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Vranaropani (*Hemigraphis colorata*): A COMPREHENSIVE REVIEW OF ITS PHARMACOGNOSY AND WOUND-HEALING POTENTIAL

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ABSTRACT
Hemigraphis colorata, commonly known as Vranaropani in Ayurveda, is a herbaceous medicinal plant traditionally valued for its vrana ropana (wound healing) potential. The plant possesses tikta and madhura rasa, laghu and shita guna, and shita veerya, which collectively contribute to its cooling, healing, and anti-inflammatory effects. Phytochemical investigations have revealed the presence of flavonoids, saponins, terpenoids, coumarins, tannins, alkaloids, and phenolic compounds that are responsible for its broad pharmacological actions. Modern studies confirm its antimicrobial, antioxidant, anti-inflammatory, and antidiabetic activities, supporting its traditional claims. The present review aims to compile Ayurvedic and contemporary scientific data on Vranaropani, highlighting its therapeutic relevance in wound healing, inflammation control, and tissue regeneration, thus establishing it as a valuable ubhaya pratyanika dravya in Ayurvedic therapeutics.

KEYWORDS: *Vranaropani, Hemigraphis colorata, Vrana ropana, wound healing, antioxidant, anti-inflammatory, ubhaya pratyanika dravya.*

INTRODUCTION

In *Chikitsa Chatushpada*, *dravya* holds immense importance, ranking next to the physician and symbolizing its indispensable role in treatment. A physician must possess a profound understanding of *aushadha dravya*, as clinical success depends on the correct selection and application of drugs. *Dravya* can act as *dosha pratyanika*, *vyadhi pratyanika*, or *ubhaya pratyanika*, with the last addressing both the disease and the *doshic* imbalance.

Among the various herbs described for *vrana ropana*, *Vranaropani* (*Hemigraphis colorata*) has gained attention due to its healing, cooling, and anti-inflammatory attributes. *Acharya Charaka* mentioned that every substance in the universe possesses potential medicinal utility, and the wise physician identifies and employs it appropriately.

The present review explores the classical references, phytochemical profile, and pharmacological activities of *Vranaropani* in light of modern scientific validation, aiming to establish its therapeutic potential, particularly in *sadyovrana* conditions, where effective wound healing is a critical concern.

MATERIALS AND METHODS

This review was compiled through an extensive literature survey of Ayurvedic classical texts, nighantu, pharmacognostic manuals, and modern pharmacological databases. Scientific studies and published articles were collected from PubMed, Google Scholar, ScienceDirect, AYUSH Research Portal, and related ethnobotanical sources.

The collected data were analyzed to integrate Ayurvedic principles with pharmacological evidence, emphasizing morphology, taxonomy, phytochemistry, and biological activities. The plant's geographical distribution, traditional uses, and cultivation methods were also reviewed from authenticated botanical references [1–13].

Botanical Profile of Vranaropani (Hemigraphis colorata) [1]
Botanical Name: *Hemigraphis colorata* (Burm.f.) T. Anderson
Synonyms: *Hemigraphis alternata* (Blume) Hallier f., *Strobilanthes alternata* (Burm.f.)

Vernacular Names
English: Cemetery plant, Red flame ivy, Tincture plant
Sanskrit: *Vranaropani*
Malayalam: Murikooti
Kannada: Tincture ghida
Part Used: Leaf

Figure 1: Vranaropani Plant Leaves



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Hemigraphis colorata is a perennial, low-growing herb that reaches approximately 30 cm in height. It is widely distributed in tropical regions including India, Malaysia, and Indonesia, and is commonly cultivated as an ornamental and medicinal plant. In Ayurveda, it is known as *Vranaropani*, literally "the one that heals wounds."

Taxonomical Classification

Table 1: Taxonomy

Rank	Classification
Kingdom	Plantae
Phylum	Spermatophyta
Subphylum	Angiospermae
Class	Magnoliopsida (Dicotyledons)
Subclass	Asteridae
Order	Scrophulariales
Family	Acanthaceae Juss.
Genus	*Hemigraphis*
Species	*Hemigraphis colorata*

Geographical Distribution

Native to tropical Malaysia and Indonesia, *Hemigraphis colorata* now grows widely across Southeast Asia, China, India, and Japan. It thrives in warm, humid environments and is often found in shaded or partially lit areas. The species has naturalized in several islands of the Pacific and Indian Oceans, where it provides soil cover but can become invasive due to its rapid spreading nature.

