Special Issue

Applied Isotope Geochemistry for the Detection of Food Fraud

Message from the Guest Editors

Stable isotopes of carbon, oxygen and hydrogen are used internationally to record food adulteration. The authenticity of wine, vinegar, oil and the products that include them can be detected using stable isotope analysis. The adulteration in wine and vinegar is usually carried out by adding industrial alcohol and/or sweeteners (beet or cane sugar). Based on European Community Directives, stable carbon isotopes (13C/12C) encompass the most suitable analytical tool to detect the adulteration of wine with industrial alcohol, a petroleum derivative. The addition of sugars increases the product's sugar content through fermentation. However, the isotopic composition of wine differs from that of sugar cane but can easily match that of sugar beet. Samples of vinegar and oil were tested with stable isotopes and the range of values determines the potential adulteration. Samples of oils were also collected and analysed using 13C and 18□ to detect any impurities with other oils, as in the case of wine.

Guest Editors

Dr. Elissavet Dotsika

Stable Isotope and Radiocarbon Unit, Institute of Nanoscience and Nanotechnology, National Center for Scientific Research (N.C.S.R.) “Demokritos”, Patriarchou Gregoriou (End) and Neapoleos Street, Agia Paraskevi, 15341 Attiki, Greece

Dr. Georgios Diamantopoulos

Stable Isotope and Radiocarbon Unit, Institute of Nanoscience and Nanotechnology, National Center for Scientific Research (N.C.S.R.) “Demokritos”, Patriarchou Gregoriou (End) and Neapoleos Street, Agia Paraskevi, 15341 Attiki, Greece

Deadline for manuscript submissions

closed (20 March 2025)

Applied Sciences

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.5

mdpi.com/si/215693

Applied Sciences
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
applsci@mdpi.com

mdpi.com/journal/applsci

Applied Sciences

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.5

mdpi.com/journal/applsci

MDPI

About the Journal

Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

Editor-in-Chief

Prof. Dr. Giulio Nicola Cerullo
Dipartimento di Fisica, Politecnico di Milano, Piazza L. da Vinci 32, 20133 Milano, Italy

Author Benefits

Open Access:

free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility:

indexed within Scopus, SCIE (Web of Science), Ei Compendex, Inspec, CAPlus / SciFinder, and other databases.

Journal Rank:

JCR - Q2 (Engineering, Multidisciplinary) / CiteScore - Q1 (General Engineering)