

ULTRASOUND-ASSISTED EXTRACTION AS A NOVEL TECHNOLOGY FOR THE EXTRACTION OF BIOACTIVE COMPOUNDS FROM OLIVE POMACE

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Due to the high organic content, solid waste generated in the production process of olive oil presents a severe environmental problem. Keeping that in mind, different novel extraction technologies are used in industries and experiments since it has a great effect in combination with solvents. Moreover, compared to conventional methods, which may include drawn-out processes and large solvent consumption, they are more effective and environmentally friendly. This work explores the potential of using ultrasound-assisted extraction (USAE) to extract the polyphenols from the olive pomace, with a focus on assessing antioxidant activity (AA) and total polyphenol content (TPC). In the Design of the experiment, three independent variables were used: time (5-15 min), solid ratio (2-12 gr/100 ml), and head type of the ultrasonic device (S, M, and L), all of which were on three levels. Twenty-seven extracts were made with the ethanol-water mixture (52.7 v/v%), which was found to be the optimal ratio in previous experiments. TPC was determined by the spectrophotometric Folin-Ciocalteu method, while the AA was measured by the Ferric Reducing Antioxidant Power (FRAP) method. TPC value varied from 3.86 to 19.49 mg GA/ gdw, while the results for AA varied from 3.31 to 11.146 mg AA/ gdw. The results obtained showed a great antioxidant potential of olive pomace, where the USAE was proved to be the effective method for the extraction. Ultrasound head with a higher intensity shows that can lower polyphenol content in cases of longer treatment (more than 10 min).