



Abstract number: 239

Abstract title:

APPLICATION OF A NON-TARGETED APPROACH BY FLASH GAS CHROMATOGRAPHY-E-NOSE TO DISCRIMINATE THE GEOGRAPHICAL ORIGIN OF VIRGIN O

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Short abstract:

One of the fraudulent practices often applied in the olive oil sector concerns the mislabelling of the geographical origin of the products. In order to ensure that consumers are not misled, the European Union issued a regulation concerning the definition of specific rules for the indication of geographical origin in the label (EU Reg. 29/2012). Beyond the compulsory traceability, the application of specific analytical techniques could be a useful tool to verify the conformity between the product and the information reported on the label.

The aim of this work was to evaluate the effectiveness of a Flash Gas Chromatography-E-Nose, an instrument that combines functionality of electronic nose and ultra-fast GC, for the evaluation of the geographical origin of virgin olive oils (VOOs). For this purpose, more than 150 VOOs, different for their geographical origin (from single EU countries, such as Spain, Italy and Greece, and from single extra-EU countries, such as Tunisia, Turkey and Morocco) were collected and analyzed.

Subsequently, a chemometric elaboration applied, with a non-targeted approach, to the chromatographic traces was realized. This permitted to build a model able to satisfactorily discriminate samples according to their geographical origin.

This work is developed in the context of the project OLEUM "Advanced solutions for assuring authenticity and quality of olive oil at global scale", funded by the European Commission within the Horizon 2020 Programme (2014–2020, GA no. 635690). The information expressed in this abstract reflects the authors' views; the EC is not liable for the information contained therein.

Keywords:

AUTHENTICITY, VOLATILE COMPOUNDS, CHEMOMETRIC ELABORATION