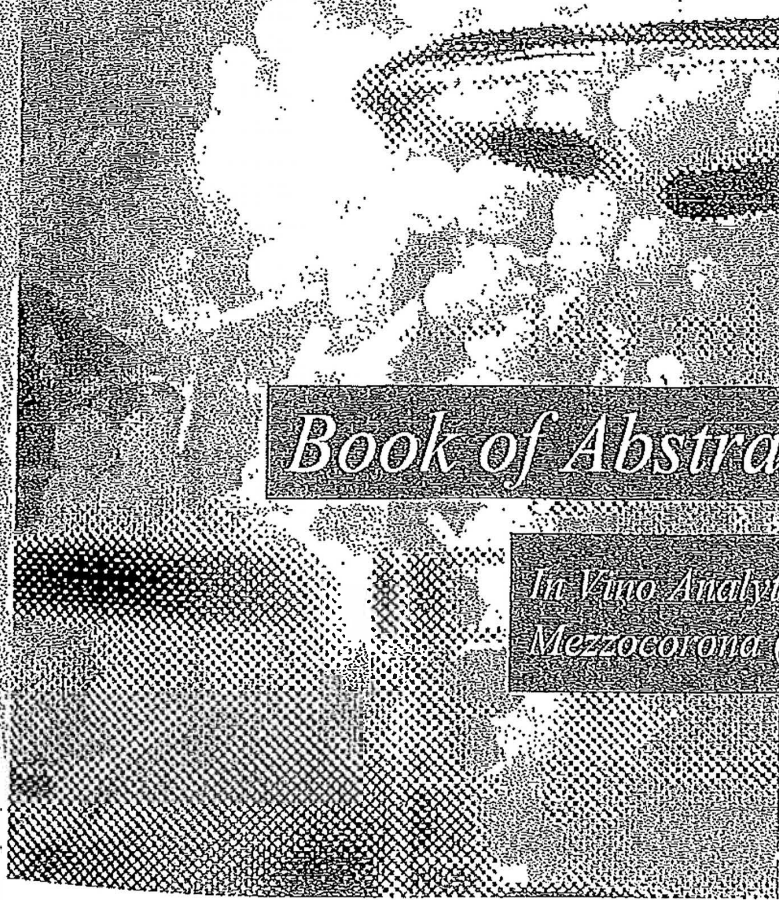


NINTH SYMPOSIUM

# In Vino Analytica

## Scientia 2015

*Analytical Chemistry for Wine, Brandy and Spirits*



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Volatile compounds were extracted from a wine by a method that provides representative extracts. A GC-MS-O analysis was then performed with 8 judges. On the basis of GC-O results, gaseous samples were prepared containing mixtures of compounds eluting from the column and selected on the basis of their detection score out of GC-O analysis. The odor of these samples was evaluated scoring their similarity with the odor of the complete wine extract on a scale.

GC-O analysis evidences a total of 33 odorant zones detected significantly. The evaluation of extracts designed with the InnOscent device demonstrates that the mixture of all the odorants detected by GC-O can mimic the aroma of the wine studied. Moreover, the mixture of the odorants perceived by 75% of the judges involved in GC-O, is demonstrated to be sufficient to mimic the aroma of the wine studied. These compounds represent only around 40% of the odorants detected. This approach enables to reinforce the relevance of GC-O for wine aroma analysis.

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#### REFERENCE

- [1] Ryan D., Prenzler P., Saliba A., Scollary G. The significance of low impact odorants in global odour perception, *Trends in Food Science & Technology* 2008, 19, 383-389.

#### CHEMAN 11 - Changes of volatile compounds during the ageing on lees of red sparkling wines elaborated by the champenoise method

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**ABSTRACT** - Red sparkling wines are elaborated in countries like Australia, South-Africa, Argentina, Italy or Portugal, with a great acceptance by consumers. However, in Spain the production of red sparkling wines are practically non-existent. As it is well-known, during the sparkling wine aging, yeast autolysis leads to significant changes in wine composition [1], and especially in the volatile compounds that could have a great effect on the final quality of these wines [2-4]. However, no studies have been found focused on red sparkling wines. One of the initial problems in the red sparkling wine elaboration is to obtain suitable base wines since on the one hand the alcoholic degree should be between 10-11.5°, and on the other red grapes harvested at this prematurity stage have not achieved the adequate phenolic maturity.

The aim of this work was to study the changes of the volatile composition of red sparkling wines during their ageing on lees in bottle, and compare them with those found in white and rosé sparkling wines. In addition, the effect of grape maturity degree was also studied.

Different red sparkling wines were elaborated from Tempranillo grapes harvested in two maturity moments: prematurity grapes with alcohol degree and acidity suitable to elaborate a sparkling wine, but that they do not have the adequate phenolic maturity; and grapes at their optimum degree of maturity. Red sparkling wines were elaborated following the traditional or "champenoise" method, and after the tirage phase, the bottles were kept in a cellar at temperature and relative humidity controlled for 12 months. The volatile compounds were extracted by liquid-liquid extraction and analysed by GC-MS, following the method and conditions established by Rodríguez-Bencomo *et al.* [5]. Samples were analysed after 3, 6, 9 and 12 months of aging on lees.

It was observed an increased in ethyl esters of branched-chain fatty acids, ethyl lactate and butyrolactone, and decreased in ethyl esters of straight-chain fatty acids, alcohol acetates, and some terpenes during the ageing on lees. Quantitative differences were also found between red sparkling wines depending on the maturity degree of the grapes used.

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