

(54) Title of the invention : Opt mized RP-HPLC Method for Purity and Stability Analysis of Synthesized Azole Compounds

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(7) Abstract

Abstract: This invention presents an optimized RP-HPLC method for the purity and stability analysis of synthesized azole compounds. Utilizing a C18 column and a carefully optimized mobile phase consisting of aqueous buffer and organic modifiers, the method achieves superior chromatographic resolution, peak symmetry, and reproducibility. The UV-Vis detection system ensures high sensitivity in quantifying impurities and degradation products. The method is validated in accordance with ICH guidelines, ensuring accuracy, precision, and specificity. Forced degradation studies confirm the stability-indicating capability of the technique, making it highly applicable in pharmaceutical quality control, bulk drug analysis, and regulatory submissions. The optimized RP-HPLC method significantly reduces analysis time, enhances efficiency, and minimizes solvent consumption, providing a cost-effective and environmentally friendly approach. This robust and reliable analytical method is ideal for routine monitoring of azole compounds in research and