



## **Title: Application of Thermo-Malaxation Followed by Three-Phase Centrifugation to Enable the Biorefinery of Alperujo, the Main By-Product of Olive Oil.**

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The pomace olive oil sector needs to improve its use of the main olive oil by-product, called alperujo, which is currently used mainly for combustion after extraction of pomace oil, with all the problems this process entails due to the high degree of humidity, organic load and phytotoxic substances. In this work, a solution at an industrial level that uses thermo-malaxation at a temperature close to 65 °C for one or two hours followed by centrifugation in three phases is proposed. In this way, over 40% of the pomace oil that is rich in minor compounds, a solid with a lower degree of humidity (55%), and a liquid aqueous fraction that is rich in bioactive compounds such as phenolics and sugars are obtained. This aqueous fraction can be treated through subsequent storage stages to increase its content of the main phenolic, hydroxytyrosol, to up to 1.77 g/L, decreasing its percentage of insoluble solids by up to 1.9%, making it possible to obtain extracts that are rich in hydroxytyrosol using systems that are commonly in place at the industrial level. The aqueous fraction, without phenolics, could be used for energy production. A solid with a slightly higher fat content than the initial alperujo remains, thus the rest of the oil content can be extracted from it using solvent, making it, once defatted, suitable for energy use and in the production of agricultural substrates that improve soil quality in olive groves.

### **Biography**

Guillermo Rodríguez has completed his PhD from the University of Seville, Spain and postdoctoral studies from University of Aberdeen, UK. He is currently Tenure Research at the Instituto de la Grasa (Spanish National Research Council CSIC). Author of 118 publications in SCI, 4 book chapters, 11 patents, 6 of them in exploitation. He has participated in 47 national and international projects (16 as principal investigator), and 80 national and international congresses. He has supervised 8 PhD theses. Lecturer in several Masters and partner promoter of a Technology Based Company. Head of Scientific Culture Unit at the Instituto de la Grasa.

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