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Harnessing The Medicinal Properties Of Paederia Foetida In Ayurveda And Traditional Medicine

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Abstract: Herbal and ayurvedic medications have gained international attention throughout the last ten years, with both financial and medical consequences. The globe over, there are now more legitimate worries about the effectiveness, safety, and quality of herbs due to their frequent and extensive use. Paederia foetida, a member of the Rubiaceae family and locally referred to as "Gandhavadulia" (English:"skunkvine"), has a wide range of pharmacological and phytochemical significance. As a result, valid scientific proof or evaluation is now required in order for herbal health claims to be accepted. This review examines the pharmacognostic, phytochemical, pharmacological, and prospective features of this plant in addition to the conventional knowledge. Humans have been using nature's resources for ages to find novel phytoconstituents that have been used to treat a wide range of illnesses. Many of these treatments are still effective in contemporary medicine. Emerging data also points to the need for ongoing research into using naturally occurring active molecules to treat human diseases, as well as the need to find innovative, active natural and semisyntheticorsyntheticsubstances.

Key words: iridoid glycosides, skunkvine, Rubiaceae, and Paederia foetida**.**

Introduction

One of the largest families of Angiosperms, the genus Paederia belongs to the Rubiaceae family and is mostly found in Asia and North America. There are 33 recognized plant species in the genus Paederia, according to The Plant List (The Plant List: Paederia genus). Paederia foetida Linn., also known as Paederia scandans, is the lectotype species of the Paederia genus. It is a deciduous climbing plant that grows to a height of 5.5 m and has a hard, lignified stem (Ye et al., 2013). One quality that sets this plant apart is that when its leaves or stems are bruised or crushed, they release an intense, sulfurous stench. The Latin term for the species, foetida, implies "stinky" or "foul-smelling."

Because certain species feature translucent drupes, the name Paederia comes from the Greek word paederos, which means opals. Foetida translates to foul. Gandha Prasirini is the name in Sanskrit for it. In Sanskrit, the meaning of the term is "it spreads bad smell." It's a special quality herb. Prasarini means to spread, while Gandha means to scent. Hindi: Gandhaprasarani, also known as Pasaran; English:Bengali names for Chinese flower plants are Gandhabhaduliya, Gandhabhadule, and Gandal. Treatments for gout, piles, dysentery, calculi, stomachic, emetic, ulcers, and many types of inflammations were indicated. Additionally, it has been documented to have antinociceptive1, antiviral, anti-diarrheal, anti-tussive, and anti-inflammatory properties. There are thirty species in the genus Paederi, with Paederia foetida belonging to the Rubiaceae family. Native to temperate and tropical Asia, including Japan, South East Asia, and India, is Paederia foetida. It smells bad and has an unpleasant taste. P. foetida may reach high treetops in a range of environments, from xeric sand hill communities to msichammocks, but it seems to favor sunny flood plains and bottomlands, where it can even grow underwater, tree gaps, and other disturbed regions.

Classification:

Kingdom: Plantae
Subkingdom: Tracheobionta
Superdivision: Spermatophyta
Division: Magnoliophyta
Class: Magnoliopsida
Subclass: Asterida Order: Rubiales
Family: Rubiaceae
Genus: Paederia L.
Species: Paederia foetida L.
Taxonomic name: Paederia foetida L. Synonyms: Paederia chinensis Hance, Paederia scandans (Lour.) Merr., Paederia tomentosa Blume, Apocynum foetium Burm. f.
Local name: Biri, Berihara, Prasarini Ayurvedic name:Gandhaprasarani
Common names: Chinese fever vine, skunk vine, stinkvine.

Distribution:

Paederia foetida Linn. has therapeutic value in India. It is extensively used in thickets at intermediate and low elevations. It is typically found in Assam, Bihar, Orissa, Bengal, and the Himalayas, stretching from Dehradun eastward to an elevation of 1800 meters. It smells bad and has an unpleasant taste. P. foetida may grow high into the trees in a range of environments, including xeric sand hill communities and mesic hammocks, but it seems to favor sunny floodplains and bottomlands. P. foetida can even develop submerged. P. foetida has been found to be common in tree gaps and other disturbed places. a thin, hairy, herbaceous, smooth, or climbing vine. A perennial twining vine with woody rootstock that can grow up to 7 meters (23 feet) in height, climb, or lie prostrate, with roots at the nodes. Blades entire, oval to linear-lanceolate, 2-11 cm (1-4.3 in) long, hairy or glabrous, often lobed at base; leaves and stems with disagreeable odor, especially when crushed . Leaves opposite phyllotaxy (rarely in whorls of 3), ovate to oblong-ovate, 6 to 10 cm long, 3.5 to 5 cm wide, with conspicuous stipules.

1. **General habit**
   Perennial vine, woody, climbing and twining themselves around the supports it encounters. It can measure up to 10 m long.

2. **Underground system**
   The plant has a taproot system

3. **Stem**
   Stem is cylindrical to quadrangular, slender, full, twining, winding from left to right, glabrous or having short hairs scattered on young parts, often becoming black when dry, older stems are pale yellow in colour.

