

Development and validation of an HPTLC fingerprint profile for ethanolic extract of *Glycyrrhiza glabra* (Licorice)

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Abstract

Background: *Glycyrrhiza glabra* (Licorice) is an important medicinal plant widely used in traditional and modern herbal formulations. Standardization of herbal extracts is essential to ensure quality, safety, and reproducibility.

Objective: To develop a robust and reproducible HPTLC fingerprint method for qualitative profiling of ethanolic extract of *Glycyrrhiza glabra*.

Materials and Methods: HPTLC analysis was performed using silica gel 60 F₂₅₄ plates. Samples were applied using CAMAG Linomat 5 applicator and developed in n-Butanol: Acetic acid: Water (6:1:3). Plates were derivatized using anisaldehyde sulphuric acid reagent and scanned at 254 and 366 nm using CAMAG TLC Scanner 3 under vision CATS software.

Results: The developed method showed well-resolved peaks within RF range 0.00-1.00. Multiple sample volumes (5-9 µL) produced consistent and reproducible fingerprint patterns. Densitometric evaluation confirmed robustness of chromatographic conditions.

Conclusion: The developed HPTLC fingerprint profile can serve as a reference standard for identification and quality control of *Glycyrrhiza glabra* extracts.

Keywords: HPTLC, Licorice, *Glycyrrhiza glabra*, fingerprint analysis, herbal standardization