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# Polyphenols Applications

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## ABSTRACTS BOOK

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# ECO-FRIENDLY ULTRASOUND EXTRACTION OF PHENOLICS FROM MENTHA PIPERITA: EFFECT OF KEY PARAMETERS

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Ultrasound-assisted extraction (UAE) is an efficient and environmentally friendly technique for extracting valuable bioactive compounds from plant materials. Mentha piperita L., known for its distinctive aroma, therapeutic potential, and rich polyphenol profile, is a promising candidate for green extraction methods (1). In this study, the influence of ultrasonic amplitude, extraction time, and pulse mode on the yield of phenolic compounds relevant for both health and natural preservation is investigated.

Aerial parts of Mentha piperita L. were extracted with an ultrasonic probe at three amplitudes (20%, 60%, 100%) and five extraction times (2–10 min), totalling 15 UAE conditions. Pulsed ultrasound was also tested. The extractions were performed with 50% EtOH (S/L 1:20), and the phenolic compounds were quantified by HPLC-DAD.

The phenolic content increased with both amplitude and time. The highest yields were obtained at 100% amplitude and 10 min: 10.13 µg/mL caffeic acid, 17.05 µg/mL catechin, 44.57 µg/mL epicatechin, and 674.52 µg/mL rosmarinic acid. The pulsed mode resulted in a slightly lower extraction efficiency compared to continuous ultrasound.

High-intensity, long-duration UAE significantly enhances the extraction of phenols from Mentha. Continuous ultrasound is more effective than the pulsed mode, probably due to more uniform cavitation and better destruction of cell walls.

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*References*

*1. Saqib, S., Ullah, F., Naeem, M., Younas, M., Ayaz, A., Ali, S., Zaman, W. (2022). Mentha: nutritional and health attributes to treat various ailments including cardiovascular diseases. Molecules, 27(19), 6728.*