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**In Vino**

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*Analytical Chemistry for Wine, Brandy and Spirits*



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## CA55: Suitability of alternative grape varieties for the wine making of natural sparkling wines: study of monomeric phenolic composition, proanthocyanidins, biogenic amines and sensory analysis

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In recent years, a new market strategy in the oenological industry based on the diversification of sparkling natural wines production and on the exploitation of the characteristics and peculiarities of autochthonous grape varieties is emerging. In this frame, Spain has an important number of grape varieties which could present good characteristics to obtain natural quality sparkling wines with quality and distinctive profiles.

In spite of the obvious implications of monomeric phenolic compounds, proanthocyanidins and biogenic amines in the sensory quality of wines, there are very few studies developed to establish the changes of these compounds during the manufacture of natural sparkling wines. Therefore, the aim of this work was to evaluate the potential of five white varieties and two red varieties to elaborate natural sparkling wines by monitoring the sensory characteristics of the wines and the changes occurring in these compounds during the winemaking and ageing processes.

Monomeric polyphenols, tannins and biogenic amines were analysed by HPLC-DAD in five points during sparkling wine vinification: base wine, clarified base wine, and three, six and nine months after tirage phase. Sensory analysis was conducted in the final wines by a panel of ten expert tasters and wines were analysed in 4 phases: visual, aromatic, gustative and foam quality.

In rosé sparkling wines, monomeric anthocyanins were 3 fold higher in Prieto picudo than in Garnacha sparkling wines. On the other hand, Garnacha sparkling wines showed higher content in total hydroxycinnamic acids, flavonols and gallic acid than Prieto picudo sparkling wines. With regards to the content of proanthocyanidins and biogenic amines, both varieties showed similar and low contents. Sensory analysis showed Prieto picudo was the best valued rosé sparkling wine. It showed the greatest color and olfactory intensity, dominated by fruity and varietal aromas, and the best foam quality.

Among white sparkling wines, Viura sparkling wines showed the highest content of proanthocyanidins and hydroxycinnamic acids, while Malvasía and Verdejo had the highest gallic acid content. On the other hand, Albarín sparkling wines showed the highest content in catechin and total flavonols. All sparkling wines showed low amounts of biogenic amines and never exceeded 5 mg/L. With regards to sensory analysis, Albarín sparkling wines showed the highest color punctuations and aromatic intensity, dominated by fruity aromas. In the gustative phase, tasters chose wines made from Albarín and Godello as the best wines, and Verdejo was described to have the best foam quality.

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