

**ROLE OF CYCLEA PELTATA IN ACNE MANAGEMENT**Vigneshwaran L. V.*¹, Laya M. C.¹, Thushara P. V.¹, V. Sebastin¹, Ajith Babu T. K.¹

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Article Received on 12/07/2025

Article Revised on 02/08/2023

Article Accepted on 23/08/2023

ABSTRACT

Acne is a long-lasting inflammatory condition of the pilosebaceous unit that is brought on by excessive sebum production by the sebaceous glands and aberrant desquamation of hair follicles at the start of adolescence. *Staphylococcus aureus*, *Staphylococcus epidermidis*, and *Propionibacterium acnes* are the major microbes that cause the disorder. These microorganisms multiply quickly, which ultimately leads to the emergence of acne. Herbs that have antimicrobial properties are probably useful in the treatment of acne. The ability of medicinal herbs or plants to retain their properties results in a high demand for their use in the manufacture of valuable medications or chemicals. *Cyclea peltata*, often referred to as Padathally or Padakkilangu, is a member of the Menispermaceae family, which has historically been used to treat a wide range of illnesses. The plants' antibacterial, antioxidant, and anti-inflammatory properties are strong.

KEYWORDS: *Cyclea peltata*, menispermaceae, acne management.

INTRODUCTION

Acne vulgaris, or just acne, is a skin condition that affects people and is identified by scaly red skin (seborrhea), blackheads, whiteheads, pinhead-sized papules (nodules), pimples, and scars. Face, chest, and back areas with dense sebaceous follicles are all affected by acne. Inflammatory or non-inflammatory kinds of acne are both possible. Androgen stimulation results in lesions because of alterations in the pilosebaceous units. About 80–90% of teenagers in Western civilizations and lower rates have been observed in rural settings experience acne during adolescence. In both males and females, acne is typically brought on by an increase in androgens like testosterone throughout adolescence. Over time, acne lessens and eventually disappears as people become older. *Staphylococcus aureus*, *Staphylococcus epidermidis*, and *Propionibacterium acnes* are the major microbes that cause the disorder. These microorganisms multiply quickly, which ultimately leads to the emergence of acne. Herbs that have antimicrobial properties are probably useful in the treatment of acne. Acne Symptoms and Signs Papules, nodules (big papules), seborrhea, comedones, pustules, and scarring are all included in it. Acne might appear differently depending on the colour of the skin, and it's linked to social and psychological issues. Acne is brought on by sebum, hyperkeratinization, and keratin plug development in the follicles. Sebaceous glands grow and sebum production rises as testosterone production rises. A closed comedo or an open comedo (blackhead) may develop from a microcomedone.

Sebaceous glands become clogged with sebum, a naturally occurring oil, and dead skin cells, which leads to comedones. The naturally occurring commensal bacterium *Propionibacterium acnes* can produce redness, scarring, or hyperpigmentation by inducing inflammation and inflammatory lesions including infected pustules, nodules, and papules in the dermis around the microcomedone.

EPIDEMIOLOGY

It was estimated that 9.4% of people in the population had acne in 2010. 90% of people experience it during their adolescence and occasionally into adulthood. Moderate to severe cases affect 20% of the population. Rural places have low incidence of acne, and non-Westernized populations like Papua New Guinea and Paraguay may not have it. 9.8% of females have it, compared to 9.0% of males. About 1% of males and 5% of females in subjects over 40 have issues. It affects persons of all races, while it is unclear whether race has an impact on disease rates. In the United States, 40 to 50 million people—or roughly 16% of the population—have acne, and 3 to 5 million people or roughly 23% do as well.^[1]

ROLE OF PHYTOCONSTITUENTS IN ACNE MANAGEMENT

Due to their advantages of higher patient tolerance, lengthy histories of usage, less side effects, and being comparably more cost-effective, several herbs having a history of use in traditional cultures have entered the

expanding "cosmeceuticals" market. Extracts from herbs can be used on their own or as adjuvants. Traditional acne treatments include comedolytic medicines, antibiotics, and other anti-inflammatory medications. These are accessible as topical and systemic therapies. Due to the negative effects, often expensive cost, and antibiotic resistance in acne-causing bacteria, interest in therapeutic plants has been steadily rising. Alkaloids a significant family of phytoconstituents called alkaloids has received extensive research for the treatment of acne. According to certain reports, berberine has antimicrobial effects on *Staphylococcus* spp., *Cutibacterium acnes*, and hamster sebaceous gland lipogenesis. Fatty acids are one of the primary causes of acne aetiology is sebum secretion. Sebum from acne patients shows both quantitative and qualitative changes. Patients with acne have a greater ratio of c16:0/c16:1 in the wax esters and triglycerides on their skin's surface. Desaturation of fatty acids has been hypothesised to have a significant impact on sebogenesis and the start of acne. Linoleic acid is said to be useful in the treatment of acne. Linoleic acid given topically had a substantial impact on follicular cast and microcomedone size in a double-blind placebo-controlled randomised cross-over research. As a result, linoleic acid-containing vegetables can be utilised to treat acne. The terpenoids' effectiveness against acne is promising, and it works through many ways. The most prevalent alkaloid having an anti-acne effect among the diverse plants was berberine.^[2]

