

INTRODUCTION

- The phenolic profile of a wine plays an essential role in its oxidative capacity and in both white and red wines it defines its shelf life[1]. The study of minority varieties to produce wines with peculiar characteristics necessarily includes the phenolic and oxidative characterization of the wines produced. This paper presents the study of wines made from 24 minority and majority white and red grape varieties, focusing on phenolic characteristics (total phenols, slightly polymerized phenols, highly polymerized phenols, anthocyanins...), color, as well as parameters related to the oxidability of the wines and their capacity to consume oxygen [2]. The white wines studied were made with the following varieties: Albarin, Albillo, Doña Blanca, Godello, Legiruela, Malvasia, Puesta en Cruz, Rufete Blanco, Sauvignon Blanc, Verdejo and Viognier and the red wines with Bruñal, Cabernet Sauvignon, Cenicienta, Estaladiña, Juan García, Mandón, Mencía, Merenzao, Merlot, Negro Sauri, Prieto Picudo, Tempranillo, Tinta de Toro.
- The preliminary results obtained are very interesting and indicate that regardless of the winery, the wines of each variety have their own characteristics, showing a lower capacity to consume oxygen in white wines made with Puesta en Cruz, Rufete Blanco, Viognier or Albillo, which is reflected in their lower browning compared to wines made with Albarin, Verdejo or Sauvignon Blanc, which have a higher browning rate. In the case of red wines, those made with Mandón, Cenicienta or Juan García show a greater capacity to consume oxygen than those made with Negro Sauri, Merenzao or Estaladiña.

OBJETIVES

- Phenolic characterization, color and antioxidant capacity of wines made from different white and red grape Castilla y León minority varieties.
- Characterization of oxygen consumption kinetics of wines and phenolic profile.

MATERIALS AND METHODS

36 wines made with varieties from Castilla y León have been characterized by analyzing:

- basic parameters (total acidity, volatile acidity, alcohol content, free and total sulfur dioxide)
- color (L^* , a^* , b^*)
- antioxidant capacity (CAO)
- capacity to consume oxygen (Omin, Omax, Omax-min)
- browning (PAR)
- total phenolic compounds (IPT)
- highly polymerized phenols (PMP)
- low polymerized phenols (PPP)
- anthocyanins (ACY)



RESULTS

White wines

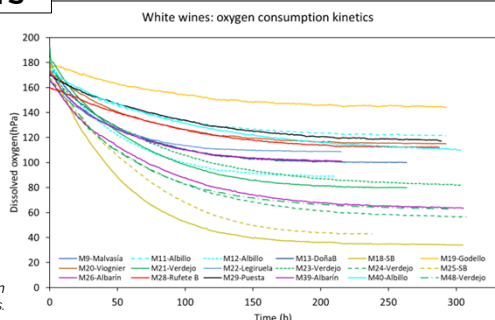


Figure 1. Oxygen consumption kinetics of white wines.

- Malvasia wines show high content in phenolic compounds which is reflected in the high b^* and C coordinates, high antioxidant capacity as well as in the avidity to consume oxygen quickly, being the white wine that browns the most and the fastest.
- Verdejo wines consume a lot of oxygen but do so very slowly. Albarin, Puesta en Cruz and especially Rufete Blanco wines are characterized by their low antioxidant capacity, which may be related with their low content of phenolic compounds and the low sulfur dioxide.
- The wine made with the Legiruela variety stands out for being the one that browns the most and does so most slowly.

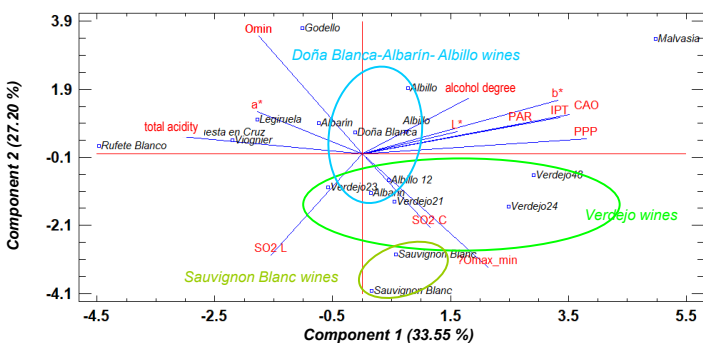


Figure 2. Principal component analysis of the variables analyzed in the white wines.

Red wines

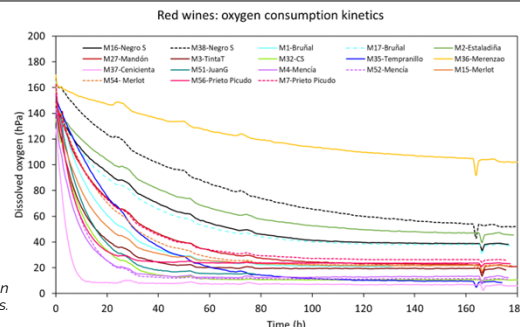


Figure 3. Oxygen consumption kinetics of red wines.

- Merenzao wines stand out for their low color intensity, lower IPT, LPP, HPP, CI and anthocyanin content. This is directly related to its lower antioxidant capacity and its lower capacity to consume oxygen, doing so more slowly than the rest. Something similar has been found in one of the wines made with Negro Sauri (synonym of Merenzao).

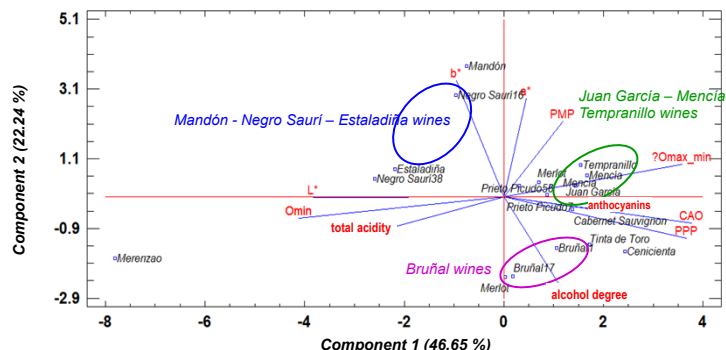


Figure 4. Principal component analysis of the variables analyzed in the red wines.

CONCLUSIONS

Very interesting characteristics have been revealed in wines made from:

- Wines from minority white varieties, notably Rufete Blanco, for its low color intensity, and Legiruela, for being the most resistant to oxidation, both wines with high total acidity.
- Wines from red varieties, such as Cenicienta, Bruñal and Juan García, with high antioxidant capacity and good phenolic profile and color comparable to wines of majority varieties such as Tinta de Toro, Cabernet Sauvignon or Tempranillo.

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