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ABSTRACT BOOK

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REGIONAL FEATURES OF NORTHERN ITALIAN SPARKLING WINES, IDENTIFIED USING SOLID-PHASE EXTRACTION AND COMPREHENSIVE TWO-DIMENSIONAL GAS CHROMATOGRAPHY COUPLED WITH TIME-OF-FLIGHT MASS SPECTROMETRY

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We carried out comprehensive mapping of volatile compounds in 70 wines, from 48
vintages and 6 vintages, representative of the two main production areas for Italian
sparkling wines, by HS-SPME-GC×GC-TOF-MS and multivariate analysis. The final
goal was to describe the metabolomics space of these wines, and to verify whether the
regional signature, the pedoclimatic influence of the production area, and the complex
chemistry were measurable in the final product. The wine chromatograms provided a
wealth of information, with 1695 compounds being found.

A large number of putative markers influenced by the cultivation area was observed. A
total of 196 biomarkers fully discriminated between the two types of sparkling wines
studied.

Among the new compounds, safranal and alpha-isophorone were observed. We showed
that relation-based network analysis could be used as a tool to detect the differences in
regional behaviour based on external/environmental influences.