



Effect of supplementation with inactive yeast during alcoholic fermentation in base wine for sparkling wine production

Fernando Zamora^a, Elena González-Royo^a, Laura Medina^a, Nathalie Sieczkowski^b, José Heras^b,

Joan Miquel Canals^a

^a Departament de Bioquímica i Biotecnologia, Facultat d'Enologia de Tarragona, Universitat Rovira i Virgili, C/Marcel·lí Domingo, 1. 43007 Tarragona, Spain

^b Lallemand BIO S.L. C/ Galileu 303. 1^a planta. 08028-Barcelona. Spain

INTRODUCTION: Foam stability of sparkling wines is significantly favored by the presence of surface active agents such as proteins and polysaccharides [1]. For that reason, the renowned sparkling wines are aged after the second fermentation in contact with the lees for several months (even years). Thereby wines are enriched in these macromolecules due to yeast autolysis. Since this practice is slow and costly, winemakers are seeking for alternative procedures to increase their concentration in base wines. In that sense, the supplementation with inactive yeast during alcoholic fermentation has been proposed [2]. The aim of this study was to determine whether this new strategy is really useful for enriching base wines in macromolecules and for improving foam properties of the base wines.

MATERIAL AND METHODS: Macabeo grapes were harvested at the appropriate maturity and pressed. The grape juice was immediately sulfited and pectinolytic enzymes were added to facilitate settling. After 24 h, clean grape juices (around 70 L each) were racked into nine 100-L stainless steel tanks and were fermented under controlled temperature (16-18 °C) with selected yeasts. Three tanks were considered as controls whereas other 6 were supplemented with 40 g/hL of 2 inactive yeasts (3 with Optiwhite and 3 with Optimumwhite; Lallemand Inc., Montreal, Canada). Once the

alcoholic fermentation was finished, wines were sulfited, racked and cold stabilized. Proteins were analyzed by HRSEC-DAD [3], polysaccharides by HRSEC-RID [4] and foaming properties by the Mosalux procedure [5].

RESULTS: Both inactive yeasts increased the protein (Table 1) and polysaccharide (Table 2) concentration of the base wines in comparison with the non-supplemented control wines. Optiwhite was more effective for enriching polysaccharide concentration whereas Optimumwhite was more effective for enriching protein concentration. Regardless the foam properties (Figure 1), supplementation with Optiwhite originated base wines with a significant higher value of foamability (Hm) than the control. The persistence of the foam (Hs) also tended to be higher but this increase was not statistically significant. Optimumwhite also tended to increase both parameters (Hm and Hs) but none of these differences was statistically significant.

CONCLUSIONS: The supplementation with inactive yeasts is a useful tool to increase protein and polysaccharide concentration of base wines and also to improve its foam properties.

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