

A note on *Cissampelos pareira* L.: a plant from Ayurveda

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DOI: <https://doi.org/10.5281/zenodo.18076394>

Article Details: Received: 2025-12-03 | Accepted: 2025-12-28 | Available online: 2025-12-28



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Abstract: *Cissampelos pareira* L. is an important medicinal plant widely used in Ayurvedic and traditional systems of medicine. The present study provides a concise overview of the botanical description, traditional uses, therapeutic significance and pharmacological potential of *C. pareira* as documented in classical Ayurvedic texts and modern scientific literature. The plant has been traditionally employed in the management of fever, urinary disorders, inflammation, gastrointestinal ailments and reproductive health conditions. Recent pharmacological studies have reported its antimicrobial, anti-inflammatory, antipyretic and antioxidant properties, which support its traditional applications. The current study highlights the ethnomedicinal relevance and potential of *C. pareira*, emphasizing the need for further scientific validation and clinical studies to explore its full therapeutic potential.

Keywords: Ethnomedicinal, gastrointestinal, scientific validation, therapeutic potential

Introduction

Medicinal plants have played a vital role in traditional healthcare systems since ancient times, with Ayurveda being one of the oldest and most comprehensive systems of medicine (Kumar et al., 2017; Latif and Nawaz, 2025). Among the numerous plants described in Ayurvedic literature, *Cissampelos pareira* L. holds a significant place due to its wide range of therapeutic applications (Kumari et al., 2021). It is commonly known as Patha in Ayurveda and has been traditionally used for the treatment of fever, inflammation, digestive disorders, urinary ailments and various gynaecological conditions. Its long-standing use in folk and classical medicine highlights its medicinal importance and cultural relevance (Singh et al., 2016; Himani et al., 2022). In recent years, there has been growing scientific interest in *C. pareira* owing to reports of its diverse pharmacological activities, including antimicrobial, anti-inflammatory, antipyretic, antioxidant and immunomodulatory effects (Yu et al., 2025). The present findings provide scientific support for its traditional uses and suggest its potential as a source of bioactive compounds for modern drug development (Hikal et al., 2021). Despite its therapeutic significance, increasing anthropogenic pressure, habitat loss and unregulated harvesting pose threats to the sustainable availability of this valuable medicinal plant (Mykhailenko et al., 2025). The present study aims to highlight the pharmacological potential and therapeutic values of *C. pareira* by compiling information from Ayurvedic texts and contemporary scientific studies. Additionally, the study seeks to create awareness regarding the importance of conservation and sustainable utilization of *C. pareira*, emphasizing the need to preserve its natural populations for future generations while promoting its safe and effective use in healthcare systems.

Methodology

A systematic review was conducted to evaluate and synthesize existing information on *C. pareira*, with particular focus on its traditional Ayurvedic uses and scientifically reported pharmacological properties. The literature survey was performed across multiple online databases, including Google Scholar, ScienceDirect, Web of Science, Scopus, etc., by using keywords, "*Cissampelos pareira*", "Ayurveda", "traditional uses", "therapeutic values" and "pharmacological activities". The collected data were synthesized to present a comprehensive overview of *C. pareira*, highlighting its significance in Ayurvedic medicine (Kumar, 2025).

Results and discussion

The present review of classical Ayurvedic literature and modern scientific studies revealed that *C. pareira* L. possessed significant pharmacological potential, supporting its extensive traditional use (Thim-Uam et al., 2025). Various parts of the plant, particularly the roots, have been reported to contain important bioactive constituents such as alkaloids, flavonoids, tannins and phenolic compounds (Sun and Shahrajabian, 2023). These phytochemicals can be considered responsible for the wide range of therapeutic activities attributed to the plant. Pharmacological studies have demonstrated that extracts of *C. pareira* L. exhibit notable antimicrobial, anti-inflammatory, antipyretic, antioxidant and analgesic activities (Amresh et al., 2007). The antimicrobial properties validate its traditional application in the

