



Aroma properties of young Spanish monovarietal white wines: a study using sorting task, list of terms and frequency of citation

By: E. Campo, B. Do, V. Ferreira, and D. Valentin

In: Australian Journal of Grape and Wine Research, 14:104-115. 2008

- What are the aroma characteristics that define the main Spanish monovarietal white wines? The authors realized that such definition was lacking, probably due to a combination of factors, such as: 1) many varieties are shared across winemaking regions which differ widely in climate and viticultural and enological practices, 2) many white wines are sold as blends, and 3) many Spanish white varieties are non-floral and rather neutral.

So these authors asked themselves if experienced tasters could group these wines together based on variety. More specifically, this study had 3 goals: 1) determine if wines made from the same variety could be identified and clustered together based on aroma; 2) evaluate the degree of difference between wine from different varieties; and 3) describe in depth the aroma of each varietal wine.

- The authors included 23 Spanish commercial white wines from the 2004 vintage representing 9 different varieties (2-3 different brands per variety): Albariño, Chardonnay, Godello, Macabeo, Sauvignon blanc, Verdejo, Treixadura, Xarello, and Palomino. All wines had been fermented in tanks without oak, had less than 2g/L residual sugar, and were of medium price (4 to 12 euros/bottle, or \$6-18).

- The tasting panel consisted of 32 students and staff of the University of Burgundy, screened through the use of basic sensory tests. As an alternative to classical descriptive analysis, the authors used a two-step methodology to study the wines, comprised of 1) a “free sorting task”, followed by 2) a “descriptive analysis” based on attribute citation frequencies.

- Briefly, for the **free sorting task**, the panelists were asked to sort the wines into groups based on odor similarities (because the authors were mostly interested in the aroma profile, the study did not include taste). Then, the panelists were asked to provide a few words to describe each of the groups. For the **descriptive task**, the panelists underwent a period of training, after which they generated a list of 73 familiar aroma terms. Then, they were asked to evaluate the study wines and allocate a maximum of 6 aroma terms from the list to each wine. Only terms cited by a minimum of 5 judges (15% of the panel members) were considered for statistical analysis.

- **Results**. The different types of analyses the authors applied clustered the wines in slightly different ways, but the most complete classification grouped the 23 wines into the following 4 clusters:

	Wines in this cluster:	Descriptors of each cluster:
Cluster 1	2 Treixadura 2 Chardonnay 1 Albariño	<i>Burnt family</i> (smoky, caramel, toasted bread)
Cluster 2	1 Macabeo 1 Godello 1 Palomino	<i>Undergrowth family</i> (mushroom) <i>Animal family</i> (wet dog) <i>Floral family</i> (cauliflower, green beans, asparagus, artichoke)
Cluster 3	2 Macabeo 1 Godello 1 Treixadura 2 Albariño 2 Chardonnay	<i>Spicy family</i> (liquorice, cinnamon) <i>Floral family</i> (white fruit, orange blossom, apricot)
Cluster 4	3 Verdejo (out of 3) 2 Sauvignon blanc (out of 2)	<i>Exotic fruit family</i> (passion fruit, mango, blackcurrant) *

* [Summary author note: Interestingly, no vegetal or mineral terms in this cluster!]

When the authors projected the results obtained from the repeated evaluation of the same wine on a map, each pair of wine replicates appeared very close together for most pairs, meaning there was good panel reproducibility.

- Highlights from the authors' discussion:

- _ Verdejo and Sauvignon blanc are similar varieties aromatically;
- _ Verdejo and Sauvignon blanc have a well-defined "aromatic space", whereas the rest of the varieties have similar sensory characters;
- _ with the exception of Verdejo and Sauvignon blanc, there was no classification of the wines based on variety, meaning that grape variety may not be the major factor defining the aroma of Spanish varietal wines. [Editor's note: This could also be a problem with this test – they asked them to sort by similarities not by differences – the wines could be very different yet have some distinctive similarities – this is a tough study to do that really does depend upon the training of the panel].
- _ some of the wines showed unexpected unpleasant aromas, or aromas in the burnt and animal families (not the typical expectation for a young, unoaked white wine), which contributed to further blurring of the role of varietal typicality.
- _ the proposed strategy to evaluate wine aroma – a sorting followed by a descriptive analysis based on attribute frequency- proved satisfactory to delimit the sensory spaces of each of the wines studied.

In conclusion, the Spanish monovarietal white wines Verdejo and Sauvignon blanc had a similar and typical aroma profile, rich in tropical fruit descriptors. No clear grouping was observed for the rest of the wines tested. This suggests that grape variety is not a major factor in defining the aroma of commercial Spanish white wines, and that other factors such as geographic origin or winemaking practice may be more influential.

Author: Bibiana Guerra, Editors: Kay Bogart, Linda Bisson. This summary series funded by J. Lohr Vineyards & Wines.