

(54) Title of the invention : Smart device for phytochemical extraction and medicinal plant analysis

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(57) Abstract :

ABSTRACT SMART DEVICE FOR PHYTOCHEMICAL EXTRACTION AND MEDICINAL PLANT ANALYSIS The smart device for phytochemical extraction and medicinal plant analysis is disclosed. The device comprises a plant material chamber for receiving medicinal plant material, a solvent handling unit for delivering extraction solvents, and an extraction module configured to perform controlled extraction by regulating parameters including temperature, pressure, solvent flow rate, extraction time, and agitation. A sensor array monitors real-time extraction conditions and provides feedback to a processing and control unit for automated optimization of the extraction process. An analysis module performs preliminary phytochemical profiling of extracted compounds to identify and estimate classes of bioactive constituents. A user interface displays extraction parameters, process status, and analytical results. The disclosed device enables efficient, reproducible, and automated phytochemical extraction and medicinal plant analysis with reduced solvent consumption and minimal human intervention. FIG 1

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