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CONFERENCE PROCEEDINGS

Aromatic complexity in Verdicchio wines. An overview of volatile compounds

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The evolution of analytical instruments is leading to the production of data of increasing size, with over 1000 volatiles being frequently observed within a single run of comprehensive gas chromatography coupled to mass spectrometry. The interpretation of such rich dataset require to focus on the much more limited number of key odorants, and on their characteristic ratios present in each wine. This study was aimed to the recognition and detection of odorous molecules in the white variety Verdicchio, considering the wines produced in multiple vintages from some of the best Cru from Marche region, in the Castelli di Jesi Classico area.
Selected wines were analyzed with GCXGC-ToF-MS, GC-MS-MS and GC-O by aroma extract dilution analysis, after Solid Phase Extraction or Solid Phase Microextraction. The comprehensive profile with more than 1000 compounds allowed to separate well the different type of product. By GC-O analysis 28 main odorants were found. This survey led to the identification of 3-methyl-2,3-nonanedione (3-MND) as a possible key odorant characteristic in Verdicchio.
Verdicchio from the best production areas develops a typical, positive note, described as anise. The systematic characterization of several wines, and comparison with true standard of the candidate compounds having anise among the putative descriptors (*trans*-anethole, *cis*-anethole, estragole, 3-MND, and carvone) lead us to suggest that the presence at low concentration of 3-MND is likely to explain the anise flavor in Verdicchio wines. From previous studies [1] we had discovered that this grape variety is very rich in methyl salicylate both in the free form and in the bound form (β-D-glucoside and β-primeveroside). In such research, we put in evidence the possible contribution of methyl salicylate to the aroma as well as its possible remarkable presence as bound forms in Verdicchio. The synergic effect of methyl salicylate and MND was now investigated.

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Reference style:

[1] Versini, G.; Moser, S.; Carlin, S. Abstract Proceed. 'In VinoAnalytica Scientia' Montpellier. (2005) Methyl salicylate as a remarkable almost bound compound in some renowned Italian varietal wines.