treatment of infections and gastrointestinal disorders, while its anti-inflammatory and antipyretic effects support its use in fever and inflammatory conditions (Girma, 2024). Additionally, experimental studies have reported hepatoprotective, antidiarrheal and immunomodulatory activities, indicating the broader therapeutic potential of the plant. The medicinal value of *C. pareira* is further emphasized by its role in women's health, particularly in traditional formulations used for gynaecological disorders and postnatal care (Reza et al., 2014). The observed pharmacological activities align well with these ethnomedicinal uses, highlighting the relevance of traditional knowledge in guiding scientific research. However, most studies are limited to *in vitro* and animal models, and there is a lack of well-designed clinical trials to establish safety, efficacy and dosage standards in humans. From a conservation perspective, the increasing demand for *C. pareira* in herbal medicine has raised concerns about its sustainable use. Uncontrolled harvesting, habitat destruction and limited cultivation practices may threaten its natural populations. Therefore, conservation strategies such as sustainable harvesting, cultivation and awareness programs are essential to ensure long-term availability. The current findings provide the importance of *C. pareira* as a valuable medicinal plant and highlight the need for further research, clinical validation and conservation efforts to fully harness its pharmacological and therapeutic potential.

Botanical description: *C. pareira* L., belonging to the family Menispermaceae, is a perennial herb widely distributed in tropical and subtropical regions. The plant is characterized by slender, twining stems that are covered with soft hairs, giving it a slightly pubescent appearance. The stems are flexible and often spread over shrubs and small trees for support. The leaves are simple, alternate and broadly ovate to orbicular in shape. The leaf margins are entire and the surface is softly pubescent. The upper surface is green, while the lower surface appears lighter and densely hairy. *C. pareira* is a dioecious plant, bearing male and female flowers on separate plants. The flowers are small, greenish-yellow and arranged in axillary or terminal inflorescences (Figure 1).



Figure 1: Leaves, flowers and fruits of *C. pareira*

Flowering generally occurs during the rainy season. The fruit is a small, globose to reniform drupe, turning red or black upon ripening. Each fruit contains a single curved seed enclosed within a hard endocarp. The roots are thick, long and woody, with a bitter taste and are the most commonly used part of the plant in traditional medicine (Saxena and Brahmam, 1994; Vasu, 2012; Kumari et al., 2021).

Traditional uses: *C. pareira* is a highly valued medicinal plant in Ayurveda and other traditional systems of medicine due to its wide range of therapeutic properties. It is commonly known as Patha in traditional Indian medicine and has a long history of use in Ayurveda and other folk systems for managing a wide range of health conditions (Himani et al., 2022). Classical Ayurvedic texts describe Patha as a useful remedy for digestive disorders, including diarrhea (Atisara) and indigestion, and it has traditionally been administered as a decoction to alleviate fever (Jwara) and infections (Singh et al., 2016). Root paste used for leukorrhea, decoction of leaves for dysentery (Sharma et al., 2025). It has also been employed for respiratory complaints such as cough (Kasa) and bronchitis (Shwasa) due to its expectorant properties and ability to ease bronchial congestion (Vijayan et al., 2014). Traditional uses extend to rheumatic and inflammatory conditions, where it is valued for its anti-inflammatory and analgesic effects, as well as to the management of wounds, skin diseases and snakebite poisoning. Patha has been used in reproductive health, including the regulation of menstrual disorders and as a supportive agent in gynaecological ailments; tribal and folk practices further describe its application as a contraceptive in women (Ramana and Garg, 2025). Additionally, the plant is noted for its diuretic, detoxifying and blood-purifying actions, and is incorporated in various Ayurvedic formulations for improving appetite, enhancing digestion and alleviating urinary symptoms (Suman and Nishteswar, 2013). These traditional applications highlight the medicinal importance of *C. pareira* in Ayurveda and ethnomedicine, reflecting its diverse therapeutic role in managing fever, inflammation, gastrointestinal issues, respiratory, reproductive disorders and skin ailments (Sood et al., 2015; Kumari et al., 2021; Raza et al., 2024). Its diverse therapeutic applications highlight its importance as a natural remedy in Ayurvedic medicine and underscore the need for further pharmacological and clinical studies to validate its efficacy and promote its safe and sustainable use.

