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 2, December 2025
Impact Factor: 7.67

Analytical Method Development and Validation

Gaikwad Sanjana S, Gavhane Akshay B, Chaitali Dhale R
JBVP`S Vidya Niketan Collage of Pharmacy, Lakhewadi, India

Abstract: *For the purpose of advancing medication discovery, product development, and pharmaceutical production, the development and validation of a precise and sensitive analytical method are crucial. This review article primarily focuses on examining the report of certain and sensitive analytical method development and validation criteria. Engaged in a variety of drug production. The creation of a high-sensitivity analytical technique is very important because it guarantees product efficacy and quality. Demonstrating that the analytical technique satisfies the analytical acceptance criteria and is capable of quantifying the concentration of the target molecule at its specification limit is the goal of the rigorous analytical method development and validation procedure. The objective of method development is to create an analytical technique that is reproducible, specific, and sensitive while also being affordable. The validation parameters include specificity, accuracy, method precision, linearity, limit of detection (LOD), limit of quantification (LOQ), robustness, ruggedness, and system precision of the target molecule. The creation and validation of analytical techniques are crucial to the discovery, development, and production of pharmaceuticals. Every year, a large number of medications enter the market. Since this is the case, it is imperative to create novel analytical techniques for these medications. It is imperative to validate the new analytical approach once it has been developed. The technique development process confirms the applicability of the analytical method. Validation o like accuracy, precision, linearity, Limit of Detection, Limit of Quantification, specificity, range, and robustness Validation show as per regulatory guidelines such as ICH guidelines. The goal of this essay is to examine the validation and creation of analytical methods.*

Keywords: Analytical method, Spectroscopy, UV spectroscopy, Chromatography, HPLC, Method development, Validation

DOI: 10.48175/IJARSCT-30376