



38th International Symposium on Capillary Chromatography and 11th GCxGC Symposium

Chairman
Prof. L. Mondello

*Palazzo dei Congressi,
Riva del Garda
Italy*

ABSTRACT BOOK

INFORMATION

Prof. L. Mondello

Chromaleont a start-up of the University of Messina

Tel. (+39)-334-3612788 Fax. (+39)-090-9080155

E-mail: iscc@chromaleont.it

The Forum on Microcolumn Separations

ANALYSIS OF TRENTO DOC SPARKLING WINES USING COMPREHENSIVE TWO-DIMENSIONAL GAS CHROMATOGRAPHY TOF-MS WITH HS-SPME

Silvia Carlin, Cesare Lotti, Urska Vrhovsek, Luana Bontempo, Fulvio Mattivi

Department of Food Quality and Nutrition Department - Edmund Mach Foundation, Research and Innovation Centre, Via E. Mach 1, 38010 San Michele a/A, Italy

The characteristics of the foam and aroma are considered among the most appreciated attributes for the final quality of sparkling wines. The aroma of sparkling wines is due to dozens of varietal and fermentative compounds, while an essential contribute of aroma is due to several classes of volatiles that develop from precursors during wine aging or are released due to yeast autolysis. Trento DOC (PDO) is the name of the first Certified Brand of Origin for an Italian sparkling wine produced by the traditional method in which a second fermentation in the bottle was followed by aging of wines with lees for at least 15 months before the disgorging. Trento DOC wines can be aged on lees up to 10 years, and these premium wines are expected to improve as the years go by, with excellent vintages and premium reserve put on the market after 5-10 years. The aim of this study was to explore the volatile profiles of Trento DOC sparkling wines with HS-SPME followed by GCxGC-TOF-MS and to compare these products with a selection from another premium Italian sparkling wine, the “Franciacorta” DOCG. The application of the GCxGC protocol provided us with the most comprehensive description of the volatiles, highlighting the huge complexity of the aroma of Italian premium sparkling wines. With this untargeted metabolomic approach, more than 1500 features were found, many of which remain so far unidentified. Among the identified compounds, several compounds were observed here for the first time in these wines. Some differences in the composition between the two data sets were found. The wines belonging to the Trento DOC were found to have on average an higher amount of terpenic compounds and of some C6 compounds while Franciacorta wines were richer in lactones, C13 norisoprenoids, sulfur compounds and a sesquiterpene gamma eudesmol. This research was funded by AGER, Agroalimentare e Ricerca, cooperative project between grant-making foundations under the section “wine growing and producing”, Project “New analytical methodologies for varietal and geographical traceability of oenological products” contract n. 2011-0285.