

Optimization of Extraction Parameters and TLC Densitometric Estimation of Berberine

Showkat R. Mir*, Javed Ahamad, Ujjwal Kaushik, Mohd. Ali

Phytochemistry Research Laboratory, Department of Pharmacognosy & Phytochemistry, Faculty of Pharmacy, Hamdard University, PO Hamdard Nagar, New Delhi, India

Abstract

An optimized extraction method for the extraction of berberine from *Berberis aristata* followed by thin layer chromatographic (TLC) densitometry for its estimation is described. Extraction procedure was optimized for extraction solvent, temperature, time and solvent-solid ratio using single factorial design. Berberine enriched extract was obtained with ethanol concentration 75% acidified with HCl (5%) at 70°C temperature for 150 min and ratio of solvent-solid 10:1(v/w) followed by CHCl₃ partition (1:1) thrice. Chromatography of crude extracts was performed on precoated silica gel G F₂₅₄ while butanol: ethyl acetate: formic acid: water (3: 5: 0.5: 1) was used as a mobile phase. Compact bands ($R_f 0.52 \pm 0.01$) were obtained for berberine. Detection and quantitation of berberine were performed by densitometry at the wavelength of 366 nm. The method was validated for precision, recovery, robustness, specificity, and detection and quantification limits as per ICH guidelines. The present method can be applied to other alkaloids and berberine containing medicinal products.

* Presenting author

Correspondence Address:

Showkat R. Mir, Ph. D.

Phytochemistry Research Laboratory

Pharmacognosy & Phytochemistry

Faculty of Pharmacy

Hamdard University

PO Hamdard Nagar

New Delhi, INDIA-110062

E-mail: srmir@jamiahamdard.ac.in

Mobile: +91-9811385772