Therapeutic significance: *C. pareira* demonstrated considerable therapeutic significance, as evidenced by both traditional use and modern pharmacological investigations (Kumar et al., 2021). Classical Ayurvedic and ethnomedicinal sources describe its application in managing fever, inflammation, pain, respiratory ailments, gastrointestinal disorders and reproductive health issues, reflecting its role as a multifaceted medicinal herb (Khanal et al., 2020; Singh et al., 2021). Modern studies have confirmed a range of biological activities; extracts of *C. pareira* exhibit analgesic, anti-inflammatory and antipyretic effects, supporting its traditional use in pain and fever management (Sood et al., 2015). Additionally, the plant has shown antioxidant, antimicrobial, diuretic, antiulcer, antidiabetic, anticancer, antifertility, antimalarial and immunomodulatory properties in preclinical models, indicating broad therapeutic potential (Bafna and Mishra, 2010; Jannu et al., 2011). Specific investigations have reported antihyperglycemic effects consistent with antidiabetic activity, while other studies highlight its antibacterial and antiviral actions, including inhibitory effects against dengue virus serotypes (Jannu et al., 2011; Sood et al., 2015). The presence of diverse phytochemicals such as

isoquinoline alkaloids, flavonoids and fatty acids likely contributes to these activities, highlighting the pharmacological relevance of the plant (Singh et al., 2021). The present findings corroborate traditional therapeutic claims and suggest that *C. pareira* may be a valuable source for developing novel natural therapeutics, although further clinical validation is warranted.

Pharmacological potential: *C. pareira* exhibits a broad pharmacological potential that aligns closely with its traditional medicinal uses and has been validated through extensive modern research. Phytochemical investigations have identified approximately 54 bioactive compounds predominantly isoquinoline alkaloids, flavonoid glycosides and fatty acids which form the basis for many of its biological activities (Singh et al., 2021). Crude extracts of *C. pareira* have demonstrated antipyretic, anti-inflammatory, analgesic, antiulcer and antidiabetic effects, supporting its use in fever, pain, gastric and metabolic disorders (Amresh et al., 2007). Additionally, the plant has shown antioxidant, antimicrobial, immunomodulatory and anticancer properties in preclinical studies, suggesting utility against oxidative stress, infections and malignancies (Thim-Uam et al., 2025). Studies also report antimalarial activity, with specific alkaloids exhibiting potent inhibition against *Plasmodium falciparum* strains, thereby scientifically corroborating its traditional use in malaria management (Bhatt et al., 2020). Furthermore, ethanol and methanol extracts display significant diuretic and antibacterial activity, reflecting potential roles in urinary and infectious conditions. Emerging research even indicated inhibitory action against viral pathogens, including SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2) *in vitro*, highlighting its relevance in contemporary therapeutic exploration (Reza et al., 2014; Girma, 2024). While these findings affirm the multifaceted pharmacological profile of the plant, further preclinical and clinical investigations are needed to fully elucidate mechanisms of action, safety and therapeutic efficacy.

Conclusion

C. pareira is an important Ayurvedic medicinal plant with a long history of traditional use and considerable pharmacological potential. The available literature supports its therapeutic value in managing fever, inflammation, infections, gastrointestinal, urinary and gynaecological disorders. The presence of diverse bioactive compounds further justifies its medicinal significance. However, scientific validation through clinical studies and standardization of herbal preparations remains limited. Therefore, future research focusing on efficacy, safety and sustainable utilization is essential. Creating awareness and implementing conservation strategies will help preserve this valuable plant and ensure its continued contribution to traditional and modern healthcare systems.

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