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A Classical Review on Mundi (*Sphaeranthus Indicus* Linn.)

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ABSTRACT

Sphaeranthus indicus Linn. (*Mundi*) is a medicinal plant widely used in Indian traditional and folk systems of medicine for treating various ailments. *Sphaeranthus indicus* Linn. is from the aroma family Compositae. It is also known with other synonyms such as *Mundi*, *Sravani*, *Bhikshu*, *Tapodhana*, *Sravanahva*, *Shravanashirshaka*. It is abundantly distributed in damp areas in plains and also as a weed in the paddy fields. In the Indian system of medicine, the plant as a whole plant or its different anatomical parts viz., leaf, stem, bark, root, flower and seed are widely used for curing many diseases. The plant is bitter, stomachic, restorative, alterative, pectoral, demulcent and externally soothing.

Key words: *Sphaeranthus indicus* Linn. *Mundi*, Folk systems.

INTRODUCTION

Universe has provided a complete store house of remedies to cure ailments of mankind. Medicinal plants have been used for centuries as a remedies for the diseases because they contain component of therapeutic values. According to WHO 80% of the world population continue to rely mainly on traditional medicines for their health care. Presently there is an increasing interest in the worldwide in herbal medicines accompanied by increasing laboratory investigation into the pharmacological properties of bioactive ingredient and where ability to treat various diseases.^[1-3]

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Numerous drugs have entered the market through exploration of ethno pharmacology and traditional medicines. Efforts are needed to establish and validate evidence regarding and safety and practice of Ayurveda medicine. One such medicinal plant is *Sphaeranthus indicus* Linn. In the present study efforts are made to validate the drug classically on scientific bagrounds.

REVIEW OF LITERATURE

Nirukti^[4]

Mundi - *Mundati Khandayati Gandadi Rogan Iti !*

It removes lymphatic growths and other unwanted growths.

Synonyms^[5-8]

1. *Aruna* - Flowers are reddish violet colour.
2. *Alambusha* - It yields plenty of chaff (Husk)
3. *Kadamba Pushpin* - Flowers are resembling those of *Kadamba Pushpa*.
4. *Kulaahala* - It reaches to each and every cells of the body and does *Lekhana Karma*.
5. *Tapodhana* - Dried flowers resembles completely shaved head.

6. **Palankasha** - It makes the *Karshana* of *Palam* (*Mamsa*), it acts as anti-obesity.
7. **Bhikshu** - The plant begs (*Bhikshu*) the place to grow, it grows after the harvest of paddy.
8. **Bhutaghni** - It destroys evil organisms and worms.
9. **Sravanasirsika, Sravani, Sravanaahva** - The plant flowers in winter and there after bears fruits in *Sravana* constellation.

Paryaya (Synonyms)^{[9],[5],[6],[10],[4],[11],[12],[7]}

Table 1: Synonyms of Mundi in various texts.

Synonyms	C S	S S	A H	D N	M PN	R N	K N	B P	Sh N	P N	N A
<i>Bhikshu</i>				+	+	+	+		+		+
<i>Sravana</i>							+				+
<i>Mundi</i>					+		+	+		+	+
<i>Aruna(Rakta)</i>									+		
<i>Parivraji</i>				+	+	+			+		
<i>Tapodhana</i>					+						
<i>Sravani</i>	+		+	+	+	+					
<i>Bhookadamba</i>				+	+	+	+	+	+		+
<i>Shrimati</i>						+					
<i>Alambhusha</i>					+		+				+
<i>Munditika</i>							+				+
<i>Kulahala</i>		+		+			+		+		
<i>Sravanasheershika</i>							+				+
<i>Vara</i>				+	+	+	+		+		+
<i>Sravanaahva</i>							+				+

<i>Chanchuha</i>							+				
<i>Pravrajitha</i>										+	+
<i>Kadambapushpa</i>							+		+		+
<i>Shalikhshetraja</i>											+
<i>Pushpavyuha</i>											+
<i>Bhootagni</i>										+	+

Vernacular Names^[14]

