

# **Towards new Instrumental Approaches to Understand Sensory Perception of Olive Oil**

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The chemical compounds responsible for virgin olive oil aroma are volatiles, responsible for fruity and green sensory notes. On the other hand, phenols are the major contributors to taste perception, mainly bitterness and pungency. Some researchers have pointed out the relationships between some sensory attributes –either positive or negative- and the concentration of certain compounds. However, the panel test continues to be the only official method for quality assessment. The classification of olive oils into quality categories basically lays on the panellists' opinion together with other chemical indexes that do not inform about aroma or taste. Beside the extensive knowledge on volatile/phenolic composition of olive oil, the analytical methods based on gas chromatography or gas sensors still fail in reproducing the results of the panellists. This problem stems from the misinterpretation of the chemical results from a sensory standpoint, or vice versa. A research has been carried to save the gap between instrumental analysis and the sensory assessment of virgin olive oils. The aim of this research is being to develop new methodologies based on gas chromatography, electronic nose, and the coupling of both techniques (GC-EN), to determine the individual contribution of each volatile compound to the sensor responses. The physiological processes implied in the olfaction and taste perceptions, as a result of the chemical stimuli, have not been explored yet and they are part of the black box associated to sensory assessment and consumers' decision. Only new approaches gaining knowledge on the physiological implications of the compounds responsible for sensory attributes would allow us to understand, and even predict, consumers' behaviour. In a further study, this information was compared with the sensory description of the volatile compounds and the virgin olive oil samples. The methodology proposed can be applied to other foods and it may contribute to the design of new rapid methods with a sensory basis.