

GORAKHMUNDI (*SPHAERANTHUS INDICUS* LINN.): A COMPREHENSIVE REVIEW OF CLASSICAL LITERATURE, PHYTOCHEMISTRY, AND THERAPEUTIC POTENTIAL

¹*Dr. Mamuni Sethy, ²Dr. Vinod Sharma, ³Dr. Shwetal Shivhare, ⁴Dr. Rinkal Kushwah, ⁵Dr. Shweta Singh, ⁶Dr. Shruti Tomar

^{1,4,5,6}MD Scholar, Department of Dravyaguna, Pt. Khushilal Sharma Govt. (Auto.)Bhopal, Madhya Pradesh.

²Professor (I/C), Department of Dravyaguna, Pt. Khushilal Sharma Govt. (Auto.)Bhopal, Madhya Pradesh.

³Reader, Department of Kayachikitsa, Pt. Khushilal Sharma Govt. (Auto.)Bhopal, Madhya Pradesh.

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*Corresponding Author

Dr. Mamuni Sethy

MD Scholar, Department of
Dravyaguna, Pt. Khushilal Sharma
Govt (Auto.) Bhopal, Madhya
Pradesh.



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ABSTRACT

Sphaeranthus indicus Linn., commonly known as *Gorakhmundi* or *Mundi*, is an important medicinal herb extensively used in Ayurveda and other traditional systems of medicine. It has been described in several classical Ayurvedic texts and *Nighantus* under different names, reflecting its long-standing therapeutic significance. Over the years, growing scientific interest in this plant has led to the identification of numerous bioactive constituents responsible for its diverse medicinal properties. This review aims to compile and critically summarize the available information on the classical references, botanical characteristics, phytochemical constituents, pharmacological activities, and therapeutic applications of *Sphaeranthus indicus*. The review is based on information collected from classical Ayurvedic literature, standard textbooks, published research articles, and authentic

scientific databases. The plant contains a wide range of phytochemicals, including sesquiterpene lactones, flavonoids, alkaloids, glycosides, steroids, essential oils, and phenolic

compounds, which contribute to its various biological activities. Experimental studies have demonstrated its antioxidant, anti-inflammatory, antimicrobial, hepatoprotective, antidiabetic, neuroprotective, immunomodulatory, anxiolytic, and wound-healing effects. Traditionally, *Gorakhmundi* has been used in the management of liver disorders, skin diseases, digestive ailments, epilepsy, fever, and inflammatory conditions. The available evidence indicates that *Sphaeranthus indicus* possesses considerable therapeutic potential and remains an important medicinal plant in both traditional and modern healthcare. Further experimental and clinical studies are needed to strengthen the existing evidence, establish its safety and efficacy, and promote its rational use in the development of herbal medicines.

KEYWORDS: *Sphaeranthus indicus* Linn., *Mundi*, *Gorakhmundi*.

INTRODUCTION^[1]

Sphaeranthus indicus Linn., popularly known as *Gorakhmundi* or *Mundi*, is an aromatic, spreading herb that usually attains a height of 30–60 cm. It has hairy, glandular stems with distinct wing-like extensions bearing toothed margins. The leaves are sessile, obovate-oblong, and decurrent with spiny-serrated edges, while the plant bears small purple flowers arranged in compact, globe-shaped terminal heads. Its fruits are smooth, stalked achenes.

Gorakhmundi has been widely used in traditional systems of medicine because of its broad therapeutic potential. The herb is considered bitter and is valued for its stomachic, stimulant, tonic, cooling, demulcent, pectoral, emollient, and blood-purifying properties. Traditionally, it has been employed in the treatment of liver and digestive disorders, jaundice, epilepsy, hemicrania, and various skin diseases. The fresh herb is also used externally as a paste with oil to help relieve itching, painful swellings, and inflammatory skin conditions. Due to its diverse pharmacological activities and long-standing use in folk and Ayurvedic medicine, *Sphaeranthus indicus* remains an important medicinal plant with significant therapeutic value.

NIRUKTI^[2]

मुण्डवत् पुष्पगुच्छोऽस्य।

The flowers are arranged in a head-like inflorescence.

मुण्डति खण्डयति गण्डादीन् रोगान् इति।

That which alleviates *Gandamala* disease.