Table 2: Vernacular Names

Language	Vernacular Names
Sanskrit	<i>Mundi, Sravani, Alambusha.</i>
English	East Indian globe - thistle
Bengali	Surmuriya, Chhagal Nadi, Mudmudiya, Murmuriya.
Assami	Kamadarus
Gujarathi	Gorakhmundi, Mundi
Hindi	Mundi, Gorakh Mundi
Kannada	ಅಡಿಕೆಕಸ, ಬೋಡುಕಡಲೆಸೊಪ್ಪು, ಮೂಡುಗಟ್ಟಿನಗಿಡ, ಬೆಟ್ಟುಕರಂಡೆ, ಬೊಡತರ, ಮುಂಡಿಕಸ, ಬೊಡದರಗ, ಚಂಡಿಕಸ, ಸ್ರಾವಣಿ, ಕರಂಡ.
Malayalum	Mirnagnee, Atookamanni, Mirangnee, Atakkamaniyan
Marathi	Mundi, Baras Bondi, Gorakh Mundi.
Urdu	Mundi
Oriya	Buikadamba, Murisa, Bokashungi
Punjabi	Ghundi, Khamadrus.
Tamil	Kotook, Karandai, Kottakarantai, Visnukkarantai.
Telugu	Bodasaramu, Bodataramu, Bodatarapu
Persian	Kamaduriyus

Arabi	Kamazariyus
Santhal	Belaunja

History of Drug

Charaka Samhita^[15]

Acharya Charaka has mentioned *Mundi* in the name of *Sravani* in *Madhuraskanda Gana*.

Sushruta Samhita^[16]

Acharya Sushruta has mentioned *Mundi* in *Surasadigana*, in the name of *Kulahala*, the same has been commented by Acharya Dhalana as *Mundi*.

Ashtanga Hrudaya^[17]

Acharya Vagbhata has explained *Mundi* in *Madhuraskanda Gana*, and told as *Sravaniyugam*. (*Sravani* and *Mahasravani*)

Nighantu Period^[9,5,6,10, 4, 11, 12, 7]

Table 3: Varga of Mundi according to Nighantu

Nighantu's	Vargas
D. N	<i>Guducyadi Varga</i>
M.P.N	<i>Harithakyadi Varga</i>
R.N	<i>Parpatadi Varga</i>
K.N	<i>Oushadhi Varga</i>
B.P.N	<i>Guducyadi Varga</i>
Sh.N	<i>Guducyadi Varga</i>
P.N	<i>Shathapushpadi Varga</i>
Ni.A	<i>Sahadeviyadhi Varga</i>

Properties in Siddha system^[18]

Sphaeranthus indicus Linn. is used in Siddha system of medicine in the name of *Koṭṭaikkarantai*. It is used as one of the ingredient in the Siddha preparation, "Veezhi Ennai (or Veezhi oil)." Though this plant finds place in many preparations, this is the only preparation mentioned in the official publication.

Botanical Review^[19]

Botanical Name - *Sphaeranthus indicus* Linn.

Kingdom - Plantae

Subkingdom - Phanerogams

Class - Dicotyledens

Subclass - Gamopetalae

Series - Inferae

Order - Asterales

Family - Asteraceae

Genus - *Sphaeranthus*

Species - *indicus* Linn

Family Characters

Compositae^[20]

Herbs or shrubs, rarely trees. Leaves usually alternate; stipules 0, inflorescence a centripetal head of usually many small flowers (less commonly few or very rarely 1) sessile on the dilated top of the peduncle (receptacle), enclosed in an involucre of whorled bracts. The flowers (florates) of a head may be hermaphrodite (bisexual) or unisexual (monoecious or dioecious) or neuter (asexual) usually pentamerous, actinomorphic or zygomorphic. There are two kinds of flowers disc florates (tubular flowers) and ray florates (ligulate florates). Inflorescence may racemose, head or capitulum with an involucre bract, rarely spikes. The arrangement of florates on the head is as follows; all the ray in and disc florates on a single head may be tubular and actinomorphic., all the ray and disc florated in the head may be ligulateand zygomorphic.

