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Efficient utilization of papaya waste using novel technologies for extraction of oil and bioactive compounds

The study delves into the efficient utilization of papaya waste through innovative extraction technologies to extract oil and bioactive compounds. Various methods such as Ultrasound- Assisted Extraction (UAE) and Microwave Ultrasound-Assisted Extraction (MUAE) were employed to extract valuable compounds from papaya seeds. This underscores the significant potential of papaya seed oil, known for its high oleic acid content, making it suitable for a wide range of industrial applications. Quality assessments conducted on the extracted oils indicate that they maintain high standards. The study emphasizes the sustainable utilization of papaya waste for the extraction of valuable products, offering both environmental conservation benefits and economic advantages. By exploring novel extraction techniques, this research contributes to the advancement of sustainable practices in utilizing agricultural byproducts like papaya waste, providing valuable insights for the food and pharmaceutical industries. The papaya pomace was found to have moisture (0.28%), ash (5.27%), protein (55.43 mg), fiber (13.34 mg), and Carbohydrate (25.46%) are obtained. These results shed light on the nutritional composition of papaya waste, showcasing its potential as a source of essential nutrients and bioactive compounds. The quality assessments conducted on the extracted oils serve as a testament to the efficacy of the extraction methods employed, ensuring that the extracted products meet stringent quality standards. This study not only underscores the importance of sustainable practices in utilizing agricultural byproducts but also underscores the economic and environmental benefits of harnessing the potential of papaya waste for valuable product extraction.

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