

Full text open access online (Since 2007)

©  Kamla-Raj S-EM 2024

PRINT: ISSN 0973-5070 ONLINE: ISSN 2456-6772

Ethno Med, 18(1): 24-31 (2024)

DOI: 10.31901/24566772.2024/18.01.6887

Histological Assessment of *Acalypha paniculata* and Its Phytoconstituent Systemisation

**A. Elumalai¹, N. Irfan¹, M. Vijaya Vara Prasad¹, Y. Ismail¹, HajaNazeer Ahamed¹,
D. Prabu² and P. Ashok Kumar³**

¹ *Crescent School of Pharmacy, Buhari Syed Abdur Rahman Crescent Institute of
Science and Technology, Vandalur, Chennai, Tamil Nadu, India 600 048*

² *Department of Microbiology, Dr. ALM PG Institute of Basic Medical Sciences,
University of Madras, Taramani, Chennai 113, Tamil Nadu, India*

³ *School of Life Sciences, Buhari Syed Abdur Rahman Crescent Institute of Science and
Technology, Vandalur, Chennai, Tamil Nadu, India 600 048*

KEYWORDS *Acalypha paniculata*. Pharmacognosy. Phytochemistry. High Performance Thin Layer Chromatography. Gas Chromatography-Mass Spectroscopy

ABSTRACT This study explores the pharmacognostic characterisation of *Acalypha paniculata*, a plant species within the Euphorbiaceae family known for its traditional medicinal uses. The investigation focuses on the leaf histology and phytoconstituent profile of *Acalypha paniculata*. Microscopic analysis reveals distinct features, including rectangular epidermal cells, multicellular covering trichomes, caryophyllaceous stomata, and cortex-heteromorphic structures. Phytochemical examination confirms the presence of alkaloids, terpenoids, carbohydrates, steroids, flavonoids, and saponins. Physicochemical parameters such as moisture content, total ash value, and extractive values are measured, with the soxhlet ethanolic extract. HPTLC densitometric analysis identifies four distinct spots with R_f values of 0.2, 0.4, 0.7 and 0.9, respectively. ATR-FTIR spectroscopy reveals nine functional group peaks between 3350 cm⁻¹ to 881 cm⁻¹ and GC-MS analysis detects 11 bioactive compounds. The comprehensive findings contribute to the understanding of *Acalypha paniculata*'s characteristics, facilitating future identification and authentication. The phytoconstituent profile suggests potential applications in new drug development, emphasising the plant's pharmacological significance.