



Conference programme

COMPARISON OF AROMA-RELATED COMPOUNDS OF CARBONIC MACERATION AND TRADITIONAL YOUNG RED WINEMAKING IN CASE OF MERLOT BY MEANS OF TARGETED METABOLOMIC APPROACH

Winemaking decisions and techniques are known to affect the final aromatic composition of red wines. Winemakers put a constant effort into the improved controlling of vinification procedures to achieve better quality. Anyway an increased customer's demand for uniqueness is often forcing them to adjust and offer new and new interesting products. To support the producers, an improved knowledge on aromatic potential as affected by classical and alternative strategies is needed. A classical method to produce regional Vipava valley young, fresh type of red wine was thus tested in comparison with carbonic maceration technique on the grapes from Merlot. This variety is of global, but also vast local importance as it is the most abundant red variety of the valley. The grapes first underwent separate processing and winemaking treatments, operating with 100 L volume in triplicates. After bottling, the experimental wines were subjected to semiquantitative metabolic profiling of volatile compounds (VOCs) by means of GC/MS. In addition, a sensorial evaluation of finished wines was performed to disclose the outcomes more from the consumer perspective. The results of free VOCs in wines produced by classical approach showed higher concentrations of 2 phenyl ethanol, n-hexanol, isobutanol and isoamyl alcohol, whereas the wines from grapes processed by carbonic maceration (CM) contained more aromatic acids (decanoic, octanoic, butyric), isopentylacetate and ethyl lactate. When observing bound VOCs, CM wines mainly indicated more alcohols (1-octanol, 1 nonanol, 1 hexanol, 1 pentanol, 1 butanol, 3-phenylpropan-1-ol and isoamyl alcohol), whereas classically produced wines contained more benzenoids (e.g. acetovanillone, vanillylacetone and some aldehydes, esters and alcohols (e.g. homovanillyl alcohol, benzyl alcohol). Sensory evaluation mainly supported the analytical results but also implied which compounds may deserve a special attention in further studies. In conclusion, a targeted metabolomics approach was shown to be a very useful tool in gaining a novel, more complex knowledge and understanding of aroma-related potential, manipulated by different winemaking processes. Key words: alternative vinification procedures, carbonic maceration, Merlot, free aroma compounds, bound aroma compounds, targeted metabolomics.

Author	Email	Institution
*Melita Sternad Lemut	melita.sternad.lemut@ung.si	University of Nova Gorica
Cesare Lotti	cesare.lotti@fmach.it	Fondazione Edmund Mach
Urska Vrhovsek	urska.vrhovsek@fmach.it	Edmund Mach Foundation