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VOLATILE COMPOUNDS CAPTURED IN EXHAUST CO₂ FLOW DURING THE FERMENTATION OF *BUSUIOACĂ DE BOHOTIN* WINE

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Abstract

The volatile compounds that are lost during the must's fermentation into wine represent a part of the winemaking process. In principal, exhaust gases from fermentation facilities (like wineries or breweries) emitted to the surrounding production site can often be smelled in the neighborhood. The capturing and analysis of the volatile compounds that are purged with the carbon dioxide (CO₂) flow during gas exhaustion of the fermentation stage are the main objective of the present study.

During fermentation of Busuioacă de Bohotin grapes, the volatile compounds purged with the escaping CO₂ flow were captured using solid phase extraction (SPE) cartridges attached to the airlocks of the fermentation vessels. After the end of fermentation, extracts of retained volatiles were obtained by eluting the polymeric sorbent of the SPE cartridges with dichloromethane. Then, extracts were analyzed by gas chromatography coupled to mass spectrometry (GC-MS) to identify and quantify the captured compounds.

With respect to the total amount, highest losses occur with low molecular weight alcohols, esters and acetic acid, which - basically - are the major by-products found with any (yeast) fermentation of sugar-containing matrix. Besides, we also see losses for other volatile compounds, such as terpenoids, for example linalool. These specific compounds originate from the grape variety, used for fermentation and give a kind of “varietal” character to the exhaust gas. However, such compounds usually are found in trace quantities but due to their often low flavor threshold values, may contribute to the perceived aroma.

Key words: Busuioaca de Bohotin, purged CO₂, volatile compounds loss

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