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**PR. MOHAMED KSIBI (TN)**

Higher Institute of Biotechnology of Sfax  
University of Sfax - Tunisia

**Email Address:** mohamed.ksibi@isbs.usf.tn

**Website or Google Scholar link:**

<https://scholar.google.com/citations?user=I2XZEDAAAAAJ&hl=fr>



**Short Biography**

Prof. Mohamed KSIBI is a Full Professor of Chemistry at the Higher Institute of Biotechnology of Sfax (ISBS), University of Sfax, Tunisia. He obtained his Ph.D. in Applied Chemistry from the University of Poitiers (France) in 1993. His research focuses on environmental chemistry and sustainability, particularly on the removal and toxicity assessment of persistent pollutants in water and soil. He has supervised over 16 Ph.D. and 15 Master's students and authored more than 125 publications and 8 book chapters, in addition to co-editing four books. He is Editor-in-Chief of the Euro-Mediterranean Journal for Environmental Integration (EMJEI) and Chair of the EMCEI conference, promoting international scientific collaboration. He has been ranked among the world's top 2% scientists by Stanford University from 2020 to 2025.

**Title of the Talk: Integrated Chemometric and Spectroscopic Approaches for Sustainable Olive Oil Traceability and Quality Control**

**Abstract / Summary**

Tunisian olive oil represents a strategic agricultural product with strong economic and environmental importance. However, challenges related to traceability, quality control, and market differentiation continue to limit its added value in international markets. This work presents integrated analytical and chemometric approaches developed to support the sustainable valorization of Tunisian olive oil. Multi-element analysis using ICP-MS, stable isotope characterization, spectroscopic techniques, and multivariate statistical methods were combined to investigate geographical traceability, authenticity, and quality assessment of olive oils collected from different Tunisian regions. The results demonstrated that elemental and isotopic fingerprints provide efficient discrimination of olive oils according to geographical origin, climatic conditions, and terroir characteristics. In parallel, remote sensing and vegetation indices derived from Sentinel-2 imagery were explored to optimize olive harvest timing and improve oil quality monitoring. These approaches contribute to sustainable agricultural management, product authentication, and the development of high-value traceable olive oil production systems adapted to environmental and market requirements.