4. **Leaf**
   Leaves are simple, opposite, held by a long petiole, 1 to 4.5 cm long. There is a triangular stipular collar, 1.5 mm long, ciliate between the petioles. The lamina is oblong, oval to lanceolate, 1.5 to 9 cm long and 0.8 to 6 cm wide, shortly acuminate at the top, with wide angled or truncated at the base, shiny green color on the upper side, almost glabrous, except some small hairs on the midrib and on the margin. The venation is alternate. The leaves give off a foul odor when crushed.

5. **Inflorescence**
   The inflorescence is a multiple biparous cyme, forming panicles sometimes large, reaching 12 cm in length or longer, generally axillary, but also terminal. Primary peduncles are 1.5 to 5 cm long, the secondary are1 to 1.5 mm long.

6. **Flower**
   The flower has a green calyx fused into a 1.5 mm long tube, topped by five triangular lobes. The corolla is white to pale yellow on the outside, with dark red or purple throat. It is fused in a funnel,6 to 7 mm long, with mealy gray pubescence, with long glandular hairs interlaced on the internal surface

of the collar, surmounted by 5 oblong lobes, 2 mm long and wide, with hairs similar to those inside the collar. The stamens have a white filament washed in purple or dark purple, and white anthers. The style is pale yellow, about 1 cm long, divided into two.

7. **Fruit**
   The fruit is ellipsoid to sub-spherical, 5 to 6 mm in diameter, with shiny green pericarp, becoming yellowish-brown when dry,and glabrous. It contains 2 seeds.

8. **Seed**
   Seed 4 to 5 mm large, concave-convex, pale, yellowish, becoming black when dry, surrounded by a membranous crest.

Phytochemical constituents

According to phytochemical studies, Paederia foetida contains related glucosides as well as paederolone, paederone, β-sitosterol, paederoside, and asperuloside. The plant's leaves are also a good source of alkaloids, carotene, vitamin C, and keto-alcohol. Important indicators (lupeol, beta-sitosterol, and asperuloside) have also been quantified in leaves by Shreedhara. Iridoid glucosides (asperuloside, scandoside, and paederoside) are found in the plant's aerial sections. Additionally, P. foetida includes ursolic acid, campesterol, and friedelin.

Fig:-1.1 Paederia foetida plant

Fig:-1.2 Paederia foetida fruit

Fig:-1.3 Paederia foetida flower

Fig:-1.4 Paederia foetida growing in wild condition

ETHNOPHARMACOLOGY:

Rheumatism was treated with it in Folkloric. Boil and crush the leaves and apply them to the abdomen to treat urine retention. Leaf decoction is also used to treat bladder stones and urinary retention. For fevers, apply decoction-soaked towels to the forehead and take an internal dose at the same time. A mixture of bark used as a remedy. Leaf decoction used in antirheumatic baths. Flatulence remedy: mashed leaves applied to the abdomen. Root decoction to release gas.Fruit is used to whiten teeth and treat toothaches. Whole plant decoction is used to treat arthritis, abscesses, and stomach ache. Traditional treatments for dysentery and diarrhea are utilized throughout much of Asia. Used in Bangladesh to treat diarrhea.

PHARACOLOGICAL ACTIVITIES:

• Antidiarrheal:

Magnesium sulfate-induced diarrhea was shown to diminish the purging index in a dose-dependent manner by P. foetida, which also decreased gastrointestinal motility and increased the reduction of motilitygenerated by morphine. The use of PF in traditional medicine is supported by the results, which indicate that it has antidiarrheal effect via decreasing intestinal motility

• Anti-inflammatory:

In rats implanted with cotton pellets, a study of the butanol fraction of a methanol extract of the defatted leaves of P.foetida demonstrated a considerable suppression of the formation of granence of antirheumatic action that modifies illness. Findings provided some justification for its use as and ethnomedical anti-inflammatory.

Antispasmodic:

On isolated guinea-pig ileum, ethanolic extract shown antispasmodic action.

Anthelmintic:

Leaf juice shown a strong anthelmintic action against Strongyloides species, Trichostrongylus species, and Haemonchus species, which are bovine helminths.

Antitussive Activity:

Research revealed that P foetida's ethanolic extract has a suppressive impact on coughing, resulting in a drop in both the frequency and intensity of coughing. Less than codeine, but comparable to non-narcotic dropropizine, was the impact. The effect might be connected to its proven anti-inflammatory properties.

• Antioxidant Activity:

The results of the study demonstrated the significant antioxidant activity of P. foetida, with fresh samples exhibiting more antioxidant activity and phenolic levels than dried samples. It implies that PF might provide a sizable amount of naturally occurring antioxidant chemicals.

SUMMARY:

We have attempted to investigate and present as much information as possible about the medicinal herb Paederia foetida Linn., which is used in Indian medicine. This information includes botanical, pharmacognostical with history and cultivation, ethnopharmacological, ethno formulation and preparations, phytochemical, nutritional, and toxicological data. This plant has a variety of chemical constituents, including sitosterol, stigmasterol, alkaloids, carbohydrates, protein, amino acids, and volatile oils. Each of these constituents has a unique set of pharmacological properties. According to this information,

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