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Fast extraction of cannabinoids in marijuana samples by using hard-cap espresso machines

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Abstract

A simple, quick and low cost procedure was developed for the extraction of Δ^9 -tetrahydrocannabinol, cannabidiol, and cannabinol from marijuana samples, based on the use of a hard-cap espresso extraction with 2-propanol. After extraction, cannabinoids were directly determined after appropriate dilution by gas-chromatography-mass spectrometry, reaching a limit of detection from 0.03 to 0.05 mg g⁻¹. Extraction efficiency was evaluated by the comparison of results obtained for seized samples by the proposed method and a reference methodology based on ultrasound-assisted extraction. Moreover, ion mobility was proposed for the rapid and sensitive determination of Δ^9 -tetrahydrocannabinol and cannabidiol providing a quick response for the analysis of seized marijuana samples in 1 min, including extraction, dilution and determination.

Graphical abstract

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