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GREEN CHEMICAL MODIFICATION OF OLEUROPEIN FOR FOOD APPLICATIONS

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The health claim authorized for the EVOO by European Food Safety Authority (EFSA) establishes a daily intake of 20 g of such an olive oil provides the expected beneficial effects only if the EVOO contains 5 mg HT yr. and its derivatives. However, the concentration in some types of olive oil may be too low to allow to exploit EFSA claim. A comparative study on 32 different EVOO from the Italian market aimed to assess if some of them could declare EFSA claim, showed that only 3 samples, covered by Protected DSupporting Informationgnation of Origin (PDOs) possess more than 250 mg of hydroxytyrosol derivatives. As a result, enrichment of EVOOs as well as other vegetable edible oils with such antioxidant phenols becomes of great interest. In the present work we present our efforts to extract, isolate and transform in an eco-friendly manner olive oil polyphenols, obtained by extraction of olive leaves, the main by-product of oil production, for food applications. In particular we will discuss our work on exploitation of two oleuropein derivatives, namely per acetylated oleuropein and oleacin as, respectively, synthetic additives for functional food and natural additive for nutraceutical claims. The permeability and the biological activity of peracetylated oleuropein as anti-inflammatory, antioxidant, anticancer agents and hypoglycemic agent will be presented both *in vitro* and *in vivo*, as well as the stability of

such molecule in olive oil for functional food applications. On the other side the enrichment of less high value oils, such as seed oils with oleacin in order to transform them in a functional food able to protect against several different pathologies, will be presented.

Biography

Manuela Oliverio is an Assistant Professor at the University Magna Graecia of Catanzaro- Department of Health Sciences since 2008. Since 2016 she holds the Italian qualification to Associate Professor in Organic Chemistry. During her academic career, she waved the following offsite collaborations: Italian Institute of Technology (IIT), Karl-Franzens University of Graz, University of Turin, Université de Montpellier II, among others. She was a co-author of 45 papers on peer review international journals. She received her first personal grant by the Bonino-Pulejo Foundation, for the achievement of an excellent result as MD student. In 2013 her Project: Valorization of olive oil as functional food in cancer protection, financed by Fondazione Università Magna Graecia won an internal competition dedicated to UMG young researchers. In 2014, at the 3rd ScienceOne Conference on drug Discovery & Development, Dubai – UAE, the oral presentation of her was awarded with the Conference Best Paper Award. Also in 2014, she gained the Giacomo Ciamician Medal, for her achievements in the use of alternative solvents, energies and catalysts in organic chemistry.

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