



MACROWINE 2018

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Microbial diversity and interactions and wine quality

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Wine is the product of a complex process in which microorganisms have a central role. Its quality is determined by multiple parameters such as grape composition, enological procedures and microbial diversity and interactions. It is known that yeasts and bacteria are the agents of the alcoholic and malolactic fermentations, respectively, and that limited species are responsible for most of the transformations occurring during such processes. *Saccharomyces cerevisiae* and *Oenococcus oeni* are the species most largely studied, however in the last years interest in new species of potential enological application have been studied.

Grapes and wineries are considered to be the main sources of microorganisms for wine production, and especially in case of spontaneous fermentation, their control is fundamental to assure the production of high quality wines. Understanding their microbial ecology is crucial to fully comprehend their contribution to the winemaking process and to discover new species, which may be relevant in the fermentation. Next generation sequencing can help in this context due to its capability to describe precisely the diversity of the microbial populations.

In this paper we will present data related to the description of grape ecology and how this can be affected by pre- and post-harvest treatment. The impact of these changes on the fermentation process and on the wine composition will be also taken into account. Moreover, the interactions occurring during fermentation between different wine yeasts and within the *S. cerevisiae* species will be described, leading to the conclusion of intimate cell-to-cell contact which may be responsible for the yeasts behavior and as a consequence on the wine final quality.