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Phytopharmacological studies of botanical sources of sahachara: *Barleria prionitis* L. *and Strobilanthes ciliate* Nees

Sudesh N Gaidhani[1], Thirupataiah B[1], Thulasi R[1], Parvathy G Nair[1], Lakshminarayana Misro[1]*, Viswanth Reddy S[1], Sanjay Kumar Y R[2] and Srikanth Ala[1]

[1]National Ayurveda Research Institute for Panchakarma, CCRAS, Ministry of Ayush, Government of India, Cheruthuruthy, Thrissur, Kerala 679531, India

[2]CCRAS Headquarters, 61-65, opp. D'Block, D Block, Janakpuri Institutional Area, Janakpuri, New Delhi 110058, India

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Ayurveda, the traditional Indian system of medicine, extensively utilises medicinal plants; however, region-specific availability and increasing global demand have led to the substitution of botanically distinct species under the same vernacular names, often without scientific validation. *Barleria prionitis* L. and *Strobilanthes ciliatus* Nees, both identified as Sahachara in classical Ayurvedic literature, are frequently used interchangeably in clinical practice for the management of Vata-related disorders, including neuromuscular and inflammatory conditions, with *S. ciliatus* Nees frequently replacing *B. prionitis* L. The present study was undertaken to critically evaluate the validity of this substitution by comparing the phytochemical characteristics, quality control parameters, and pharmacological activities of both species. Aqueous and hydroalcoholic extracts of different plant parts were prepared using the cold maceration method. Phytochemical profiling was performed using High Performance Thin Layer Chromatography (HPTLC) and Gas Chromatography–Mass Spectrometry (GC-MS/MS). Acute oral toxicity was assessed according to OECD guideline 423 using a limit dose of 2000 mg/kg. Analgesic and anti-inflammatory activities were evaluated in experimental animal models at doses of 200 and 400 mg/kg body weight. The study established key quality control parameters and revealed distinct chromatographic and GC-MS/MS profiles, identifying species-specific phytochemical markers. Both extracts were found to be safe, with LD_{50} values exceeding 2000 mg/kg. In various analgesic models, aqueous and hydroalcoholic extracts of both plants produced significant analgesic effects compared to controls. A marked reduction in paw oedema volume confirmed their anti-inflammatory activity; however, no significant alterations were observed in pro-inflammatory cytokines such as TNF-α and IL-6. Overall, the findings suggest comparable anti-inflammatory and analgesic potential of both species.

Keywords: Analgesic activity, Anti-inflammatory activity, Ayurveda, GC-MS/MS, HPTLC, Pharmacological validation

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