

Aromatic characterization of fermented beverages from South Tyrol

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Abstract

Fermented beverages are at least as old as the earliest civilizations and are consumed in many cultures; they consist of wines, beers, mead and other products. In addition to wine, widely produced in the Alto Adige region (Italy), other fermented drinks are made on a small scale by several local enterprises. The aim of this study was to support the local production of fermented beverages, exploring the possibility to apply a common method to measure the volatile organic metabolites generated during fermentation. The matrices considered were cyders, oat beer and mead. Cyders and oat beer were made using three and two different yeast respectively. Mead was produced using two different honeys (honeydew honey and blossom honey). The products have been evaluated investigating the chemical standard parameters (°Brix, pH, residual sugars, ethanol); the volatile organic compounds (VOCs) were analyzed to better understand the differences between fermented beverages made starting from similar matrices and to connect the chemical results to the flavor quality outcome. A GCMS-QP2010 SE gas chromatograph mass spectrometer (Shimadzu) was used for VOCs analysis. The compounds were separated on a capillary ZB-WAX column (30 m x 0.25 mm i.d. x 0.25 µm); headspace was sampled using 2-cm DVB/CAR/PDMS 50/30 µm fibre from Supelco. The method used allowed to analyze different fermented matrices for a qualitative analysis with the identification of specific compounds related to the different yeasts or the different used honeys. We were able to identify 36 compounds in cyder samples, 40 compounds in oat beer and 62 compounds in mead. These results will allow us to better understand the local products and to contribute to the overall quality of the final product.

Biography:

Giulia Chitarrini has completed her PhD at the age of 29 years from Fondazione Edmund Mach in collaboration with Udine University. She is postdoctoral researcher at Laimburg Research Centre, Laboratory for Flavours and Metabolites. She has published 6 papers in reputed journals.

Speaker Publications:

1. Chitarrini G., Riccadonna S., Zulini L., Vecchione A., Stefanini M., Larger S., Pindo M., Cestaro A., Franceschi P., Magris G., Foria S., Morgante M., Di Gasparo G., Vrhovsek U. Two-omics data revealed commonalities and differences between Rpv12- and Rpv3-mediated resistance in grapevine. *Scientific reports*, 2020
2. Chitarrini G., Dordevic N., Guerra W., Robatscher P., Lozano L. Aroma Investigation of New and Standard Apple Varieties Grown at Two Altitudes Using Gas Chromatography-Mass Spectrometry Combined with Sensory Analysis. *Molecules*, 2020 doi: 10.3390/molecules25133007
3. Chitarrini G., Debiassi L., Stuffer M., Ueberegger E., Zehetner E., Jaeger H., Robatscher P., Conterno L. Volatile Profile of Mead Fermenting Blossom Honey and Honeydew Honey with or without *Ribes nigrum*. *Molecules*, 2020 doi:10.3390/molecules25081818
4. Costa F., Zanella A., Beć K., Biasioli F., Busatto N., Cappellin L., Chitarrini G., Farneti B., Folie I., Grabska J., Robatscher P., Stuerz S., Vittani L., Vrhovsek U., Huck C. Scald-Cold: Joint Austrian-Italian consortium in the Euregio project for the comprehensive dissection of the superficial scald in apples. *NIR news*, 2020 DOI: 10.1177/0960336020910056
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