

Oenological potential of indigenous Greek grape varieties and their clones

Evangelia Nanou¹, Sofia Nikolaou¹, Panagiotis Tsagaratos¹, Konstantinos Bakasietas², Sofoklis Petropoulos², Alexandros Kanapitsas¹ and Yorgos Kotseridis¹



¹Laboratory of Oenology and Alcoholic Drinks, Department of Food Science & Human Nutrition, Agricultural University of Athens, Greece
²Hellenifera & VNB Bakasietas Vine Nursery, Nemea, Greece



Aim

Vine clone selection aims at the survival of clones with particularly desirable attributes for the production of high quality wines. The purpose of this research was to study the oenological potential of the clones of Greek indigenous grape varieties over two vintages, 2018 and 2019.

Methods

Two clones of the white grape varieties **Moschofilero** (E26 and E27), **Assyrtiko** (E11 and 16), **Roditis** (25E16 and 02E1E21), and two clones of the red grape varieties **Xinomavro** (19 and E2E30) and **Agiorgitiko** (03E40 and 41E47) were vinified under the same protocol for the white wines and common for the red wines in 2018 and 2019. The resulting products were studied for several enological parameters such as alcohol content, volatile acidity, pH, total phenolics, anthocyanins and tannins for the red wines, as well as browning tests for the white wines. The aroma profile of these ten samples was investigated through sensory analysis with intensity rating of individual attributes on a five-point scale by a trained panel.

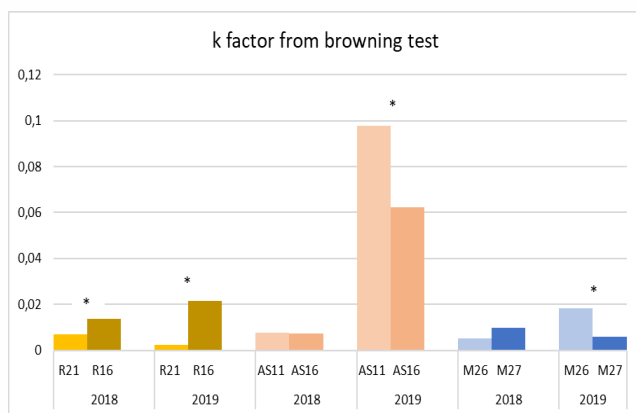


Figure 1: Coefficient k indicating the rate of color change in the white wines. (*) denotes statistically different clones at $\alpha=0,05$

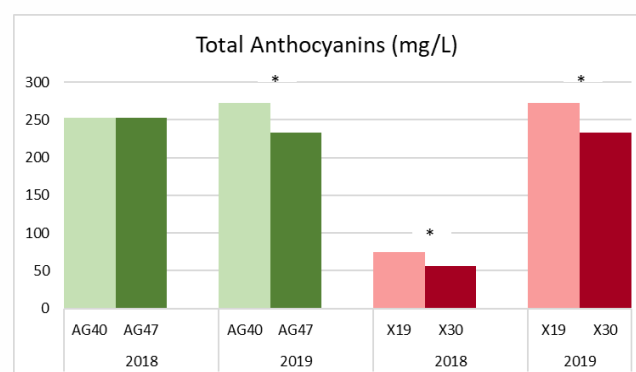
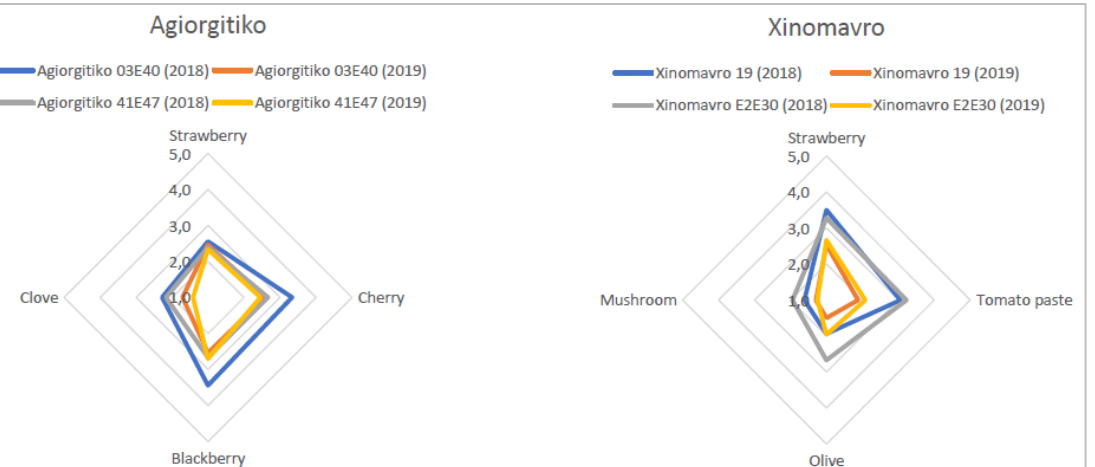


Figure 2: Total anthocyanins (mg/L) in the red wines. (*) denotes statistically different clones at $\alpha=0,05$



Figures 3 and 4: Spiderdiagrams of the aroma attributes for the white and red grape varieties, respectively.

Results

The clones of Roditis 02E1E21 and Moschofilero E26 had a lower tendency to oxidation compared to Roditis 25E16 and Moschofilero E27 in 2018. Roditis variety keeps the same pattern in 2019, while the contrary was observed for Moschofilero. Assyrtiko 16 had a lower tendency to oxidation in 2019. Agiorgitiko 03E40 was found higher in tannins compared to clone 41E47 in both years, and the wine of Xinomavro 19 was richer in anthocyanins and phenolic content than clone E2E30 in both vintages, as well. Regarding their aroma profiles in 2018, Roditis 02E1E21 and Assyrtiko E11 were characterized by higher citrus fruit aroma intensity, and Moschofilero E27 scored higher in rose aroma compared to their counterparts. Agiorgitiko 03E40 was characterised by higher cherry and blackberry intensity, while Xinomavro E2E30 was richer in olive aroma compared to their counterparts. These differences in aroma tend to appear in the wines of vintage 2019 as well, although they are not statistically significant in that vintage.

Conclusions

This work was a first attempt to study the characteristics of two clones of the five main Greek grape varieties over two consecutive vintages and it denoted some significant differences in the final product of the clones. Repetition of the same study protocol in the coming vintages and careful investigation of the abovementioned quality parameters may lead to the appropriate clone selection and consequently to consistent products with specific varietal attributes.

Acknowledgements

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