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(57) Abstract :
The present invention relates to a validated, simultaneous Gas Chromatography-Mass Spectrometry (GC-MS) method for the detection and quantification of key volatile phytoconstituents—pinene, linalool, cineole, trans-cinnamaldehyde, eugenol, and jatamansone—in medicinal plant extracts including coriander, cassia, amomum, and jatamansi. Volatile oils were extracted via hydro-distillation, and analysis was carried out using an optimized GC-MS protocol employing HP-5MS columns and splitless injection. Calibration plots were developed using standard mixtures, and identification was confirmed via NIST mass spectral libraries. The method was validated for specificity, accuracy, precision, robustness, and sensitivity per ICH guidelines. This approach enables reliable chemoprofiling and standardization of herbal raw materials and formulations, supporting quality control in phytopharmaceutical development.

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