LITERARY REVIEW^[2,3,4,5,6,7, 8,9,10]

- In *Charaka Samhita* Acharya Charaka has mentioned *Mundi* in the name of *Sravani* in *Madhuraskanda Gana*.
- Acharya Sushruta has mentioned in *Surasadigana* in the name of *Kulahala*.
- Acharya Vagbhata has mentioned in *Madhuraskanda Gana*, in the name *Sravaniyugam*.
- *Bhavaprakasa Nighantu*: *Gorakhmundi* is described in the *Guduchhayaadi Varga*, where it is referred to by the synonyms *Mundi*, *Mahamundi*, and several other names also explains its therapeutic attributes.
- *Dhanvantari Nighantu*: *Gorakhmundi* is included in the *Guduchhayaadi Varga*.
- *Madanapala Nighantu*: *Gorakhmundi* is placed under the *Guduchhayaadi Varga*
- *Priya Nighantu*: *Gorakhmundi* finds its place in the *Guduchhayaadi Varga*.
- *Kaiyadeva Nighantu*: *Gorakhmundi* is classified under the *Shatapuspaadi Varga*
- *Raja Nighantu*: In the *Parpaṭadi Varga*, *Gorakhmundi* is described using the names *Mundi*, *Mahamundi*, and other synonyms.

Table 1: Venacular Names.^[1,11,2]

Language/Region	Venacular Name
Arab	<i>Kamaz ariyus</i>
Assam	<i>Kamadarus</i>
Bangali	<i>Murmuriya, Chhagal, Nadi</i>
English	<i>East Indian globe thistle</i>
Gujrati	<i>Mundi, Gorakhmundi</i>
Hindi	<i>Mundi, Gorakhmundi</i>
Kanada	<i>Mundi</i>
Malayalam	<i>Mirnagnee, Atookamanni</i>
Marathi	<i>Mundi, Boras Bondi</i>
Odia	<i>Murisa, Buikadamba</i>
Punjab	<i>Gorakhmundi</i>
Tamil	<i>Kotook, Karanda, Kottakarantai</i>
Telgu	<i>Bodasaramu, Bodatarapu</i>
Urdu	<i>Mundi</i>

Table 2: Paryay of Gorakhmundi.^[2,6,10,8,9,7,11]

PARYAYA	B.N.	D.N.	R.N.	P.N.	K.N.	M.N.	A.P.I.
<i>Mundi</i>	+	+	+	+	+	+	+
<i>Shravni</i>		+	+		+	+	+
<i>Kadamba</i>						+	+
<i>Pushpika</i>							+
<i>Alambu sha</i>			+		+		+
<i>Gorakhmundi</i>	+				+		
<i>Munditikta</i>			+				

Bhikshu		+	+		+	+	
Shravansheershika		+	+		+	+	
Shravnahriwa		+					
Pravrjit		+			+		
Tapoghna		+	+		+		
Mahashra		+	+				
Lobhneeya		+	+				
Kadampushpika		+	+				
Chhinnganthinika		+					
Pavni			+			+	
Kulhal					+	+	
Shravan			+		+		
Chanchala					+		
Vara					+		
Mahamundi			+		+		
Mudnika					+		

Table 3: Rasapanchak of Gorakhmudi. [2,6,10, 9,7]

	Rasa	Guna	Veerya	Vipaka	Doshaghata
Bhavprakash Nighantu	Madhur	Laghu	Usna	Katu	
Dhanvantri Nighantu	Tikta, Katu		Usna	Katu	
Raja Nighantu	Kasaya		Usna	Katu	
Kaiyadeva Nighantu	Katu, Tikta, Kasaya	Laghu	Usna	Katu	Vatakaphashamaka
Madanpal Nighantu	Katu	Laghu	Sheeta	Katu	

Table 4: Karma. [1,11]

KARMA	Database	A.P.I.
Deepana	+	
Medhya	+	+
Shothahara	+	
Vedanasthapana	+	
Raktasodhaka	+	
Vatakaphahara		+
Visaghna		+
Mootrala	+	
Krimighna	+	
Vrishya	+	

Table 5: ROGAGHNATA [1,2,6,9]

	D.B.	B.N.	D.N.	K.N.
Apasmara	+	+	+	+
Vatarakta	+		+	
Pandu	+	+		+
Galaganda		+	+	+
Yoniroga		+		+
Aruchi		+		+
Shotha	+	+		

Table 6: Classical Formulations.^[11,1]

References	Yogas
A.P.I.	<i>Navaratnaraja Mrganka Rasa, Arka Mundi</i>
D.B.	<i>Vatagajankusha rasa, Munditikta churna, Guduchyadi taila, Arka Mundi</i>

THERAPEUTIC USES^[12]

