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Ultrasound-assisted Extraction and Quantification of Antioxidant Activity and Phenolic Content of *Cordia Dichotoma* Leaf Extracts

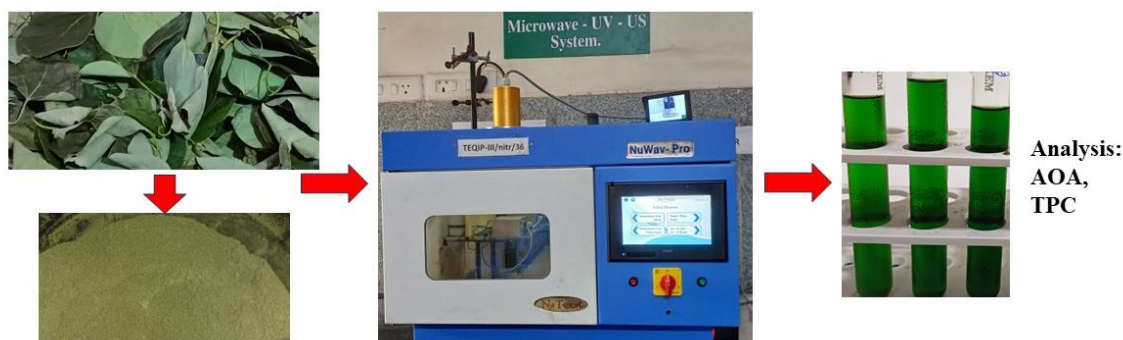
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ABSTRACT

The *Cordia dichotoma* (*C. dichotoma*) tree is found in tropical and subtropical areas, commonly known as the Indian cherry. The different parts of this tree contain medicinal properties. Various bioactive compounds, mainly phenolic compounds, and flavonoids, found in the leaves of *C. dichotoma* have anti-inflammatory, antiviral, gastroprotective, hepatoprotective antidiabetic, and immune-modulator activities. This research focuses on the application of ultrasound-assisted extraction (UAE) as a novel and efficient technique for extracting bioactive compounds from leaves of *C. dichotoma*. The main objective of this research was to investigate the antioxidant potential and phenolic content of the extract of *C. dichotoma* leaves by 2,2-diphenylpicrylhydrazyl (DPPH) assay and Folin-Ciocalteu (F-C) assay respectively. The impact of different solvents, solute-to-solvent ratio, ultrasonic power, and time on total phenolic content (TPC), antioxidant activity (AOA), and extraction yield (EY) were evaluated. UAE is rapid and enhances the extraction process when compared to conventional extraction techniques such as Soxhlet extraction. Based on phenolic content, antioxidant activity, and extraction yield, the best extraction parameters were a 1:30 solute-to-solvent ratio in methanolic leaf extract, 200 W ultrasonic power at 15 min. The extraction yield was found to be 19.53 % at 15 min in UAE and 17.01 % at 6 h in Soxhlet extraction. UAE proves to be a promising technique for obtaining bioactive compounds with antioxidant potential from *Cordia dichotoma* leaves which can be potential applications in pharmaceutical, nutraceuticals, and functional food industries.



Keywords: Ultrasound-assisted extraction, *Cordia dichotoma* leaves, Antioxidant activity, Total Phenolic content, Ultrasound probe, DPPH