IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 9, May 2025
Impact Factor: 7.67

Development and Validation of UV and FTIR Methods for Cilnidipine IP

Doke Gayatri Rajendra, Gadge Avantika Gangadhar, Hinge Pratiksha Santosh, Dr. Bhalekar Sachin M.
Department of Pharmaceutics
Samarth Institute of Pharmacy, Belhe

Abstract: *The development and validation of a novel UV-IR (Ultraviolet-Infrared) method for the analysis of Clinidipine, a calcium channel blocker, is presented in this study. Clinidipine is widely used in the management of hypertension, and its accurate quantification is crucial for ensuring therapeutic efficacy and safety. The proposed method integrates both UV and IR spectroscopy techniques to enhance sensitivity and selectivity in detecting Clinidipine in pharmaceutical formulations. The UV spectroscopic analysis was optimized by selecting an appropriate wavelength based on the absorption maxima of Clinidipine, ensuring precise quantification in the presence of excipients. The IR method employed was utilized to confirm the molecular identity of Clinidipine and detect any potential chemical degradation products. Results showed excellent linearity in both UV and IR spectra, with a high degree of accuracy and precision. The proposed UV-IR method is cost-effective, rapid, and suitable for routine quality control in the pharmaceutical industry. This combined approach offers a reliable tool for the analysis of Clinidipine, providing complementary data that enhances overall analytical performance.*

Keywords: Clinidipine, UV spectroscopy, IR spectroscopy, method development, method validation, pharmaceutical analysis, accuracy, precision, linearity, specificity, ICH guidelines, quality control, calcium channel blocker, analytical techniques

DOI: 10.48175/568