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(31) Priority Document No	:NA	(72)Name of Inventor : <b>1)Dr. Jayalakshmi S</b>
(32) Priority Date	:NA	<b>2)Dr.V. Jayashree</b>
(33) Name of priority country	:NA	<b>3)Dr.S.Arunkumar</b>
(86) International Application No	:	<b>4)Dr. Abinaya Ishwarya G K</b>
Filing Date	:01/01/1900	<b>5)Mr. Selvakumar A</b>
(87) International Publication No	: NA	<b>6)Dr. R. Pugazhenth</b>
(61) Patent of Addition to Application Number	:NA	<b>7)Dr. Raja Thiyagarajan</b>
Filing Date	:NA	<b>8)Dr. Vikas Singh</b>
(62) Divisional to Application Number	:NA	<b>9)Dr. Prakash P</b>
Filing Date	:NA	<b>10)Mr. Arunkumar V</b>
		<b>11)Dr.S.Baskar</b>

(57) Abstract :

ABSTRACT AN ANALYTICAL APPARATUS FOR CHEMICAL CHARACTERIZATION AND STRUCTURAL IDENTIFICATION OF DRUGS The present invention provides an analytical apparatus for chemical characterization and structural identification of drugs. The present invention comprises a housing defining a portable or bench-top enclosure. The sample handling unit configured to receive a drug sample in solid, liquid, or semi-solid form. The sample preparation module operatively coupled to the sample handling unit and configured to condition the received drug sample for analysis by at least one of dissolution, dilution, filtration, vaporization, or derivatization; At least one analytical module disposed within the housing and configured to generate chemical characterization data of the conditioned drug sample, the analytical module comprising one or more of a spectroscopic unit, a chromatographic unit, or a mass analysis unit. The signal acquisition and processing unit electrically coupled to the analytical module and configured to receive raw analytical signals and convert the signals into digital data. The data analysis unit comprising a processor and a memory storing executable instructions, the data analysis unit being configured to analyze the digital data to determine molecular composition and structural features of the drug sample.

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