

TENTH SYMPOSIUM

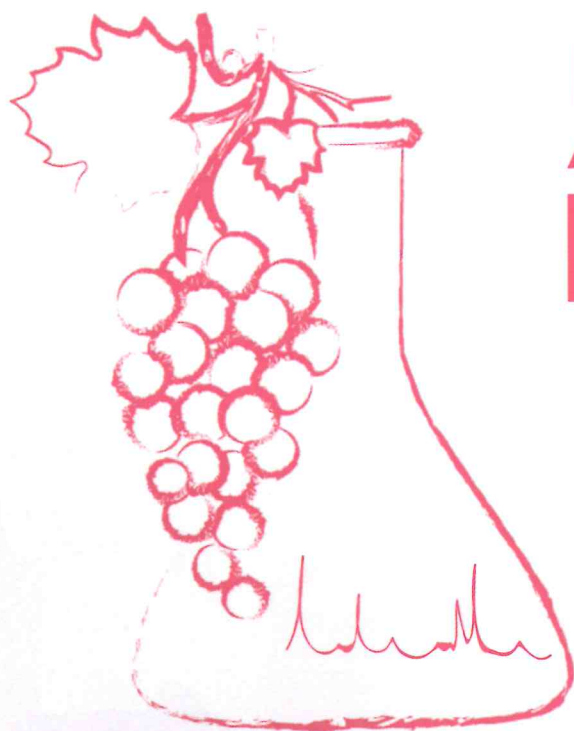
In Vino Analytica

Scientia

*Analytical Chemistry
for Wine, Brandy
and Spirits*



VNIVERSIDAD
D SALAMANCA
CAMPUS DE EXCELENCIA INTERNACIONAL



Book of
ABSTRACTS
IVAS2017

17-20 July 2017, Salamanca (Spain)

CHEM 29 - The diversity of tannins in Italian red wines: chemical and sensory characteristics

P. Arapitsas^a, A. Curioni^b, A. Gambuti^c, V. Gerbi^d, S. Giacosa^d, M. Marangon^b, F. Mattivi^a, L. Moio^e, G. Parpinello^e, P. Piombino^c, A. Ricci^e, S. Río Segade^d, L. Rolle^d, B. Simonato^f, G. Tornielli^f, A. Versari^e, S. Vincenzi^b, M. Ugliano^f.

^aFondazione Edmund Mach, Research and Innovation Centre, Department of Food Quality and Nutrition, San Michele all'Adige, (Italy)

^bDepartment of Agronomy, Food, Natural Resources, Animals and Environment (DAFNAE), University of Padova, (Italy)

^cDepartment of Agricultural Sciences, Division of Vine and Wine Sciences, University of Naples Federico II, Avellino, (Italy)

^dDipartimento di Scienze Agrarie, Forestali e Alimentari, Università degli Studi di Torino, (Italy)

^eDepartment of Agricultural and Food Sciences, University of Bologna, (Italy)

^fDepartment of Biotechnology, University of Verona, (Italy). Email: maurizio.ugliano@univr.it

Grape-derived tannins are important constituents of red wine, contributing to its color, mouthfeel and aroma longevity. In particular, tannins are associated with the perception of astringency, namely the trigeminal sensation of friction perceived in the oral cavity, arising from precipitation of salivary proteins by wine tannins. The quantity of tannins present in a wine varies largely depending on grape variety and winemaking practices. However, in spite of tannin concentration, certain wines exhibit pleasant velvety astringency, while others provide less pleasant sensations of grainy, drying astringency. The chemical nature of these different astringent characteristics of wine is in large part unknown. With over three-hundred grape varieties, Italy owns one of the richest ampelographic heritages worldwide. Remarkably, a large number of these grapes form the basis of the different Italian wine appellations, so that such biodiversity stretches from the vineyard to the consumer. Italian wines represent therefore an ideal case to investigate the chemical and biochemical diversity of tannins and to understand the specific molecular patterns that differentiate Italian wines.

This project, supported by Italian Ministry of Scientific Research within the PRIN scheme, will revolve on mono-varietal wines of ten of the major Italian grapes, produced in their respective areas of origin. Wines will be submitted to a comprehensive pool of analyses including quantification of tannins by precipitation methods, evaluation of their degree of polymerization and other compositional factors, untargeted LC-MS analysis, macromolecule composition, spectroscopic (UV-Vis and MIR) and electrochemical characterization, saliva precipitation index and sensory assessment.

The results will allow to shed light on the chemical diversity existing among different wines with regard to their tannin composition, in an attempt to unravel the complex relationship existing between wine composition and perceived astringency. Preliminary data on the chemical composition of the wines under investigation will be presented.