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Combined approaches for the sensory “targetization” of volatile compounds in virgin olive oils by SPME-GC-FID

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It is well known that specific volatile compounds are strictly related with the positive and negative sensory attributes of virgin olive oils, such as fruitiness and defects, thus being key molecules for the product quality and the consumers’ acceptability. The objective of this research is to link the volatile compounds with the sensory attributes through a joint approach that could support the organoleptic analysis of virgin olive oils.

With this aim, a wide set of commercial olive oils was previously assessed (EU Reg. 1227/2016) by six sensory panels, resulting in different commercial categories (extra virgin, virgin and lampante) and characterized by various intensities of fruitiness and defects. The headspace volatile profiles data of the UNIBO and CSIC units, obtained by SPME-GC-FID, were statistically elaborated through a number of treatments and a subsequent univariate and multivariate analysis. The approach herein discussed was able to detect the most robust markers of specific sensory defects, thus being possibly applied to all the volatiles data sets (SPME-GC-MS, FGC-e-nose, TDU-GC-MS) of the OLEUM project. The final goal was to find the most relevant analytes to be considered in a method for the determination of volatile compounds in olive oils and also useful for the formulation of sensory reference standards.

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