University of Naples Federico II
Department of Pharmacy
Doctoral Course in Pharmaceutical Sciences XL Cycle

METABOLOMIC STUDY OF EXTRACTS FROM MEDITERRANEAN PLANTS

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The research project aims at enhancing the value of plant species typical of the Mediterranean area. Firstly, an efficient extraction method based on "green" solvents will be developed to obtain extracts rich in active compounds to be used as functional ingredients for the production of high nutritional value foods. The obtained extracts will be characterized in terms of the metabolites present using various analytical techniques, primarily HPLC coupled with high-resolution mass spectrometry (LC-HRMS), and when necessary for the complete identification of the metabolites present, nuclear magnetic resonance spectroscopy (NMR). In parallel, the pharmaceutical-relevant biological activities of the extracts, such as antibacterial, antioxidant, or anti-inflammatory activities, will be evaluated.

The project also includes a scale-up phase of the extract production process, continuously monitored by LC-HRMS, and the study of possible formulations and applications of the obtained ingredients. The research activity aligns with the national thematic areas of the PNRR, particularly those related to biodiversity. The project's outcomes have scientific and human capital valorization implications, producing new technologies/knowledge through the enhancement of territorial resources and enabling the identification of high technological value solutions for sustainable biodiversity management (D.D. n.3138 of 16-12-2021).

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