



**Title: The problem of copper use is an opportunity for its recovery and to improve the agronomic sustainability of the olive grove.**

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Copper is commonly used in foliar and soil application for the prevention of olive tree diseases and the attack of certain pests. The accumulation of copper in the leaves and even in the fruit causes its concentration to increase both in the olive oil itself and in its by-products. The study of the presence of copper and its extraction is crucial in order to make biorefining of by-products that go through a first stage of extraction of bioactive components and a second stage of bioprocess application feasible. In the present work, the alperujo or main by-product of the application of the two-phase olive oil extraction system has been characterised, together with the olive leaf. Recently, it has been studied that the joint use of both substrates can improve the formation and extraction of bioactive compounds, and it is also the best mixture for the study of the behaviour of copper. In the present study, either a direct mixture of both substrates or alperujo with an aqueous leaf extract is used to facilitate the reactions that favour the formation of phenolic derivatives with high activity. This mixture was subjected to heat treatments at 65 °C, which are currently being implemented in the industry, in what is known as thermo-malaxation, followed by a three-phase centrifugation. Subsequently, the distribution of copper in the different phases, aqueous, oily and solid, was analysed. The dispersion of copper, mainly in the solid and liquid phases, forces the application of new systems to extract copper, allowing the subsequent extraction of bioactive compounds, such as phenols, and finally allowing the application of bioprocesses such as anaerobic digestion to obtain a source of energy and a final stabilised substrate for agricultural use.

**Biography**

Victor Ramos holds a degree in Chemistry from the University of Seville. He has worked for many years in a copper mine (Cobre las Cruces, Sapani) as a chemist responsible for the quality department. He has recently started working at the Instituto de la Grasa (Spanish National Research Council CSIC) as head of the heavy metal analysis service, and has started his PhD on the recovery of copper from olive leaf. With two scientific articles and more than 6 congresses, he is a very active student having organised several congresses and several conferences.

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Session name/ number: Sustainable Agriculture

Category: Oral presentation