

hALO



Innovative and cost-effective solutions for monitoring food quality and safety are urgently needed to boost the uptake of farm-to-fork food chains and to keep the European small and medium-sized farms competitive on the market.

h-ALO (photonic system for Adaptable muLtiple-analyte monitoring of fOod-quality) is an ambitious project funded by the European Commission with about **4,2 million Euro**. The project started in January 2021 and within **36 months period**, it aims to develop and demonstrate a new affordable, portable, and broadly adaptable **photonic-based analytic tool** that allows **local food producers** and **retailers** to **control the quality and safety of their products in real-time**.

h-ALO exploits cutting-edge **photonics and nanoplasmonics technologies** to develop a **food sensor** with unprecedented sensitivity to contaminants while being fast and easy to use on-site by non-expert operators. The multiplex-analyte recognition allows to simultaneously detect both **microbiological and chemical contaminants** in different food matrices, namely **aquaponics, craft-beer, raw milk** and **organic honey**. These food chains are **strategical** since they represent regional and organic products and share the need for a sensor which can screen at the same time multiple and largely different classes of analytes: from microbiological contaminants such as bacteria and spoilage yeasts to chemical contaminants such as **pesticides/antiparasitics** and **heavy metals**.



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PHOTONICS²¹
PHOTONICS PUBLIC PRIVATE PARTNERSHIP

The National Research Council of Italy (CNR) coordinates a multi-actor project consortium composed of **11 partners from 5 different EU countries** that includes European R&D centres (CNR-ISMN, Fraunhofer-ENAS, Wageningen University & Research, RISE), SMEs (Plasmore, Innosieve Diagnostic, The Circle, 7Bulls), national health authority and research organization for animal health and food safety (Istituto Zooprofilattico Sperimentale delle Venezie), the general confederation of Italian agriculture (Confagricoltura) and consulting services (Warrant Hub).

Project partners work in close collaboration with **end-users** represented by owners of small/medium sized-farms, **local producers of organic and craft food**, and on-site **food vendors**. Together they co-create the list of target analytes and demonstrate the effectiveness of the h-ALO prototype in real-setting applications.

By adopting the h-ALO sensor, local and artisanal producers will be able to **reduce food losses** and **waste, maximize yields**, and ultimately **lower the costs** related to food monitoring that currently represent a significant economic burden for them. In this way, h-ALO embraces objectives of the **Farm to Fork strategy** introduced by the European Commission as a pillar of the **European Green Deal** to guide the transition to a fair, healthy, and environmentally friendly food system.

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FOR FURTHER INFORMATION:

Stefano Toffanin

PROJECT COORDINATOR

CNR – National Research Council (Italy)

E-MAIL: stefano.toffanin@cnr.it

Isella Vicini

DISSEMINATION MANAGER

Warrant Hub S.p.A. (Italy)

E-MAIL: isella.vicini@warranthub.it

PROJECT WEBSITE:

<https://h-alo.eu>

