3rd International Conference on Ayurveda, Unani, and Siddha Medicine (ICAUS 2026), Postgraduate Institute of Indigenous Medicine, University of Colombo, Sri Lanka |ISSN: 3121-567x(Printed)
|Web: https://pgiimed.cmb.ac.lk/icaus-2026

Pharmacognostic, Physicochemical, Phytochemical and Thin Layer Chromatographic Standardization of *Cissus Quadrangularis* L. Stem

Rajeetha Miraaj

Department of Kuzhanthai & Mahlir Maruththuwam Faculty of Siddha Medicine, University of Jaffna, Sri Lanka.

Cissus quadrangularis L. (Vitaceae) is a medicinal plant widely used in traditional medicine systems for treating bone fractures, gastrointestinal problems, inflammation, and various other diseases. Even though it is used a lot for its healing properties, there is a need for comprehensive pharmacognostic and physicochemical standards to help with identifying and controlling the quality of this plant. This study aims to determine the pharmacognostic, physicochemical, phytochemical and thin-layer chromatographic (TLC) properties of the stem of Cissus quadrangularis L. in order to set standard parameters for identification and quality assurance. Fresh stems of Cissus quadrangularis were collected from Kaithady, Jaffna, Sri Lanka, and checked for their correct species. Macroscopic and microscopic analysis, including powder microscopy, were done using standard pharmacognostic methods. Physicochemical characteristics such as loss on drying, total ash, acid-insoluble ash, water-soluble ash, pH, and extractive values were tested according to WHO guidelines.Preliminary phytochemical tests were carried out on the raw powder and methanolic extract.TLC fingerprinting was performed using silica gel G with toluene:ethyl acetate:glacial acetic acid (8:2:0.1) as the mobile phase. Macroscopic examination showed that the stem is quadrangular with wings, distinct nodes and internodes. Microscopic studies revealed a single-layered epidermis, chlorenchymatous hypodermis, a narrow cortex, many collateral vascular bundles, and plenty of calcium oxalate crystals in rosette, cluster and acicular forms.Powder microscopy showed the presence of calcium oxalate crystals, starch grains, lignified fibres, and xylem vessels with annular, reticulate and bordered-pitted patterns.Physicochemical analysis showed total ash of 18.51%, acid-insoluble ash of 16.00%, water-soluble ash of 14.26%, loss on drying of 8.90%, and highest extractive value in water of 18.78%.Preliminary phytochemical tests detected the presence of alkaloids, flavonoids, steroids, triterpenes, saponins, and cardiac glycosides.TLC analysis produced distinct spots with Rf values ranging from 0.56 to 0.77 under UV light, forming a distinct chromatographic fingerprint. This study has developed pharmacognostic, physicochemical, phytochemical, and chromatographic quality-control parameters for the stem of Cissus quadrangularis L. These findings offer reliable quality control measures for authenticating, detecting adulteration, and standardising the plant, supporting its safe and effective use in herbal medicine and future pharmacological research.

Keywords: *Cissus quadrangularis; pharmacognosy; physicochemical evaluation; phytochemical screening; standardization.*

Scanned with CamScanner