

Effect of the physical environment of Santorini Island on Assyrtiko grape ripening and its wine's characteristics

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INTRODUCTION & AIM

The factors that influence the quality characteristics of wine depend on the vine as well as the soil and its microclimate (terroir) and extend to the winemaking and maturation stages. The Assyrtiko winegrape variety has been adapted to the volcanic soil of Santorini for 3500 years. The preservation of quality PDO Santorini wines involves finding the ideal location to allow full grape ripening in light of climate change. Thus, this study aims to evaluate the effect of location and harvesting time on the quality of Assyrtiko wine.

METHOD

This study evaluated the effect of the location (three distant plots of land, in three different areas of the island) during the grape ripening process by monitoring weight per 100 berries, sugar concentration, total acidity, pH value, and malic and tartaric acid in grape juice. The grapes from three distant vineyards were vinified separately using the same winemaking procedure, and the quality characteristics of the produced wines were studied. Moreover, the aromatic volatile profile of the wines was evaluated with GC-MS.

CONCLUSION

The highest terroir expression was revealed in the wine derived from grapes harvested later than in the other locations, showing that perhaps when full grape ripeness is reached by the end of the growing season, the grapevine variety is better suited to the local climatic conditions.

FUTURE WORK / REFERENCES

RESULTS & DISCUSSION

A two-way ANOVA analysis revealed that, besides location and harvest time, their interaction is also significant for the parameters studied, except for the interaction effect involving sugar content. An analysis of volatile aromatic compounds revealed that the wine harvested later than the others has a higher aromatic intensity with notes of citrus, white fleshed fruits, and tropical fruits. This wine surpasses the levels of 2-phenylethanol, isoamylacetate, linalool, and 2-phenylethyl ester with 17.8%, 7.7%, 21.1%, and 15.6%, respectively, compared to the immediate next in descending order.

