

# Analytical tools for the characterization of bioactive molecules of Extra Virgin Olive (EVO) oil and for the determination of authenticity

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On the 19th of May 2021 the webinar entitled 'Analytical tools for the characterization of bioactive molecules of EVO oil and for the determination of authenticity' was held on the GoToWebinar Platform, with an overwhelming participation from research institutes, universities and companies interested in innovation related to olive oil analysis.

The webinar was organized by the University of Messina together with the University of Genova, in the context of the research project entitled "VIOLIN - Valorization of Italian OLive products through Innovative analytical tools", financed by Ager, a collaborative project between bank foundations associated to promote and support scientific research in the Italian agro-food sector.

The aim of the project VIOLIN is to enhance the Italian extra virgin olive oil (EVO), to reuse the by-products of olive processing and to promote a culture of quality Italian oil.

In this context several research activities were promoted for the characterization of EVO with the most diverse geographical origins from a chemical point of view, with the aim of understanding quality and nutraceutical properties of Mediterranean's liquid gold.

To promote and disseminate the knowledge of EVO, the research groups of Messina and Genova Universities organized a public event, to show the cutting-edge outcomes on EVO analysis obtained along the VIOLIN program.

Focusing on the activities presented by the Group of Analytical Chemistry and Chemometrics of the Department of Pharmacy, University of Genova, the research team provided an overview of near-infrared spectroscopy (NIRS) and its potential in the EVO analysis. In more detail, the work of the team was focused on the detection of EVO adulterations that are, unfortunately, a well-known issue that is affecting this high quality product.

NIR spectroscopy is one of the most promising analytical methods for the analysis of food samples in a fast, accurate, economical and, above all, non-destructive approach. The VIOLIN project has confirmed that NIR spectroscopy is a strategic tool in detecting EVO counterfeits. Among the most common adulteration that NIR spectroscopy is able to expose is the blending of EVO with other oils of lower quality, such as seeds oils. Another type of fraud, which is gathering momentum, concerns the claim of a false geographical origin on food product labels; despite having minor health implications, it represents a serious commercial fraud.

The increasing application of NIR spectroscopy in the olive oil field can help in fighting food frauds while protecting the seals of quality like PDO and PGI.

The webinar allows the attendees to deep dive into NIR spectroscopy applied and its applications in the EVO supply chain.