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Study of the role of oxygen in the evolution of red wine colour under different ageing conditions in barrels and bottles

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Abstract:

Wine ageing in barrels is conditioned, among other factors, by the amount of oxygen received during this process, which thus impacts its final properties. The aim of this study was to evaluate the effect of oxygen on wine colour during ageing in barrels and bottles during different times. The use of barrels with different and known rates of oxygenation allows the effect of different oxygenation conditions throughout the process in barrels and its later evolution in bottles. A simulation process of ageing in bottles was used to study the impact of bottling in wines after differing ageing periods in barrels. The study of wine's oxygen consumption capacity has been tied to colour modifications during ageing in barrels and bottles. Wines aged in barrels with a high oxygenation rate showed greater avidity to consume oxygen taking less time to consume that available, which is reflected in a greater increase in colour intensity.

Keywords: barrel OTR, bottle storage simulation, colour, consumption kinetics, red wine, vis spectroscopy