

## **Development and application of innovative methodologies for obtaining squalene from refining by-products**

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Olive Oil by-products is at the center of commercial interest due to their high content in bioactive compounds. Till today, most of the studies have focused on olive leaves, olive mills by-products as well as edible olives debittering process by-products while there is only few information available about refinery by-products produced during olive oil refining process. Specifically, in Refinery are produced various types of by-products (soap fraction obtained after the neutralization treatment, deodorizing by-products, solid waste resulting after demargarinization, acid oil from chemical refining, exhausted bleaching earths after filtration), with significant scientific interest due to their bioactive content. Among them, the deodorizing by-products are a valuable source of squalene, a triterpene characterized by an abundance of beneficial effects on human health such as antioxidant activity, tumor inhibitor and skin protective properties. The aim of the present study was the isolation of squalene from deodorizing by-products and the production of squalene-enriched extracts, by applying modern extraction and isolation methodologies such as Centrifugal partition Chromatography (CPC) and Molecular Short Path Distillation (MSPD). Overall, in the context of the present study a green methodology was developed for production of squalene - enriched extracts and isolation of squalene, with a purity of more than 95%, from refinery by-products produced during olive oil deodorization process.

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