

Special Issue

Microwave and Ultrasound-Assisted Extraction for Plant Bioactive Compounds

Message from the Guest Editors

Plants are a rich source of various bioactive compounds, such as polyphenols, pigments, sterols, and essential oil constituents, which possess a wide range of health-promoting effects, including antioxidant, antimicrobial, and anti-inflammatory properties. As awareness of health and nutrition grows, the demand for these bioactives in the food, pharmaceutical, and cosmetic industries has surged. To maximize the benefits of these plant bioactives, selecting a suitable extraction method is crucial. Microwave-assisted extraction (MAE) and ultrasound-assisted extraction (UAE) are two advanced techniques developed to efficiently isolate these valuable compounds. MAE employs microwave energy to rapidly heat the plant material and solvent, causing the breakdown of plant cell walls and enhancing the release of bioactives. UAE is ideal for extracting heat-sensitive plant bioactives, offering benefits such as shorter extraction times and energy efficiency. This Special Issue therefore aims at gathering the most recent contributions and findings concerning the employment of these two extraction techniques for the isolation of different plant bioactive compounds.

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As the premier open access journal dedicated to molecular chemistry, now in its 29th year of publication, the papers published in *Molecules* span from classical synthetic methodology to natural product isolation and characterization, as well as physicochemical studies and the applications of these molecules as pharmaceuticals, catalysts, and novel materials. Pushing the boundaries of the discipline, we invite papers on all major fields of molecular chemistry and multidisciplinary topics bridging chemistry with biology, physics, and materials science, as well as timely reviews and topical issues on cutting-edge fields in all of these areas.

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