PLANT PROFILE

Cyclea peltata, also known as rajapatha, is a member of the Menispermaceae family and is referenced in many ayurvedic classics, including the Charaka Samhita, Sushrutasamhita, and Ashtangahridya. A multi-branched, climbing shrub called *Cyclea peltata* can be found in South and East India as well as the Andaman and Nicobar Islands.^[3] The flowers are a paleyellow colour, and the male flowers are subsessile, spicate, or grouped into heads. The roots are tuberous. Racemose female flowers have glabrous, oblong sepals. The plant blooms in the windy season, and the ovary is orbicular and somewhat shorter than the sepal ovary. The calyx and corolla of this plant have a cup-like form, making it simple to identify its species. The leaves are simple, alternate, heart-shaped leaves that are 2.5–10 cm long and 2.5–3.75 cm wide. Stipules are 5–10 cm long, and nerves are 7–11 cm long. The leaves are deltoid or applaud, intense, short or marginally sinuate at the base with adjusted points, mucronate, pretty much bristly on the nerves and veins, and edge regularly ciliate. The flavour of this plant is bitter and strong. The spherical, empty, bent tuberous root has a surface that is earthy-grey in hue and a white, starchy cortex.^[4]



Fig. No: 1: Cyclea Peltata Plant.

TAXONOMICAL CLASSIFICATION

KINGDOM: PLANTAE
 PHYLUM: TRACHEOPHYTES TRACHEOPHYTE
 CLASS: ANGIOSPERMS ANGIOSPERM
 ORDER: RANUNCULALES RANUNCULALE
 FAMILY: MENISPERMACEA
 GENUS: CYCLEA CYCLE
 SPECIES: C. PELTATA

PHYTOCONSTITUENTS

The root bark was used to isolate eleven quaternary alkaloids, three of which were given the names menismine, cissamine, and pareirine. In root bark, there are five more tertiary alkaloids. Cycleanine, bebeerines, hayatinin, hayatin, hayatin, and quercetin were isolated from the leaves.^[5] Numerous alkaloids, including bisbenzylisoquinoline alkaloids, tetrandrine, tropoloisoquinoline alkaloids like pareirubrine A and B, etc., are found in the root, including cycleacaine, cycleanorine, cycleahomine chloride, and cycleapeltine. Cycleanine, (-) bebeerines, hayatinin, hayatin, hayatin, and (+) bebeerines, hayatin, hayatin, hayatin, and (+) quercetin were isolated from the leaves.^[6] *Staphylococcus aureus*, *Staphylococcus haemolyticus*, *Klebsiella pneumonia*, and *Proteus vulgaris* are only a few of the bacterial pathogens that the methanolic and ethanolic extract of the herb *C. Peltata* increases resistance against.^[7] *Cyclea peltata* has the ability to treat microbial infections, particularly isolates from diabetic wounds, and has the potential to be a valuable source for antibacterial medicines.^[3] Tetrandrine, a bisbenzylisoquinoline dioxine alkaloid well recognised for its antioxidant action, is said to be present in the roots of *C. Peltata*.^[7]

Bacterial resistance: Studies have shown that the methanolic extract of *C. Peltata* exhibited significant antibacterial activity against *Staphylococcus aureus*, *Streptococcus haemolyticus*, *Klebsiella pneumonia*, and *Proteus vulgaris*, and that the hexane extract of this plant exhibited the same potential against *P. Vulgaris* and *P. Mirabilis*. *Staphylococcus aureus*, *Streptococcus haemolyticus*, *Klebsiella pneumonia*, and *Proteus vulgaris* were more inhibited by methanolic extract. This study also suggested using whole plant extracts to treat

illnesses brought on by the examined microbiological species.^[3]

USES OF CYCLEA PELTATA

The herb *Cyclea peltata* is frequently used in folk medicine to treat snake poisoning, renal disease, fever, cough, and urinary and kidney disorders. The Kani tribes in Tamil Nadu's Aarukani Hills utilise the tuber and leaves of *Cyclea peltata* to treat scabies, chickenpox, diarrhoea, and wounds. Folk medicine practitioners utilised the leaves of *C. Peltata* as a cooling, antidandruff, antipyretic, and diuretic. Herpes is historically treated using leaves in several coastal areas of Karnataka. Patha roots have significant therapeutic significance and are utilised for both internal and external medical purposes.^[8]

