Development And Validation Of High Performance Thin Layer Chromatographic Technique For Simultaneous Estimation Of Piperine And Gallic Acid In Poly Herbal Formulation

Submitted by

SHAH AKASH JAGVANDAN
[Enrollment No.112140813017]

Guided by
MS. JIGNASA MODI
M.Pharm, Assistant Professor, Quality Assurance.

Parul Institute of Pharmacy and Research
Limda, Ta. Waghodia, Dist. Vadodara – 391 760

ABSTRACT

Piperine is bioavailability enhancer which is used in cough and cold while gallic acid is anti-oxidant which enhances the immunity power of body to overcome many diseases. Both these constituents play important role in polyherbal formulation. As well as thorough literature survey revealed that a number of analytical methods are reported for analysis of piperine and gallic acid individually or in combination with other drugs and also Official methods are available in IP, but no report was available for simultaneous estimation of combination of these two by HPTLC Method at single wavelength densitometry. A simple HPTLC method has been developed for the estimation of Gallic acid and Piperine in methanolic extract of a polyherbal formulation. The separation was performed on TLC aluminum plates precoated with silica gel 60 F_{254}, good separation was achieved in the mobile phase of toluene: ethyl acetate: formic acid (11: 15: 1v/v/v) and densiometric determination of Gallic acid (R_f =0.50) and Piperine (R_f =0.70) was carried out at single wavelength scanning at 254 nm. The method validated as per ICH guideline, shows regression co-efficient value for piperine 0.9992 and 0.9979 for gallic acid in range of 40-90 µg/mL. Recovery of piperine and gallic acid in final product found in range of 98-102%. Precision study (interday & intraday) showed that the relative standard deviation is less than 2%, showing well validated method. Present study shows that developed method is simple, precise, specific, robust and accurate, and could find application in routine quality-control analysis of polyherbal formulation.

Key words: HPTLC, Piperine, Gallic acid, single wavelength scanning, simultaneous estimation.