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*Analytical Chemistry for Wine, Brandy and Spirits*



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## CA64: Phenolic composition, colour and sensory analysis during the winemaking of minority varieties from the D.O.Ca. Rioja

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Although Tempranillo is the most extended grape variety in the Qualified Origin Denomination Rioja (Spain), there are also an important number of autochthonous minority red grape varieties which could be employed in the winemaking. Some studies point out that the employment of some of these varieties would allow to obtain high quality red wines with their own personality and different from the rest of the wines that exist in the market. Therefore, the objective of this paper was to evaluate the oenological potential of three minority varieties from the D.O.Ca Rioja: Red Maturana and Monastel, permitted in 2007 by the D.O.Ca Rioja, and red Maturana of Navarrete. Tempranillo was also studied as a reference variety.

It is obvious the influence of monomeric and polymeric phenolic compounds in the colour parameters and sensory quality of the wines. Therefore, the aim of this work was to evaluate the potential of the selected varieties by analyzing the sensory quality of the wines obtained as well as the changes occurring in the colour parameters and polyphenolic composition during the winemaking, analyzing both the effect of the alcoholic and the malolactic fermentation.

Monomeric polyphenols and tannins were analysed by HPLC-DAD in wines after alcoholic and malolactic fermentation. Colour parameters were analysed by spectrophotometric techniques and sensory analysis was conducted in the final wines by a panel of twelve expert tasters and wines were analysed in 3 phases: visual, aromatic and gustative.

Principal component analysis was applied in order to determine the relationships in colour parameters and phenolic compounds between the varietal wines after alcoholic and malolactic fermentation. After alcoholic fermentation, Monastel showed the highest values in color intensity, red wine colour and monomeric anthocyanins. Red Maturana showed the highest content of flavonols whereas Monastel and Tempranillo had the highest values in proanthocyanidins. After malolactic fermentation, a decrease in colour and in all phenolic compounds was observed.

In the sensory analysis, tasters chose red Maturana of Navarrete as the best wine. In the olfactory phase, it was dominated by spicy aromas and it was characterised by a high persistence. In the visual phase, it was Tempranillo and Monastel the ones showing the highest punctuations, in good agreement with the colour analysis.

**Keywords:** Wine colour, polyphenols, sensory analysis, minority varieties.