

Differences in the volatile fingerprints and fermentation performances of non-*Saccharomyces* and *Saccharomyces* wine yeasts

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The diversification of the supply, in terms of typicality and sensory complexity of fermented beverages (wine, cognac, whisky ...), is an option favored by producers to establish themselves in a highly competitive market. Indeed, the development of new products showing original sensory profiles must meet the consumers' new expectations, who are looking for high-quality wines and spirits, with a strong aromatic character. These notes can be brought by compounds belonging to different chemical groups, and derived from different pathways of the yeast's metabolism. Some of these compounds are well-known (higher alcohols, acetate esters, ...), but other volatile molecules are more unusual : terpenes, lactones and benzene derived molecules are some examples of those unusual compounds.

In this context, the first step of the work was to study the fermentation ability of 54 non-*Saccharomyces* and 40 *Saccharomyces* yeast strains, isolated from grape juices. The fermentations were carried out in enological conditions, at 24°C. Interestingly, some of the non-*Saccharomyces* strains managed to consume more than 80% of the total sugars present in the must.

The second part of this work was to study the production of volatile molecules by the strains during the fermentation, using GC-MS. Similar to the fermentation aspects, the volatile profiles of the different strains were quite different, which corroborated the high diversity of the non-*Saccharomyces* yeasts. Furthermore, some strains produced unusual aromas. This work can highlight the potential of some non-*Saccharomyces* yeast strains –even in pure cultures- for winemaking.

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