

The Blackcurrant in your favourite Sauvignon Blanc

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Every year, the top 10 Sauvignon Blanc competition sees great versatility in the range of wine styles entered, and every year there are a few fascinating examples of wines harbouring intense blackcurrant aroma, usually supported by complex layers of aromatics and a rich and full palate.

The compound responsible for this potent aroma is called 4MMP (4-mercapto-4-methyl-pentan-2-one) and is one of three main sulphur-containing compounds (generally referred to as the volatile thiols) frequently found in Sauvignon blanc wines. The aroma of 4MMP is traditionally described as 'blackcurrant' and 'box-tree', with 'cat urine' nuances when present at higher concentrations. It has also been described as 'green', 'mint' and 'exotic fruits'. 4MMP is not present in the grape in its aromatic form, but rather as a conjugated precursor which needs to be released by the yeast during the fermentation process.

Year after year there are specific sites delivering grapes with elevated potential for 4MMP production. A great example of a wine that consistently delivers this style, is the Tokara Reserve Collection Elgin Sauvignon blanc, which, in 2018, delivered a concentration of 65 ng/L 4MMP. To put things in perspective, 4MMP usually ranges from 0-40 ng/L and only in exceptional cases will the concentration exceed 60 ng/L, sometimes reaching as high as 120 ng/L. Even in international standards, these concentrations are considered particularly high and with an odour threshold of 0.8 ng/L, the aromatic impact of this compound, if present, can be astounding.

Other producers which have produced Sauvignon blanc wines with elevated levels of 4MMP (FNB Top10 Sauvignon Blanc samples measured in the past three years) includes Almenkerk, Strandveld and South Hill, all of which harvested from Elgin or Elim wine-producing areas. This raises the question: What unique location-specific factors are stimulating the production of the 4MMP precursors in these wine-growing areas?

The Cape South Coast is characterized by cooler temperatures and proximity to the Atlantic, however, because the exact mechanism of 4MMP production in the grape berry is still unknown, it is difficult to establish if the cooler climate is a direct contributor to the formation of 4MMP. Viticultural practices such as soil and foliar fertilisation have shown potential to increase the 4MMP content in the resulting wine, however, if this was the main drive behind the occurrence of the aroma compound, certainly we would have seen more 4MMP loaded wines from all the South African wine-growing regions. There seems to be a definite trend regarding the potential of cool-climate zones and these areas can become hotbeds of innovation when it comes to creating unique and interesting Sauvignon Blanc wines.

In the cellar, various winemaking practices can be employed to ensure the optimal release of 4MMP from the inherent precursors. The yeast strain used to conduct the fermentation is notably a major factor with some yeast strains potentially releasing more of the aromatic compound than others. Other factors such as the duration of skin contact and the fermentation temperature can be adjusted to ensure that the full potential is extracted and released, however, the inherent potential needs to be present, meaning, if the 4MMP precursor is not part of the juice composition, then no tricks in the cellar will be able to generate 4MMP.

The preservation of the compound is also of importance as studies have shown that 4MMP is prone to natural acid hydrolysis (breakdown over time). Therefore, the presence of sulphur dioxide is crucial to protect the aroma from oxidation. Other than that, storing the wine at a low temperature will help to decrease the natural hydrolysis rate, extending the aromatic contribution of 4MMP and therefore, the shelf-life of the wine.

It is obvious that a lot more research needs to be done to pinpoint the exact mechanisms involved and factors affecting the formation of 4MMP. Sauvignon blanc South Africa, in partnership with the Stellenbosch University and Winetech, analyzes each year's top-performing wines, identifying viticultural sites with above-average potential for 4MMP production. These results are included in the annual technical information day held on Wednesday 20 November in Franschhoek.

For more information or to become a member, visit www.sauvignonblanc.com or call 021 975 4440. Join the online conversation about the #FNBTOP10 #SauvignonBlancSA and tag Sauvignon Blanc SA on Twitter @SauvignonSA and on Facebook and Instagram as @sauvignonblancsa.