Receptacle sometimes furnished with bracteoles (paleae, Scales, bristles, fimbriellae), sometimes naked and smooth or with small pits (foveolate) or deeply pitted (alveolate). Flowers either all unisexual or bisexual, variously arranged. Calyx-tube wholly adherent to the ovary; Limb 0 or of scales, bristles or hairs (pappus). Corolla epigynous, gamopetalous, sometimes regular and either ligulate or bilabiate (corolla wanting in female flowers of *Xanthium*), Disk epigynous; stamens 5-4, inserted on the corolla and

alternate with its segments; filaments usually free above; anthers 2-celled, introrse, cohering into a tube which sheaths the style (very rarely free), the cells often tailed at the base. Ovary 1-celled; ovule solitary, erect, anatropous: style slender; usually 2-fid; arms (sometimes connate) linear, 1/2-terete, acute, obtuse, truncate or pectinate, or tipped by pubescent ones, sometimes clavate, variously papillose, stigmatic near the margins, fruit are achene, articulated to the common receptacle, generally sessile, provided with a basilar or lateral areole indicating its points of insertion, often prolonged into a beak at the top, naked above or crowned by the persistent sessile or stipulate, pappus. Seeds erect: testa membranous; albumen 0; embryo straight; cotyledons Plano-convex; radicle short.

Distribution^[21]

The compositae is the largest family of the angiosperm containing about 950 genera and probably 20,000 species. The numbers belongs to the family are found everywhere on the surface of the earth / cosmopolitan in each possible types of habitat. Most of them are herbaceous but tropical region the trees have also been reported in our country the family is represented. It is abundantly found in damp area in the plains all over India, ascending to an altitude of 1500M in the hills, especially as a weed in the rice fields.

Genus : *Sphaeranthus*^[21]

Annual or herbs with spreading branches, leaves alternate toothed, decurrent on the stem, heads small, heterogamous, not rayed, collected together in close terminal globose, or ovoid clusters, clusters crowded on a large common receptacle and often having a general involucre of empty bracts at their base each head with many outer flowers female, fertile and few inner flowers male fertile or sterile, involucre narrow with few or many paleaceous bracts. Receptacle small, naked, corolla of female flowers, slender, tubular, minutely 2-3 of male flower with tubular funnel shaped or globular thickened tube and 4-5 lobed limb, anther bases sagittate, auricle acute or tailed; style; arms filiform sometimes connate.

Achenes; terete or angled, glabrous or villous, often glandular, those of female flowers and male flowers often different, pappus absent.

Types of Mundi^[4]

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

According to *Raja Nighantu*^[6]

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

According to *Sodhala Nighantu*^[11]

1. *Shravani* (*Voratheri*) - *Sphaeranthus indicus* Linn.
2. *Mahashravani* (*Raktavodetheri*) - *Sphaeranthus africanus* Linn. and *Sphaeranthus amaranthoides*

Mundi (*Sphaeranthus indicus* Linn.)

- **Stem** - erect, prostrate, decurrent winged stem toothed aromatic herb and branches
- **Root** - Usually tap root system and branched. Sometimes tuberous or thicker.
- **Leaves** - are sessile, decurrent, 2-7cm long and 1-1.5cm wide, obovate-oblong, narrowed to the base, dentate, or serrate hairy, villous greenish brown, slightly aromatic when fresh, aroma disappearing on long storage.
- **Flowers** - cluster 0.5 inches in diameter Globose, head about 1.5cm long and about one cm in diameter, purplish-pink with linear involucre bracts – Spatulate, acute which are shorter than the head and ciliate at apex, peduncle with toothed wings, outer female flowers 12 to 16, inner bisexual 2 or 3, Corolla of female - 2 toothed, Ovary-inferior, Carpels - 2, style arms connate.
- **Fruit** - Achene, Smooth, Stalked, Angular and Sub-Glabrous.

Maha Mundi (*Sphaeranthus africanus* Linn)

- **Sanskrit** - *Maha Mundi*; Mal. - *Veuthaadakkamani*-yan.