TOPICAL APPLICATION OF CYCLEA PELTATA

Its roots and leaves can be ground into a paste that can be applied topically to treat skin conditions including erysipelas and itching as well as infected wounds and sinuses. This ointment can allegedly be applied externally to treat serpent bites as well. As nasal drops, the root juice is beneficial for headaches. Because the roots have anti-inflammatory properties, the edoema was reduced. Patha is a potent antidermatosis and wound-healing plant.

SYSTEMIC APPLICATION OF CYCLEA PELTATA

Patha balances all three doshas internally, but primarily kapha and vata. Root decoction combined with pepper powder is effective for fever associated with rigours. Additionally, it lessens the body's burning sensation. Patha is used in the treatment of anorexia, dyspepsia, diarrhoea, dysentery, worms, stomach pain, and other conditions because it is a keen digestive system stimulant and possesses the effects of an appetiser, digestant, astringent, and vermicide. The roots, when mashed with buttermilk, are helpful for diarrhoea. In cases of cystitis and dysuria, the roots are also highly beneficial. One of the best herbs for purifying the blood is patha. It is beneficial for cardiac conditions, edoema, and blood disorders as well. It is frequently used as an astringent tonic. The roots are prescribed in conjunction with buttermilk or jaggery for haemorrhoids and diarrhoea of the vata and kapha types. As a lactodepurant, it works wonders for kaphaja stanyadusti. The mixture of patha, trikatu (Sunthi, marica, and pippali), and kutaja is beneficial in menstruation with blood clots.^[6] *Cyclea peltata*, when given orally to experimental diabetic rats, lowers blood glucose levels, serum lipids, which may improve insulin output by regenerating pancreatic cells, and avoids lipid peroxidation. Alkaloids and flavanoids are helpful in the management of diabetes and a variety of other disorders.^[3]

CONCLUSION

Cyclea peltata contain wide variety of phytoconstituents, such as Cycleanine, bebeerines, hayatinin, hayatidin,

hayat and quercetin were isolated from the leaves. Numerous alkaloids, including bisbenzylisoquinoline alkaloids, tetrandrine, tropoloisoquinoline alkaloids like pareirubrine A and B, etc. They have potent antidermatosis and wound-healing plant. It is used in the treatment of anorexia, dyspepsia, diarrhoea, dysentery, worms, stomach pain, appetiser, digestant, astringent, and vermicide. *Cyclea peltata* has the ability to treat microbial infections, particularly isolates from diabetic wounds, and has the potential to be a valuable source for antibacterial medicines. Tetrandrine, a bisbenzylisoquinoline dioxine alkaloid have antioxidant action. This review explored a number of promising activities of *Cyclea peltata* and its acne management.

REFERENCE

1. Suva ma, patel am, sharma n, bhattacharya c, mangi rk. A brief review on acne vulgaris: pathogenesis, diagnosis and treatment. *Research & reviews: journal of pharmacology*, 2014; 4(3): 1-2.
2. Abozeid d, fawzy g, issa m, abdelawab n, soliman f. Medicinal plants and their constituents in the treatment of acne vulgaris.
3. Yamuna cv, arthi i, rajagopal pl, sajith kumar pn, lithashabin pk, anjana ak. *Cyclea peltata* (lam.) Hook. F. & thomson: a pharmacological review.
4. Judy j, ananda v, visagaperumal d, chandy v. Pharmacological review on *cyclea peltata*.
5. George m, joseph l, jose ck. Phytochemical screening and in-vitro anti-microbial activity of various extracts of *cyclea peltata* lam. *Int. J. Innov. Sci. Res. Tech.*, 2017; 2: 58-61.
6. Mustafaanand ph. In-vitro plantlets regeneration from callus cultures of *cyclea peltata* (lam) hooks & thomsa medicinal plant. *International journal of pharmacy and biological sciences*, 2018; 8(2): 225-9.
7. Singh s, nishteswar k. Review on *cissampelos pareira* & *cyclea peltata* (patha dwaya) phyto-pharmacological perspectives. *Int j ayurvedic med*, 2013; 4: 282-9.
8. Jagadeep chandra s, mahadeva murthy s, ranjana r. Evaluation of the wound healing activity of *caesalpinia bonducella* and *cyclea peltata* extracts in experimentally induced diabetic rats. *International journal of pharmacy and pharmaceutical sciences*, 2017; 9(10): 211-7.