

Analytical method development and validation for genistein using UV-Vis spectrophotometry

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DOI: <https://www.doi.org/10.22271/phyto.2026.v15.i1a.15703>

Abstract

A simple, precise & economically affordable UV-Visible Spectrophotometric method for estimation of Genistein according to the ICH Q2 (R1) guideline. The Genistein was scanned over UV-Visible range for its maximum absorption wavelength. The calibration curve of concentration vs. absorbance was plotted and linearity and range were calculated. The various analytical method validation parameters like accuracy, precision, Robustness were calculated using QC standards. The maximum wavelength of Genistein was found to be 259 nm. The correlation coefficient over concentration range of 0.5-6 $\mu\text{g/mL}$ was found to be 0.999. The intra-day & inter-day precision shows the percentage relative standard deviations in range of 0.2742 to 0.8047 & 0.3377 and 0.8727 respectively. LOD & LOQ was found to be 0.0927 & 0.2810 $\mu\text{g/mL}$ respectively. The Content of Genistein in soyabean seeds was found to be 3.25 $\text{mg/g} \pm 0.037$. Developed method was found to be robust. The method was developed using economical percentage of organic solvent in aqueous media.

Keywords: Economically effective method, UV-visible spectrophotometry, genistein