



## Conference programme

**COMPREHENSIVE EXPLORATION OF WINE AROMA-RELATED COMPOUNDS AS PROMOTED BY ALTERNATIVE VINIFICATION PROCEDURES IN CASE OF ZELEN (VITIS VINIFERA L.) GRAPES PROCESSING**

Not only vintner's decisions in the vineyard, but also winemaker's choices of technology approaches in the cellar play a significant role in the final wine style and quality. Whereas traditional technologies within chosen terroir are quite well explored and thus somehow predictable, there is no proper knowledge available on possible outcomes in case of implementing novel, alternative winemaking strategies. To reveal their effects on wine aroma compounds and sensory characteristics, two alternative strategies (cryoextraction or addition of whole grape berries during last stages of fermentation) were compared to classical Vipava valley winemaking approach as normally used for an autochthonous variety Zelen. After separate vinification and bottling, all the experimental wines were subjected to semiquantitative metabolic profiling of volatile compounds (VOCs) by means of GC/MS and were then also sensorially evaluated by pre-trained panel. The results showed in case of free VOCs, that the contact with whole grape berries during fermentation (WBF) promoted mainly isoamyl alcohol and linalool; whereas cryoextraction (CE) promoted more ethyl decanoate, ethyl hexanoate, ethyl lactate and ethyl octanoate as well as hexanoic and octanoic acids. Control on the other hand was the richest in hexyl acetate, isobutanol and 2-phenyl ethanol. In case of bound VOCs, WBF wines showed the highest concentrations in case of several alcohols (1-butanol, isoamyl alcohol, 1-pentanol, 3methyl-2-butenol, 1-hexanol, benzyl alcohol), but interestingly a decrease or a trend toward decrease in most of the observed bound volatile compounds was noticed for CE. Finally, most of the analytical results were in consistence with the results of sensory evaluation outcomes. A comprehensive, targeted metabolomics profiling approach was thus shown to be a very useful tool to support the exploration of novel techniques in winemaking by offering an important new knowledge also to the producers. Key words: alternative vinification procedures, cryoextraction, fermenting in the presence of whole grape berries, Zelen (*Vitis vinifera* L.), free aroma compounds, bound aroma compounds, targeted metabolomics.

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