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Influence of polysaccharide extracts from wine by-products on the volatile composition of sparkling white wines

Abstract

In the production of sparkling wines, during the second fermentation, mannoproteins are released by yeast autolysis, which affect the quality of the wines. The effect of mannoproteins has been extensively studied, and may affect aroma and foam quality. However, there are no studies on the effect of other polysaccharides such as those from grapes. Considering the large production of waste from the wine industry, it was proposed to obtain polysaccharide-rich extracts from some of these by-products[1]. Therefore, the aim of this work was to study the effect of polysaccharide extracts obtained from white grape must and pomace on the volatile composition of a sparkling white wine and to compare them with the use of commercial mannoproteins.

The *Verdejo* sparkling wines were elaborated by the traditional method and the different extracts were added in the tirage liquor. Five experiences were carried out: control wine and wines with the addition of four extracts from white must, white pomace, and two commercial products rich in yeast polysaccharides. The second fermentation was carried out in closed bottles in contact with lees and after 9 months, the sparkling wines were riddled and disgorged, and they were analyzed after 3 months. Minor volatile compounds were extracted by headspace solid-phase microextraction and quantified using a gas chromatograph coupled to a mass detector.

Statistically significant differences were found for most of the volatile compounds evaluated by treatment effect. The sparkling wines treated with polysaccharide extracts from wine by-products showed higher contents of ethyl esters of straight-chain fatty acids, ethyl esters of branched-chain fatty acids, alcohol acetates, terpenes and vanillin derivates than control wines. Therefore, these extracts can favor the maintenance of high content of volatile compounds associated with fruity and floral notes.

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References:
1) Canalejo D. et al. (2022) Characterization of polysaccharide extracts recovered from different grape and winemaking products. Food Res. Int., 157, 111480, DOI 10.1016/j.foodres.2022.111480

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