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APPLICATION OF INNOVATIVE EXTRACTION TECHNIQUES FOR THE ISOLATION OF BIOACTIVE COMPOUNDS FROM FOOD INDUSTRY BY-PRODUCTS

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Generating large quantities of by-products during food production in a large number of cases results in irreparable environmental damage. The aforementioned directly impacts the economic efficiency of the production process due to the underutilisation of the potential of raw material input, as well as the waste-disposal costs. Insufficient utilisation of natural resources is, among other things, a consequence of the application of traditional extraction procedures. Recent trends in the extraction techniques have largely focused on finding solutions that minimize the use of harmful solvents and allow the use of alternative, so called "green" solvents that ensure safe and high quality extracts. This research is focused on food industry by-products valorisation through the application of different green extraction techniques including supercritical CO_2 extraction, subcritical green solvent extraction, ultrasonic-assisted extraction etc. Food industry by-products could be an alternative source of bioactive compounds which possess different biological activities that could provide health benefits. These bioactive compounds can be isolated, encapsulated and incorporated into new products with added value.

In this presentation, the development of high-valuable extracts rich in biologically active compounds from selected food industry by-products will be reviewed. Therefore, the waste generated during food processing could be effectively utilised by applying different green extraction techniques in the development of value-added products, thus ensuring a complete circular economy, which is imperative today.

Keywords: food by-products, green solvents, extraction, bioactive compounds, circular economy