Review Article

A REVIEW ON HPLC METHOD DEVELOPMENT AND VALIDATION

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High-Performance Liquid Chromatography (HPLC) is an advanced analytical technique used for separating, identifying, and quantifying components in complex mixtures. It operates based on the principle of differential interaction of analytes with a stationary phase and a liquid mobile phase under high pressure. These interactions enable precise separation of compounds based on their chemical or physical properties such as polarity, molecular size, or charge. The HPLC method can be used to analyze the majority of drugs in multicomponent dosage forms. HPLC method development and validation are critical in new drug discovery, development, and manufacturing, as well as a variety of other human and animal studies. Validation of analytical methods is required during drug development and manufacturing to ensure that these analytical methods are fit for their intended purpose. To meet GMP requirements, pharmaceutical industries should have an overall validation policy that details how validation will be carried out. This article is primarily concerned with the optimization of HPLC conditions.

Keywords: High-Pressure Liquid Chromatography (HPLC), Method validation, Method development

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