

Rosé wines: recent findings on aromas

Recent enthusiasm for Rosé wines on the US market as well as on international markets shows that it is by no means a secondary product. It's a unique product and therefore needs specific tools in terms of process: maceration, color extraction, aromas preservation etc.

Identifying and assaying key compounds in Rosé wine aromas

As there was no previous work on aromas in Rosé wines made from Merlot, Cabernet Sauvignon and Cabernet Franc, Laffort's SARCO Laboratory decided to study seven aroma compounds that had a demonstrated impact on the aromas of red wines of the same varieties. These molecules were assayed in 30 samples of Bordeaux Rosé wines. The same wines were also evaluated by an experienced panel of tasters, who were asked to rank the samples according to their fruity character. For each of the aroma compounds studied, we established a regression line between the sum of the rank according to taste and the dosage to determine if there was a degree of dependence.

It appears that three compounds: 3-mercaptohexan-1-ol (3MH) (described as grapefruit and passion fruit), 3-mercaptohexyle acetate (3MHA) (box tree, passion fruit) and phenyl-ethyl acetate (PEA) (rose) contribute in a discriminant manner in these Rosé wine aromas; wines with the highest 3MH, 3MHA and PEA concentration were found to taste the fruitiest. In the case of β -Damascenone (apple compote), isoamyl (IA) (banana) and phenyl-2-ethanol (PE) (rose), on the contrary, the contribution of these three compounds is minimal, as was for the β -ionon (violet).

Role of anthocyanins in the stability of 3MH aromas in the Rosé wines

Color is particularly important in Rosé wine, not only as criteria of choice for the consumer, but also for the wine itself. A longer maceration or a higher temperature of maceration are generally known to increase wine color, that is to say anthocyanins extraction from 35% up to 70%. SO₂ acts to decrease color perception, but doesn't have any effect on actual anthocyanins content. It is common to notice that the wine in bottle may have a better color after racking, when there is increased free SO₂.

A study was performed to examine the role of anthocyanins in volatile thiol stability. Aroma evolution has been followed in a control (model medium) bottle and in a bottle enriched in anthocyanins extracts or malvidin-O-glucoside. During the three-week storage, the 3MH content of both the control and the solution containing malvidin-O-glucoside decreased. But the addition of malvidin-O-glucoside or anthocyanins extracted from wine attenuated the disappearance of 3MH in model medium, probably due to antioxidant and/or chelating properties of these phenolic compounds. The aromas of Rosé are, thus, better protected if they have high anthocyanin content. Conversely, the chemical instability of anthocyanins certainly contributes to the fragility of its aroma.

Impact of ageing on fine lees on the volatile thiols content in Rosé wines

If we measure 3MH and 3MHA content of several Rosé wines after two months aging with or without lees, the wines have a higher volatile thiol content when they are aged on the lees, which are known to have reducing properties. It is probable that glutathione, whose decrease is minimized with ageing on lees, contributes to the preservation of Rosé wine aromas similar as has been demonstrated for dry white wines.

Impact of yeast strain on Rosé wine aromas

For several years, Laffort has tested a large number of yeasts strains commonly used to make white and rosé wines, as well as experimental strains. The results clearly show that yeast strains have a major impact on the fruity aromas of rosé wines. Release of 3MH and production of PEA has been statistically correlated to the strain. The choice of a suitable yeast strain is thus a significant factor in making fruity rosé wine. As an example, Zymaflore X5 shows a remarkable aptitude to release 3MH from its cysteinylated precursor and produce its acetate (3MHA). It also generates small quantities of fermentation esters. On the contrary, the new strain Actiflore Rosé releases less of the volatile thiols and produces more fermentation esters, particularly isoamyl acetate. It is therefore possible to adapt the choice of yeast strain to suit the desired aromatic profile, even in a case of blending.