- Intake, before meals, of *Mundi* juice added with *maricha* powder and slightly heated alleviates *Suryavartha* and Hemicrania within a week.
- One taking *mundi* powder mixed with honey and ghee followed by intake of the decoction of *guduchi* becomes free from severe *vatarakta*.
- Paste of *sunthi* and *Mundi* mixed together should be taken in *Amavata*.
- By taking Juice of *Mundi* leaves 80 ml. scrofula, cervical adenitis and jaundice are destroyed.
- Vaginal pain-Keeping cotton tampon soaked with castor oil in vagina removes pain. Similarly does the paste of *mundi*.
- Paste of *mundi* root mixed with powdered *sarja* (*rasa*) and cooked in mustard oil till it becomes semisolid should be applied locally in disease named '*vicchi*' (a skin disease).
- *Mundi* powder taken with sour gruel removes foul smell due to obesity.
- It is beneficial in the management of urinary tract disorders. It helps relieve obstruction or difficulty in urination and promotes the proper flow of urine. Its *Arka* is also administered in conditions such as chronic prostatitis.

PART USED:^[1] Whole plant**DOSE:**^[2] *Pushpa Churna*- 1-2gm*Swarasa*- 10-20ml**Table 7: Taxonomical Classification.**^[13]

Kingdom	Plantae
Subkingdom	Viridiplantae
Phylum	Tracheophyta
Subphylum	Euphyllophytina
Infraphylum	Radiatopses
Class	Magnoliopsida
Subclass	Asteridae
Superorder	Asteranae
Order	Asterales
Family	Asteraceae
Genus	<i>Sphaeranthus</i>
Species	<i>Indicus</i>

TYPES OF GORAKHMUNDI^[2,10]

1. *Mundi* (*Sphaeranthus indicus* Linn.)
2. *Maha Mundi* (*Sphaeranthus africanus* Linn.)

According to *Raja Nighantu*

1. *Shravani* (*Sphaeranthus indicus* Linn.)
2. *Mahashravani* (*Sphaeranthus indicus* Linn.)

Morphological Description of *Gorakhmundi*^[14]

- **Growth habit:** *Sphaeranthus indicus* is an aromatic, viscid, annual herb with a prostrate to decumbent-ascending growth habit.
- **Stem:** The stem is profusely branched and bears broad, coarsely dentate wings.
- **Leaves:** Leaves are sessile, obovate-spatulate in shape, obtuse at the apex with a short mucro, and have coarsely dentate margins.
- **Flower heads:** The capitula are solitary, ovoid, ebracteate, and measure approximately 1.0–1.5 cm in diameter. They are borne on glandular peduncles with toothed wings.
- **Flowers:** The flowers are small and purple in colour.
- **Fruits:** The fruit is a glabrous, stalked achene, approximately 1.0 mm in length.
- **Flowering and fruiting period:** The plant flowers and fruits from December to March.

DISTRIBUTION^[1]

It is found abundantly in damp situations in the plains all over India, ascending to an altitude of 1500 m in the hills, especially as a weed in the rice-fields.

PHARMACOGNOSY^[1,11]

A) Macroscopic: The leaves are sessile, decurrent, obovate-oblong, measuring 2–7 cm × 1–1.5 cm, with dentate to serrate margins, a hairy greenish-brown surface, a slight aromatic odour when fresh, and a bitter taste. The transverse section of the midrib shows a single-layered epidermis with multicellular covering and glandular trichomes, followed by 4–6 layers of collenchyma, 3–4 layers of parenchyma, and 3–4 centrally located vascular bundles. The mesophyll is undifferentiated, anisocytic stomata are present on both surfaces, and the vein islet number ranges from 20–26.

B) Microscopic

Midrib-The midrib has a single-layered epidermis with ordinary and glandular trichomes on

both surfaces. It is followed by 4–6 layers of collenchyma and 3–4 layers of parenchyma. Three to four centrally placed vascular bundles are present, with radially arranged xylem vessels.

Powder- Light greenish-brown in colour; contains fragments of parenchyma, xylem vessels, multicellular and glandular trichomes, polygonal thin-walled wavy epidermal cells, and stomata. Glandular trichomes possess a unicellular stalk with a 4–10-celled head, while ordinary trichomes are up to 5 cells long.

TRADE AND COMMERCE^[1]

Retail market price- Whole plant- Rs. 16/- per kg (2001)

CULTIVATION AND PROPAGATION^[15]

- Climate and Soil: Grows naturally as a weed in paddy fields and prefers medium clayey soils, especially after the paddy harvest.
- Propagation: Propagated through seeds.
- Nursery Raising: Seeds are sown in well-prepared nursery beds during August. Germination occurs within 10–12 days, and seedlings reach 5–6 cm in height in about one month, making them suitable for transplanting.
- Field Planting: The land is ploughed, harrowed, and levelled to obtain a fine tilth. Before transplanting, 5–10 t of farmyard manure (FYM) along with N:P: K 20:30:30 kg/ha is incorporated into the soil. Seedlings are transplanted at a spacing of 30 × 15 cm, followed by immediate irrigation. The remaining nitrogen is applied in two split doses at 30 and 70 days after planting.
- Intercropping: Can be cultivated as an intercrop in paddy fields.
- Irrigation: After the monsoon, 4–5 irrigations are provided at 15-day intervals for optimum growth.

