

Extraction of *T. cordifolia* (Thunb.) by multiple solvents to investigate phytochemical recovery by LC-MS and greenness evaluation by AGREEprep and AGREE

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Drug development from plant extracts using solvents of variable polarities has gained immense popularity. The selection of the solvent results in variable phytochemical profiles in the extracts. Solvent selection is primarily based on the targeted phytochemicals. The stem of *Tinospora cordifolia* is used to treat multiple ailments. In the present study, we have explored the extractability of organic solvents of varying polarity and evaluated the greenness of the analysis using various tools. The stem of *T. cordifolia* was extracted by traditional methods in accordance with the Pharmacopoeial guidelines, and phytochemical identification was performed by LC-MS. The methods of phytochemical identification were evaluated for their greenness indexation by using AGREEprep and AGREE tools. The experiment revealed that water was the best solvent for extraction (yield 14.25%) and that the LC-MS phytochemical profiles showed the highest number of phytochemicals (27). Water was the best option (AGREEprep score 0.80) for eco-friendly extraction. The study concludes that during drug development from plant extracts, we must adopt methods and solvents that support sustainable growth, which are expected to be perfectly eco-tuned.

Keywords: AGREE, AGREEprep, Extraction, LC-MS, Solvents, *T. cordifolia*

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