monitoring the ripening process in the Castilla blackberry fruit (*Rubus glaucus* Benth.) is an aspect of great interest as it facilitates postharvest handling and determines the potential of agro-industrial processing. This fruit is a good source of antioxidants and contains appreciable levels of phenolic compounds, mainly anthocyanins. Aromatic profiling, using an electronic nose, is one of the most innovative nondestructive techniques which has been used in the aroma analysis of food and other matrices. This device imitates the human olfactory system through sensors which are partially specific for different groups of volatile chemicals for differentiating and classifying food (with multivariate statistics). An important application of this technique is assessing changes in volatile components during different stages of maturity in fruits. During maturation, fruits undergo complex biochemical reactions that are evident in the development of the characteristic sensory properties and the change in composition. In order to establish the behavior of the aromatic profile and antioxidant properties of the Castilla blackberry fruit during maturation, the fruit was evaluated in three states: green, intermediate harvest and ripe. The aromatic profile, using an electronic nose, the antioxidant capacity and anthocyanin and total phenol contents were evaluated. The results show that the ripe state can be distinguished by evaluating the aroma profile and anthocyanin content. In the green blackberry, the total phenol content was appreciable compared to the other two states and the antioxidant capacity did not differ significantly between the evaluated samples. The moisture, pH and Total soluble solids tended to increase while they tended to decrease during the ripening of the blackberries fruit. The results of the antioxidant properties showed that, during ripening, the total anthocyanin pigments tended to increase. In contrast, total phenolics did not display a specific trend. A close analysis of the contents of specific phenolic compounds present during ripening showed that they tended to decrease.