Paper on "Meteorological Based Modeling of δ18O Values for Wines with the "Prosecco" Controlled Designation of Origin".

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Key words: HV model, isotopic data, meteorological influence, wine characterization.

Parole chiave: modello meteorologico HV, rapporto isotopico, influenza meteorologica, caratterizzazione di vini.

Abstract

Weather data from the Prosecco area were used to apply a model proposed by Hermannm and Voerkelius for estimating $\delta^{18}O$ values in wine and to determine the spatio-temporal variability of these values. Eleven reference stations were considered as inputs for 1973-2017 meteorological data. The results of the model revealed interannual and spatial variability similar to that observed for other grape varieties or other viticultural areas, and we highlight the need for more careful consideration of meteorological factors in causing the variation in $\delta^{18}O$ values. Meteorological modeling of isotopic values can help constrain sampling procedures aimed at collecting representative data from different Prosecco production areas and estimating $\delta^{18}O$ range corresponding for each year to overall "Prosecco" region. Estimated values revealed a significant degree of temporal variability across the eleven sites and consequently across the considered years. More, we obtained experimentally $\delta^{18}O$ values for 36 bottled "Prosecco" wines collected from 2012 to 2017 and compared these results with the range defined 27 by the HV model for each corresponding year, and a good data consistency was found.