

Application of *Hanseniaspora vineae* Hv205 in white and red grapes vinification on diverse winery scales.

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Introduction

At laboratory scale, yeast *Hanseniaspora vineae* has a good proven fermentative capacity and low volatile acidity formation when its compare to other species of this genus. Also shows a increase contribution to the aromatic profile of wines with floral, fruity and mouthfeel descriptors. Because of that it is important to understand its behavior at industrial level with all the variables that this implies (different regions, varieties, climates and winemaking practices).

The aim of this work was to carry out fermentations with the selected strain Hv205 and with diverse grape varieties in wineries located in Uruguay, Italy and Spain during two harvests and study the flavor profile and quality effects on different vinifications conditions.

Chemical and sensory analysis were performed in wines made of Chardonnay and Albillo white grapes and Tannat red grapes. These fermentations were carried out in two vintages in wineries located in Uruguay, Italy and Spain. In all cases, vinifications of *H. vineae* were finished inoculating different *S. cerevisiae* strains, according to wineries strategies. All fermentations were analyzed for their chemical composition and aromatic compounds in order to evaluate the wines obtained in comparison with controls fermented only with the reference *S. cerevisiae*.

		Reducing sugars (g/L)	Alcohol (%)	Volatil acidity (g/L)
URUGUAY				
Chardonnay	Hv	2.5	14.6	0,4
	Sc	2.6	14.5	0,5
Tannat	Hv	1.7	13.3	0,4
	Sc	1.5	13.3	0.38
ITALIA				
Chard Lavis	Hv	1.5	11.20	0.34
	Sc	<1.0	11.36	0.62
San Michele	Hv	<1.0	11.41	0.17
	Sc	<1.0	11.31	0.20
Giaroni	Hv	<1.0	11.81	0.24
	Sc	<1.0	11.72	0.22

Table 1. Chemical composition of wines obtained in Uruguay and Italy

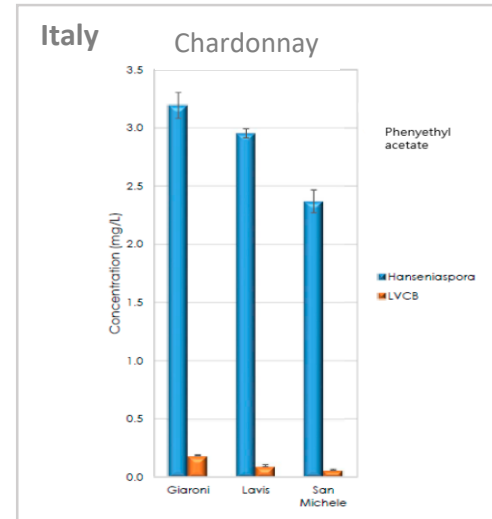


Figure 1. Comparison of phenylethyl acetate production of Hv205 vs. *S. cerevisiae* in sparkling base wine fermentations of Chardonnay in three different vineyards of Trentino Italy.



Figure 2. Comparison of aromatic compounds production of Hv205 vs. *S. cerevisiae* in fermentations of white Albillo grapes in vineyards from Ribera del Duero, Spain.

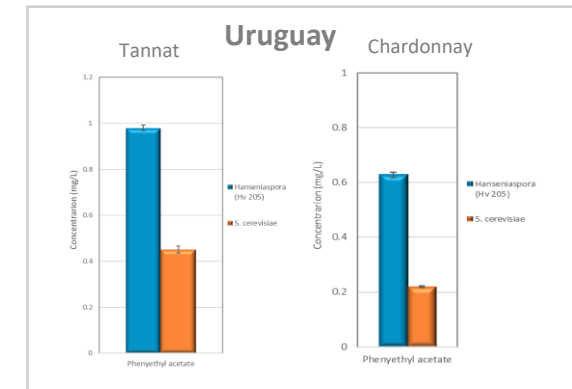


Figure 3. Comparison of phenylethyl acetate production of Hv205 vs. *S. cerevisiae* in fermentations of Tannat and Chardonnay grapes in vineyards from Uruguay.

Conclusions

All vinifications carried out confirm what we observed at laboratory scale, *H. vineae* stands out for its notably higher production of mainly the ester phenylethyl acetate. This compound gives the wines obtained more floral and fruity aromas.

In Albillo wines, a grape characterized by its low aromatic intensity, in addition to the significant increase of this aromatic ester, we can see a significant increase concentration of monoterpenes compared to *Saccharomyces*. Values above the sensory threshold that impact on the floral, citric and subtle clove descriptors. Similar results were obtained with Macabeo white in Terragona region (Lleixa et al. 2016).

All the vinifications had a correct end of fermentation without significant differences with the control *S. cerevisiae* in terms of reducing sugars and alcohol content. On the other hand, in some cases as the Italian white wine vinifications, significant lower volatile acidity were obtained in the vinifications with Hv205.

These results confirm the real potential of the selected *H. vineae* strain at commercial winery scale, contributing with increase flavor complexity.