

Impact of nitrogen sources on the fermentative kinetic of non - *Saccharomyces* yeasts.

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Alcoholic fermentation, an essential step of winemaking, has been mainly controlled over the past 50 yeasts through the use of selected starter cultures of *S. cerevisiae*. This is the safest way to ensure the completion of fermentation and to avoid undesirable off-compounds. The non-*Saccharomyces* yeasts, predominant in grape juice, are rapidly outcompeted by *S. cerevisiae* during fermentation because of their poor adaptation to increasing concentrations of ethanol and the lack of oxygen. Even though these species were used to be considered as spoilage microorganisms for a long time, their potential to improve the sensory quality of wines is now recognized. However, the metabolic specificities of non-*Saccharomyces* yeasts remain ill-characterised, in particular their ability to catabolize the nitrogen compounds. Therefore, it is critical to fill this shortcoming, nitrogen assimilation playing a key role in the fermentation process and the production of aroma compounds.

With this aim, fermentations were carried out in presence of an unique nitrogen source (27 experiments per strain). Monitoring the production of CO₂ thanks to a robot-assisted system allowed to compare the fermentation profiles of *S. cerevisiae* and non-*Saccharomyces* strains. We observed that non-*Saccharomyces* yeasts displayed a shorter lag phase than *S. cerevisiae*, likely reflecting a better adaptation of these species to wine environment. Different behaviours between strains were evidenced, depending on the provided nitrogen source, highlighting the preferred amino acids specific to each species.

This information will now allow to better manage the nitrogen nutrition during wine fermentations that use non-conventional yeasts sequentially inoculated with *S. cerevisiae*.