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Practice Abstract

Genetic traceability of Greek and Italian extra virgin olive oil

Description

In compliance with current regulations and accredited analyses, the Watson extra virgin olive oil pilot aims to apply genetic approaches for the traceability of the olive oil supply chain, from farm to fork, passing through all stakeholders. The final objective is to fight against olive oil fraud and protect consumers by filling the information gap on the label from the beginning, by including the analysis of the oil which reflects the intrinsic value of quality.

The olive oil supply chain will be genetically traced step by step, from the raw materials in the field, to the milling and storage tanks, as well as during the related movements (carriers) up to the bottling, labelling and sale of the product.

The traceability system will involve the development of field and mill portability technologies for high-throughput DNA extraction and molecular characterisation for low-cost genetic profile analysis. Work is underway towards an innovative database, capable of executing complex queries in a robust AI and Machine Learning post-processing pipeline. This will allow for an accurate and automated classification of the genetic profiles of cultivars and olive oils for each batch based on its varieties, creating a "DNA fingerprint".

The most useful data (e.g. geo-localised orchards, date of pressing, bottling, etc.) will be collected and stored in a blockchain platform and will be accessible to interested parties up to the consumer who will have access via the Quick Response (QR) code on the product label. Finally, a digital passport of produced and bottled batches will be created to provide credible and reliable information for this tracked food product.

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Stakeholders

Food Industry
Food Safety Authorities
Policy Makers
Consumers
Academic and Research Community
Industry Association
Trade Organizations
Technology and Data Analytics Experts
Supply Chain Partners

Country

Italy and Greece

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A holistic frameWork with Anticounterfeit and inTelligence-based technologieS that will assist food chain stakehOlders in rapidly identifying and preveNting the spread of fraudulent practices

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About Watson

Watson is a 3-year project funded by the Horizon Europe programme, aimed at tackling fraudulent practices in the food supply chain. Our interdisciplinary consortium of 47 partners from 20 EU and non-EU countries is collaborating to develop a holistic traceability framework that integrates data-driven services, intelligence-based toolsets, and risk-estimation approaches, enabling food safety authorities to detect and prevent food fraud more effectively.

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