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EU project OLEUM: Better solutions to protect olive oil quality and authenticity

INTRODUCTION

Although there is no harmonised definition for "food fraud" in Europe, it is broadly accepted that food fraud is the deliberate placing on the market with the intention of financial gain through consumer deception (1).
Olive oil has been highlighted as one of the foods most at risk of fraud in the EU (2), with a significant financial impact.
The most common types of olive oil fraud are illegal blending with other vegetable oils or low quality olive oils (e.g. soft-deodorized), deliberate mislabelling of less expensive commercial categories of olive or other oils, and mislabelling of geographical origin or Protected Designation of Origin (PDO) declaration. A lack of efficient and harmonised analytical methods for detecting olive oil fraud has led to significant weaknesses that can be exploited by counterfeiters.
Incidents of olive oil fraud can generate high-profile media scandals. These events undermine trust in olive oil products and can lead to consumer concerns about the authenticity, or worse, safety of olive oil products on the market. Europe is the world's largest olive oil producer, and is currently responsible for approximately 70% of global production (3). In the long-term, a lack of trust in the quality and authenticity of olive oil, which is celebrated for their sensory and nutritional benefits, has the potential to damage the reputation and competitiveness of the European olive oil sector.

WHAT IS THE OLEUM PROJECT?

The European Union Horizon 2020 funded project OLEUM aims to better guarantee olive oil quality and authenticity through improved methods for detecting and preventing olive oil fraud. The project addresses four main areas:

Legislation and regulation

Despite regular revisions, the existing regulatory framework is not exhaustive or adequately effective at preventing common and new types of fraud. OLEUM will identify weaknesses in the current framework (for example lack of methods for identifying specific types of fraud or non-definition of a harmonized methods for the assessment of selected characteristics.)
This will inform and guide the project's research activities and be used to develop an array of potential solutions to aid EU and international regulators and policy makers to work towards a worldwide harmonised system of fraud protection.

Analysis

The project will identify drawbacks and revise existing analytical methods for verifying olive oil quality and detecting fraud.
New reference materials will be developed to harmonize the training of sensory panel assessors and increase reproducibility of results from organoleptic assessment. A screening procedure based on the analysis of volatile compounds in olive oils will also be developed and validated within a "Quantitative Panel Test", aimed to increase efficiency of sensory panels, by reducing the number of samples assessed per day, therefore decreasing time and lessen the work of sensory panels.
Research will also focus on developing new instrumental analytical methods for identifying illegal blends of olive oils with other vegetable oils or lower quality products, for evaluating freshness and predicting best-before date, and for monitoring compliance with the labelled geographical origin and the EU health claim on polyphenols.
The methods developed and validated by OLEUM will be ready for inclusion into the current regulatory framework and this will greatly strengthen the fight against these fraudulent practices.

Harmonisation and coordination
OLEUM will deliver fully validated methods and reference materials to the control bodies and, at the same time, provide them to standardisation, normative and legislation bodies (IOC, EU, ISO, CODEX); thus decreasing the time required for their adoption. Global procedures and harmonized novel rapid and easy-to-use methods will substantially reduce the effort in applying the existing methods, alleviating excessive burden on the laboratories responsible for carrying out the analysis.
Existing data on olive germplasm and olive oil composition currently resides in a number of separate databases throughout Europe and the world. The harmonisation and coordination activities will be underpinned by the development of a web-access user-friendly OLEUM Databank which will store and consolidate olive oil data generated by OLEUM research and provided voluntarily from existing or future reliable sources.
The OLEUM Network will transfer technical knowledge to the wider olive oil community, including institutions and laboratories involved in quality control, regulatory bodies and the scientific community. Training workshops and proficiency tests will be organised for the laboratories involved in the OLEUM Network, ensuring a high technical expertise in the knowledge developed by the project.

Consumer and market confidence
OLEUM will reinforce consumer and market confidence and strive to preserve the reputation of high quality olive oil products through a proactive multi-stakeholder dissemination strategy. Specifically, the project aims to identify new analytical solutions for measuring olive oil freshness and predicting best-before dates, for fighting against fraud and for monitoring compliance with labelled geographical origin to foster trust in the supply chain. This, combined with simple, scientifically accurate and reliable communication to the public, including online and audio-visual tools, will reinforce consumers trust in the quality and authenticity of products on the market.

SUMMARY

The EU H2020 OLEUM project started in September 2016 and runs for four years. It involves 20 partners from 15 countries, all with expertise in aspects of olive oil. OLEUM, using a transdisciplinary approach, is addressing four key areas of importance to the authenticity and quality of olive oil: research and development: legislative and regulatory, analytical, harmonization/coordination and consumer/market confidence. To enhance the competitiveness of the olive oil market both within and outside the EU, the project is developing new/improved analytical methods, sharing relevant results in a common platform (OLEUM Databank) and establishing a wide community of institutions involved in the olive oil sector (OLEUM Network).

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About the author

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