

Method Development and Validation for Simultaneous Estimation of Aspirin and

G.Amani

India

The aim of this study was to develop and validate a reliable and efficient RP-HPLC method for the simultaneous estimation of Aspirin and Dipyridamol in capsule dosage forms. The objective was to establish a simple, rapid, and accurate chromatographic method to quantify Aspirin and Dipyridamol simultaneously in pharmaceutical formulations, ensuring its suitability for routine quality control analysis. The method was developed using a Shimadzu HPLC system equipped with a C18 column (250 mm × 4.6 mm, 5 µm). The mobile phase consisted of a mixture of phosphate buffer (pH 3.0) and methanol in a 60:40 (v/v) ratio, with a flow rate of 1.2 mL/min. Detection was carried out at 254 nm. The retention times for Aspirin and Dipyridamol were found to be 4.2 and 6.5 minutes, respectively. The method was validated for linearity, accuracy, precision, specificity, robustness and system suitability in accordance with ICH guidelines. The method demonstrated linearity in the concentration ranges of 10–100 µg/mL for Aspirin and 5–50 µg/mL for Dipyridamol, with correlation coefficients (R^2) exceeding 0.999 for both compounds. The accuracy of the method was confirmed with recovery values ranging from 98% to 102%. Precision was validated with RSD values of less than 2% for intra-day and inter-day variations. The method was found to be specific with no interference from excipients in the capsule formulations and robustness testing showed reliable performance under slight variations in chromatographic conditions. The developed RP-HPLC method provides an efficient, accurate, and precise approach for the simultaneous estimation of Aspirin and Dipyridamol in capsules. This validated method is suitable for routine quality control and can be used for the analysis of these drugs in pharmaceutical formulations.

Biography

G.Amani has her own experience in valuation and passion for ML and data. The research team built this model after many years of experience in research, evaluation, work in both hospitals and scientific laboratories. This approach meets all the requirements for precise, specific, sensitive diagnostics.

amani.pharmaaffairs@gmail.com

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