



Enhancing Extraction Processes in the Food Industry (Contemporary Food Engineering)

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Extraction is an important operation in food engineering, enabling the recovery of valuable soluble components from raw materials. With increasing energy costs and environmental concerns, industry specialists are looking for improved techniques requiring less solvents and energy consumption. **Enhancing Extraction Processes in the Food Industry** is a comprehensive resource providing clear descriptions of the latest extraction methods and instruments used in food laboratories.

The book begins with an overview of solvent extraction technology. It examines pulsed electric fields and their effect on food engineering, and the potential and limitations of microwave-assisted extraction. It explores diffusion processes and reviews what is known about electrical discharge processes in the extraction of biocompounds.

Next, the book summarizes current knowledge on conventional and innovative techniques for the intensification of extractions from food and natural products, focusing on environmental impacts. It reviews recent developments in supercritical CO₂ extraction of food and food products, describes the pressurized hot water extraction (PHWE) process, and examines future trends for PHWE. The book also examines essential oil extraction, and the tools and techniques of high pressure-assisted extraction. The authors demonstrate its application using litchi and longan fruits as examples.

The final chapters focus on extrusion-assisted extraction, gas-assisted mechanical expression, mechanochemically assisted extraction, reverse micellar extraction, and aqueous two-phase extraction. The book concludes with a chapter on the treatment of soybeans through enzyme-assisted aqueous processing, examining the economics involved as well as the development of the process.

A solid review of modern approaches that enhance extraction processes, this volume is destined to pave the way for future research and development in the field.

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Editorial Review

About the Author

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Farid Chemat is a full professor of chemistry and director of the Laboratory for Green Extraction Techniques of Natural Products (GREEN) at the Université d'Avignon et des Pays de Vaucluse, France. His main research interests are focused on innovative and sustainable extraction techniques (especially microwave, ultrasound, and green solvents) for food, pharmaceutical, and cosmetic applications. His research activities are documented by more than 100 scientific peer-reviewed papers and six patents. He is the coordinator of "France Eco-Extraction," a group that deals with international dissemination of research and education on green extraction technologies.

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