TOXICOLOGY^[1]

The herb is employed as a fish-poison. An aqueous extract of the whole plant was slightly toxic to American cockroaches.

IDENTITY, PURITY AND STRENGTH^[11]

Foreign matter- Not more than 2%

Total ash- Not more than 28%

Acid-insoluble ash- Not more than 7%

Alcohol-soluble extractive- Not more than 3%

Water-soluble extractive- Not more than 12%

CHEMICAL CONSTITUENTS^[1]

leaves - Isoflavone glycoside-5, 4'-dimethoxy-3'-prenyl/biochanin-7-O-P-D-galactoside

Flower- hentriacontane, n-pentacosane, n-triacontanol, phenylurethan, β -sitosterol and its β -D-glucoside, stigmasterol, sphaeranthanolide.

Essential oils- methyl chavicol, -ionone, d-cadinene, p-methoxycinnamaldehyde, citral, geraniol, geranyl acetate, sphaerene, indicusene, sphaeranthol, -sitosterol-n-triacontanol, phenylurethan, n-penta-cosane.

Whole plant- sphaeranthine, 7-dihydroxyeudesmanolide, 7-eudesm-4-enolide and 3-keto-beta eudesmol, β -eudesmol, 12-olide, 2-hydroxycosticandilic acids, (24S)-ethyl-cholesta-5, sphaeranthine, and alkaloid.

PHARMACOLOGICAL ACTIVITIES^[1]

Antibacterial, antifungal, antimicrobial, repellent and deterrent activity, mosquito re-pellent.

CONTROVERSY^[16]

In the classical texts of *Charaka* and *Sushruta*, the term *Munditika* is not mentioned; however, the synonyms *Sravani* and *Mahasravani* are described. These names, along with *Munditika* and *Alambusha*, are generally regarded as synonyms. While the identity of *Munditika* (*Gorakhmundi*) is well established, *Alambusha* remains a subject of controversy. *Bhavamisra* identified *Alambusha* as *Lajjalu Bheda*. *Lajjalu* refers to the sensitive plant, *Mimosa pudica* (Leguminosae), whereas *Lajjalu Bheda* is identified as *Biophytum sensitivum* (Oxalidaceae). In Gujarati, *Lajjalu* is known as *Rosamani* and *Lajjalu Bheda* as *Jarara*. *Bhavamisra* also listed *Kharatwaku* and *Medogala* among the synonyms of *Alambusha*.

Bhavamisra described two varieties of *Mundi*, namely *Mundi* and *Mahamundi*, and attributed similar properties to both. Although he identified *Alambusha* with *Lajjalu Bheda*, many scholars consider *Alambusha* to be synonymous with *Munditika* rather than *Lajjalu Bheda*.

DISCUSSION

This review demonstrates that *Sphaeranthus indicus* Linn. (*Gorakhmundi*) is an important

medicinal plant with a well-established role in both traditional Ayurveda and modern scientific research. Classical Ayurvedic literature recognizes its therapeutic value, while phytochemical studies have identified several bioactive constituents responsible for its medicinal effects. Experimental research has confirmed its antioxidant, anti-inflammatory, antimicrobial, hepatoprotective, antidiabetic, neuroprotective, and wound-healing activities, supporting many of its traditional applications. Although the available evidence is encouraging, further clinical studies are required to validate its safety, efficacy, and therapeutic potential. Overall, *Gorakhmundi* remains a promising herbal drug with considerable scope for future research and the development of evidence-based herbal formulations.

CONCLUSION

The literature survey revealed that *Mundi* (*Sphaeranthus indicus* Linn.) is a commonly available medicinal plant, especially in paddy fields, and is known to contain a wide variety of phytochemical constituents. The plant has been described extensively in classical *Ayurvedic* texts, including the *Brihatrayi*, *Laghutrayi*, and various *Nighantus*, and is also mentioned in the Siddha system of medicine. In addition, substantial information is available in modern scientific literature. The review was carried out by consulting classical texts, floras, published research articles, and other reliable scientific sources.

The survey further showed that *Mundi* has attracted considerable research interest, with numerous studies evaluating its phytochemical composition and various pharmacological activities. Since the plant grows abundantly in paddy fields, particularly after the harvest season, and is inexpensive and easily accessible, it has promising potential as a medicinal resource for the management of a wide range of diseases.

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