

MEMORIA



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través de la **vitivinicultura**”

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obtained from barrique staves, and with the effects of this treatment in terms of protection against the microbial contamination of wood and interference with the phenol transfer to wine.

The membrane molecular structure was confirmed by solid state NMR. The fermentation kinetic of synthetic juices by *Saccharomyces cerevisiae* in presence of treated or untreated wood, the ease of colonization of the blocks by 15 species of wine spoilage yeasts and bacteria, and the transfer to wine of 21 simple phenols were studied.

Fermentation kinetic was unaffected. The membrane reduced the wood roughness, helped along washing and prevented wood colonization. Membrane hydrophobicity and the presence of Sn could be involved in the process, the latter by the inhibition of the microbial growth inside the siliceous layer. No significant differences were observed for the transfer of phenols, with the exception of homovanillic acid. Now, these positive results obtained in laboratory scale suggest to examine in depth the membrane compatibility with alcohol before any winery application.

Keywords: oak wood, silica membrane, spoilage microorganisms, phenol extraction

ENO-39

Oenological tannins are possible suppliers of varietal thiol precursors

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Summary

Worldwide, winemakers use tannins as clarifying, stabilising and antioxidant agents, texturers and aromatic adjuvants. In this last case, the contribute of tannins is usually traced back to their ability of linking sulphur off-flavours and/or to the supply in vanilla-like, spicy and "oaky" aroma compounds mainly related to the presence of peculiar simple phenols and lactones.

In this work we report that two thiol precursors (3-S-cysteinyl hexan-1-ol and 3-S-glutathionyl hexan-1-ol) were found for the first time in grape commercial oenological tannin samples, in concentrations as high as 200 and 138 mg/kg, respectively. Differences were found between tannins obtained from grape skin and seeds, in agreement with the distribution of the precursors in the grape berry reported in the literature.

Technologically speaking, ad hoc additions of selected tannins - after fermentative conversion of the precursors into the free thiol forms - could theoretically rise 3-mercaptohexan-1-ol over its sensory threshold, favour the formation of the corresponding acetate during fermentation and, finally, improve the exotic-fruit flavour profile of wine.

Keywords: wine, grape tannin, varietal thiols, aroma precursors

ENO-40

FTIR-based multivariate models to forecast the tartaric stability

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Summary

As the tartaric instability in the bottle still is a technical and commercial problem for winemakers, this paper investigated the possibility of forecasting the tartaric stability of wine using multivariate models created on the basis of infrared spectral information. More than 500 white, rosé and red wines - obtained without any addition of stabilizing agents - were analysed using Fourier Transform Infrared Spectroscopy, and their tartaric stability was assessed with the "mini-contact test" (10 min, 0°C, KHT) and the "cooling test" (5 days, -4°C), both used as well known and widespread reference methods.

Partial Least Squares-Regression and Artificial Neural Networks were applied on 80% of the samples to create predictive models which correctly classified (89 - 97%) the residual 20% of wines used as external validation subset. In the worst cases only 4-6% of unstable wines were erroneously classified as stable.

Keywords: wine, tartaric stability, FTIR, multivariate models, neural networks

ENO-41**The young sparkling wine aroma and its variability due to the yeast strain and the amount of assimilable nitrogen in the base-wine**

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Summary

Six base wines (3 Mueller-Thurgau, 2 Prosecco, 1 Chardonnay), each at 2 levels of assimilable nitrogen, were fermented in the bottle with 6 yeast strains. The yeasts (SP665, DV10, Rhone 2056, FR95, BC, R2) were prepared as suggested by the Comité Interprofessionnel du Vin de Champagne. The sparkling wines were kept on the lees at 4-5°C. About 40 aroma compounds in free form were analysed by GC-FID two months after the end of second fermentation.

Second fermentation did not increased acetates of higher alcohols and ethyl esters of fatty acids responsible for fruitiness. When pied de cuve is well prepared, base wine assimilable nitrogen is a marginal factor as regards the fruity aroma compounds produced during second fermentation. The fruity aroma of sparkling and fizzy wines to be drunk young, greatly appreciated by the consumers, has to be already present in the base wine.

Keywords: yeast strain, yeast assimilable nitrogen, sparkling, fermentative aroma compounds

ENO-42**Modelamiento y control de un alambique charentais de destilación de vinos**

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