

## F.18. OXIDATIVE STABILITY OF DRY WHITE WINES DEPENDING ON TECHNOLOGICAL FACTORS: SULFUR DIOXIDE, IRON AND COPPER IONS

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**Abstract.** Oxidation processes are slow phenomena that take place throughout the wine's life, from the beginning of winemaking to aging in bottles. Several parameters play an important role in aging of the wine, such as the temperature and hygrometry during the storage of the bottles but also the permeability of the corks which will influence the amount of oxygen brought to the wine. It is accepted that certain grape varieties are especially sensitive to oxidation, suggesting that some of the chemical components key to their sensory attributes are strongly modulated by oxygen exposure. Of all the gases that can be dissolved in wine, oxygen and carbon dioxide can be considered the most important. Oxygen must be considered as a highly reactive chemical agent that has the potential to modify wine by oxidation. The purpose of this paper is to carry out a detailed study of sulfur dioxide (SO<sub>2</sub>), copper (Cu<sup>2+</sup>) and iron (Fe<sup>3+</sup>) ions distribution and concentrations in wine throughout different stages of the winemaking process. In the dynamics, the physico-chemical indices, specific indices (pH, OD 420 nm, antioxidant capacity, POM-test, other) were performed on the grapes, must and wine samples. Generalizing the results of the experimental and applied presented study, it is revealed that the decomposition rates of oxygen in wines described a good correlation with the total concentration of exogenous copper and iron in the wine samples, both for total and residual concentrations compared to decomposition oxygen rates. The results obtained in this research reveal remarkable new aspects about Cu and Fe speciation in white wine. They open new opportunities for further research on the influence of copper and iron speciation on winemaking.

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