



Joint European Stable Isotope User Meeting 2022

UNIVERSITY OF
EASTERN FINLAND
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—*Abstracts*—

“The important thing is to never stop questioning” (Albert Einstein)

Topic groups: 06. Food Authenticity, Nutrition, Forensic,

Presentation types: Poster

Title: Italian garlic (*Allium sativum* L.) characterization through gas chromatography-isotope ratio mass spectrometry and headspace gas chromatography-mass spectrometry volatile profile

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Content:

Italian garlic (*Allium sativum* L.) is worldwide appreciated for its unique flavour and taste. Excellence varieties such as Aglio di Voghiera and Aglio Bianco di Polesano have been officially recognised by the European Commission through the attribution of the Protected Designation of Origin (PDO) certification mark [1]. On this basis, an effective tool to preserve the reputation and the commercial value of this appreciated product, by assessing its geographical identity, is therefore required. For the first time, solid phase microextraction (SPME) followed by gas chromatography-isotope ratio mass spectrometry (GC-IRMS) was used to characterize 49 red garlic (*Allium sativum* L.) samples coming from 3 different Italian regions (Abruzzo, Lazio and Sicily). The developed method made it possible to measure the carbon isotopic ratio of 3 major volatile components of garlic (namely, allyl alcohol, diallyl sulphide and triallyl disulphide). Moreover, the quantification of the just mentioned compounds was carried out through gas chromatography-mass spectrometry (GC-MS). The compound specific analysis aimed to attempt the discrimination of Italian garlic samples depending on their geographical origin and to eventually give additional information with respect to those provided by the bulk garlic isotopic analysis. [1] Quality products registers. (2018, August 14). Retrieved 18 January 2019, from https://ec.europa.eu/info/food-farming-fisheries/food-safety-and-quality/certification/quality/labels/quality-products-registers_en