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LACHANCEA THERMOTOLERANS APPLICATIONS IN MODERN WINE MICROBIOLOGY

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The traditional wine microbiology methodologies to make wine are based on the use of only one conventional yeast species during alcoholic fermentation, known as *Saccharomyces cerevisiae*. Another conventional wine microorganism is the conventional lactic bacteria species *Oenococcus oeni* that performs the second wine fermentation known as malolactic fermentation. Those traditional winemaking methodologies make conventional wines from a wine microbial point of view. The presentation shows the modern applications of the non-conventional wine species *Lachancea thermotolerans*. It shows a modern winemaking biotechnology that lets growing several quality parameters such as acidity, color or aroma, while reducing the incidence of wine modern health risky compounds such as ethyl carbamate or biogenic amines. The central use of *Lachancea thermotolerans* in current winemaking is to raise the acidity of grape juices from warm areas such as the south of Europe where the acidity is dramatically low due to the extreme metabolic rate of vine plants under high temperatures during the plant development period. *Lachancea thermotolerans* is able to produce lactic acid that can compensate the decreases in malic and tartaric acids under those extreme conditions. Although this factor is the most known application of *Lachancea thermotolerans* in modern winemaking, new advances shows that its use can increase other important quality parameters such as aroma, color and food safety.

Recent Publications

1. Benito Á, Calderón F, Palomero F and Benito S (2015) Combine use of selected *Schizosaccharomyces pombe* and *Lachancea thermotolerans* yeast strains as an alternative to the traditional malolactic fermentation

in red wine production. *Molecules* 20(6):9510-9523.

2. Benito Á, Calderón F and Benito S (2016) Combined use of *S. pombe* and *L. thermotolerans* in winemaking: Beneficial effects determined through the study of wines' analytical characteristics. *Molecules* 21(12):1744.
3. Benito Á, Calderón F, Palomero F and Benito S (2016) Quality and composition of Airén wines fermented by sequential inoculation of *Lachancea thermotolerans* and *Saccharomyces cerevisiae*. *Food Technology and Biotechnology* 54(2):135-144.
4. Benito Á, Calderón F and Benito S (2017) The combined use of *Schizosaccharomyces pombe* and *Lachancea thermotolerans* effect on the anthocyanin wine composition. *Molecules* 22(5):739.
5. Benito S (2018) The impacts of *Lachancea thermotolerans* yeast strains on winemaking. *Applied Microbiology and Biotechnology* 1-16.

Biography

Santiago Benito is the Vice President of the Chemistry and Food Technology Department at the Polytechnic University of Madrid and the Director of the Madrid University Experimental Winery. He has written more than 40 scientific/indexed publications in renowned world international journals. Most of the publications are related to wine microbiology and winemaking.

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