

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202321085244 A

(19) INDIA

(22) Date of filing of Application :13/12/2023

(43) Publication Date : 23/02/2024

(54) Title of the invention : SUSTAINABLE HPLC ANALYTICAL METHOD DEVELOPMENT FOR TRIPLEPACK COMBINATION OF AMOXICILLIN,CLARITHROMYCIN AND VONOPRAZAN IN PHARMACEUTICAL DOSAGEFORMS

(51) International classification	:G01N30/02, G01N30/30, G01N30/34, G01N30/86, G01N30/88	(71)Name of Applicant : <b>1)Atmiya University</b> Address of Applicant :Atmiya University, Yogidham Gurukul, Kalawad Road, Rajkot – 360005, Gujarat, India Rajkot -----
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Filing Date	:NA	<b>3)Dr. SAMIXA PATEL</b>
(87) International Publication No	: NA	Name of Applicant : NA
(61) Patent of Addition to Application Number	:NA	Address of Applicant : NA
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(57) Abstract :

Sustainable HPLC Analytical Method Development for Triple Pack Combination of Amoxicillin, Clarithromycin and Vonoprazan in Pharmaceutical Dosage forms The present invention pertains to sustainable and validated RP-HPLC method for analyzing triple drug regimens used in treating Helicobacter pylori infections. The method is eco-friendly, using a smaller amount of organic mobile phase and solvents, producing less hazardous waste during analysis. The method uses Hypersil-column for chromatographic separations, with a mobile phase consisting of a 65:25:10 volume ratio of 0.01 M Phosphate buffer, Acetonitrile, and Methanol of pH 5.5. The detection wavelength used was 229 nm, and a flow rate of 1 ml min<sup>-1</sup> was maintained. The method has been validated through ICH guidelines, and it effectively detects pure drugs and impurities in stability and degradation studies under different conditions. The % Assay and % Mean Recovery values for Amoxicillin, Clarithromycin, and Vonoprazan were found to be high, with R2 values of 0.999. This novel and sustainable RP-HPLC method provides a reliable and efficient approach for analyzing triple drug regimens.

No. of Pages : 29 No. of Claims : 7