Habitat and Cultivation

The plant prefers warm, humid tropical climates, well-drained soil, and indirect light. It propagates easily through stem cuttings and division. It is frost-sensitive and grows well at temperatures between 15–24°C.

Macroscopic Description: [2,3]

The leaves of *Hemigraphis alternata* are broad, elliptical, and glossy, with deep green upper surfaces and purplish undersides. The flowers are small, tubular, and white to light lavender in color, typically blooming during the warm seasons. The stems are reddish-purple, prostrate, and capable of rooting at the nodes, while the roots are fibrous, shallow, and often adventitious, which aids in rapid propagation.

Traditional Uses

- **Wound Healing:** Traditionally, crushed leaves or poultices are applied directly to wounds to promote rapid healing and skin regeneration.
- **Anti-inflammatory Use:** Folk medicine practices use leaf extracts to reduce local inflammation and pain.
- **Ornamental Use:** Widely cultivated as a decorative ground cover for its vibrant purple-green foliage.

Phytochemistry

The plant contains saponins, flavonoids, terpenoids, tannins, coumarins, alkaloids, steroids, and phenolic compounds. The distribution of phytoconstituents is as follows [4,5].

Table 2: Distribution of Phytoconstituents

Plant Part	Phytoconstituents
Leaf	Flavonoids, Polyphenols, Tannins, High potassium, Low sodium
Stem	Saponins, Tannins
Root	Flavonoids, Polyphenols

Pharmacological Activities

1. Wound-Healing Activity

Experimental studies in mice demonstrated that topical application of H. colorata leaf paste accelerates wound contraction and epithelialization, showing efficacy comparable to standard povidone-iodine ointment [6,7].

2. Anti-inflammatory Activity

The plant extracts exhibit significant membrane stabilization in HRBC assays, attributed to the presence of flavonoids, tannins, and phenolic compounds [2].

3. Antibacterial Activity

Crude extracts in various solvents (aqueous, acetone, ethanol, and petroleum ether) show broad-spectrum antibacterial activity against Klebsiella pneumoniae, Salmonella typhi, Bacillus cereus, E. coli, and B. subtilis, with activity increasing in a concentration-dependent manner [8,9].

4. Antioxidant Activity

Phenolic compounds present in the leaves demonstrate potent DPPH radical scavenging and reducing power, indicating a strong antioxidant potential [2,10].

5. Anti-elastase Activity

Aqueous and alcoholic extracts inhibit porcine pancreatic elastase in a dose-dependent manner, suggesting possible anti-ageing and skin-protective benefits [10].

6. Antidiabetic Activity

In animal studies proved, n-hexane and ethanol extracts of H. colorata significantly reduced blood glucose levels in Wistar rats and Swiss albino mice, likely due to the presence of steroids and coumarins [11,12,13].

DISCUSSION

The Ayurvedic description of *Vranaropani* aligns well with modern pharmacological findings. The *tikta* and *madhura rasa*, *shita veerya*, and *laghu guna* correspond to cooling, anti-inflammatory, and tissue-regenerative effects observed in contemporary studies. The plant's rich phytochemical profile, including flavonoids, tannins, phenolic compounds, and triterpenoids, contributes to its antioxidant and wound-healing activities. Saponins and glycosides in the plant further enhance epithelial regeneration and collagen synthesis, supporting faster tissue repair and scar formation. Pharmacological studies also demonstrate antibacterial, anti-inflammatory, and angiogenic effects, which help prevent infection and promote granulation tissue formation. These findings validate its traditional use in *vrana* conditions, where tissue repair and infection control are essential. Overall, the integration of classical Ayurvedic wisdom and modern scientific evidence highlights *Vranaropani* as an effective natural agent in wound management.

CONCLUSION

Hemigraphis colorata (*Vranaropani*) is a promising medicinal herb with strong traditional and scientific support for its wound-healing, anti-inflammatory, antioxidant, and antimicrobial

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properties. Its *Ayurvedic* properties and pharmacological profile together make it an effective *ubhaya pratyanika dravya[meaning]*. The integration of classical Ayurvedic knowledge with modern evidence highlights the therapeutic relevance of *Vranaropani* in both traditional and contemporary wound-care approaches.

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