

CA33: Skin and flesh odorants - free and bound form - in three red grapes depending on harvesting time and berry position into the bunch

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Substantial qualitative and quantitative changes in the aroma profiles of three red *Vitis vinifera* L. red cultivars (Gran Negro -the local name of the wellknown teinturier Morrastrel Bouschet-, Mouratón and Brancellao), have been previously observed at different stages of ripening and at two positions of the berries within the bunch. Monitoring the evolution of volatile compounds during the maturation process can be used as a useful tool to determine the best moment for harvesting, a time when a balanced sugar/acidity ratio should be accompanied by the maximum concentration of favourable volatiles. Moreover, it is necessary to emphasize that in the aromatic potential of the grapevine cultivars must be taken into account free and bound glycoside forms. Free forms are volatile compounds directly involved in aroma flavor, while bound glycoside forms work as a reservoir of odourless precursors which can be released by hydrolysis to increase the aroma.

However, from a practical point of view, concentration of aromatic compounds is not so important because the olfactory perception threshold for each compound varies considerably. Thus, the olfactory impact of a compound will depend on whether it is present at concentrations above this threshold. For this reason, we calculated the Odor Activity Value for the volatile compounds studied using the equation $OAV = c/t$, where c is the concentration total of each compound in the berry samples and t is the odour threshold value of the compound in water taken from the literature. According to other authors, only compounds with $OAVs > 1$ were considered as active odorants (Guth, 1997), and, therefore, they play an important role in the overall grapevine aroma.

The aim of this study was to determine the evolution of free and bound aromatic compounds of 'Brancellao', 'Gran Negro' (Morrastrel Bouschet) and 'Mouratón' cultivars during ripening and the odorants with a higher weight in the general berry flavour. Berries from apical and basal positions within the bunch were collected and analyzed separately to check if the position affects aromatic composition and, therefore, perception of grapevine aroma. In general, on the basis of Odour Activity Values, green, floral and spicy descriptors were the most odour-active odorants in the three considered cultivars. Although green descriptors decreased with time, floral and spicy ones increased through the time.