

The aroma diversity of italian white wines

AIM: 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. **METHODS:** 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, Trebbiano d'Abruzzo 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. Chemoperception mechanisms of selected key odorants will also be studied at the level of receptor-ligand interactions. **RESULTS:** The chemical and sensory drivers of Italian white wine intrinsic and perceived diversity will be established, enabling optimized management of winemaking procedures, sustainable long-term strategies for geographical indication protection, tailored marketing and consumers response strategies and preferences. **ACKNOWLEDGMENTS:** This project is funded by Italian Ministry of Education and Research (MIUR), PRIN 2017.

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