

# The aroma diversity of Italian white wines

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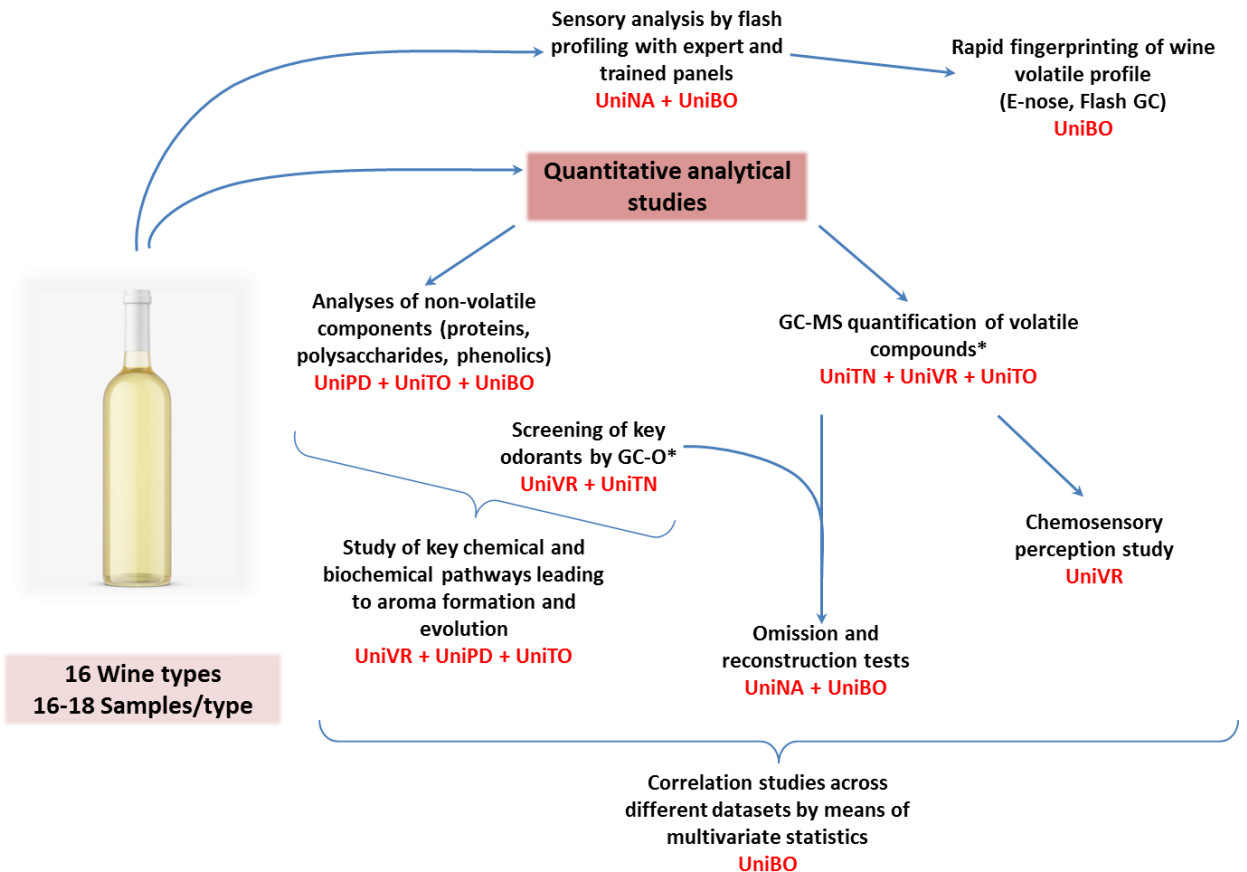
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Aroma is a key contributor to white wines sensory typicality, perceived diversity and overall preference. Italy produces dry still white wines from native grape varieties and geographically defined areas, representing different grapegrowing, winemaking and cultural heritages. The related chemical and sensory elements, the relevant pathways and variables, and the factors associated with their olfactive perception are in large part not known. Altogether, this limits the implementation of production and marketing strategies truly based on the specificity of Italian white wines, with reduced competitiveness and sustainability. The aim of this project is to provide, by means of chemical and sensory approaches, a comprehensive characterization of the chemosensory diversity of Italian white wines. Research teams of University of Verona (Univr), University of Padova (Unipd), University of Trento (Unitn), University of Bologna (Unibo), University of Torino (Unito), and University of Naples (Unina) will contribute to the project with different expertise, according to the diagram shown below.



The project will focus on wines of the following appellations/varieties: Arneis, Albana, Erbaluce, Falanghina Fiano, Garganega, Greco di Tufo, Lugana, Nosiola, Pinot Grigio, Ribolla, Traminer aromatico, Palagrello, Verdicchio, Vernaccia di San Gimignano, Vermentino. Samples will be collected directly from wineries. About 20 wines will be collected for each appellation/variety. Analyses will include GC-MS and GC-O for the identification and quantification of the most potent impact odorants of each wine type, HPLC, SDS-PAGE, and UV-Vis for the quantification of non-volatile components, E-nose untargeted fast profiling of wine volatile composition, sensory evaluation by means of both rapid and descriptive methodologies.

The main pathways of formation of the most relevant aroma compounds will be investigated, as well as their interactions with non-volatile components.

Chemosensation mechanisms of selected key odorants will also be studied at the level of receptor-ligand interactions.