- A slender, glabrous or pubescent, fragrant herb commonly occurring in marshy areas all along the coast from West Bengal to Kerala and also in many parts of Maharashtra. Branches are winged. Wings are entire.
- Flowers in heads, white or purple in colour. They occur in clusters - 0.2-0.4 inches in diameter. Dentate at the Apex. Bracts - Spatulate Wings of stem are entire.
- **Leaves** - Obovate, denticulate and glabrous. Corolla are funnel shaped.
- **Fruits** - Achenes, Small angled and glandular.
- The roots are used in Kerala as a substitute for those of *Sphaeranthus indicus* Linn.

Cultivation^[22]

Climate and soil: It grows as a weed in paddy fields and thrives well after harvest of paddy over medium clayey soils.

Propagation Material: seeds.

Agro-technique: Nursery Technique

Raising Propagules: Seed are sown in August in well prepared nursery beds. It takes about 10-12 days for germination. Seedlings are ready within one month attaining the height of 5.0 - 6.0 cm. It is then ready for field planting.

Planting in the Field: Land Preparation and Manure Application: The field is ploughed, harrowed and planked to have a fine tilth. About 5-10 t of FYM along with N: P: K 20:30:30 kg/ha is mixed with soil before transplanting seedlings at a distance of 30cm X 15cm. Irrigation is given immediately. Rest of Nitrogen is given at 30 and 70 days after planting.

Intercropping System: It can be grown as intercrop in paddy fields.

Intercultural and Maintenance Practices: Two weeding and hoeing are given at 20 and 45 days after planting.

Irrigation Practices: About 4 to 5 irrigation at an interval of 15 days is required after monsoon rain is over.

Disease and Pest Control: Leaf eating caterpillar has been observed and can be controlled through bio-pesticide.

Harvest Management

Crop Maturity and Harvesting: Flowering starts in November and continues upto March. Seed can be collected from March to April.

Post-harvest Management: Plant should be dried in shade.

PHARMACOGNOSY^{[13],[14]}

Macroscopic Description^[23] (Raw Material)

Stem - pieces 5 to 15 cm long and 0.3 to 0.4 cm thick, branched, cylindrical or somewhat flattened with toothed wings, rough due to longitudinal wrinkles, externally brownish black to brownish green, internally creamish grey, Fracture fibrous odour nil, taste bitter.

Leaves - are sessile, decurrent, 2-7 cm long and 1-1.5 cm wide, obovate-oblong, narrowed to the base, dentate or serrate hairy, greenish brown, slightly aromatic when fresh, aroma disappearing on long storage.

Flowers - Globose, head about 1.5 cm long and about one cm in diameter, purplish-pink with linear involucre bracts which are shorter than the head and ciliate at apex, peduncle with toothed wings, outer female flowers 12 to 16, inner bisexual 2 or 3, corolla of female 2-toothed, ovary, inferior, carpels 2, style-arms connate.

Root - pieces 5 to 15 cm long and 0.3 to 0.5 cm thick, a few branching, smooth, slender, somewhat laterally flattened, greyish-brown, fracture short, odour not characteristic, taste, slightly bitter.

Fruit - achene, smooth, stalked.

Microscopic Description^[23]

Stem - Epidermis single layered covered with thick cuticle. Cortex consisting of 4 to 6 layers of oval to polygonal, thin walled, parenchymatous cells.

Endodermis single layers of barrel- shaped cells. Pericyclic fibres, lignified arranged in discontinuous ring. Secondary phloem narrow, having usual elements, groups of cellulosic fibres found scattered in this zone. Secondary xylem composed of usual elements vessels with spiral thickening or simple pitted. Pith very wide composed of oval to polygonal, thin – walled, parenchymatous cells.

Leaf - Midrib - epidermis single layered followed by 4 to 6 layered collenchyma and 3 to 4 layered parenchyma cells present on both surfaces trichomes both non glandular and glandular present on both surfaces, glandular trichomes 2 or 3 cells high, uniseriate stalk, having a multi cellular head, non-glandular trichomes uniseriate with 2 to 5 cells vascular bundle 3 to 4 situated centrally having usual elements.

Lamina - epidermis single layered having numerous non glandular and trichomes similar to those of midrib on both surfaces.

Mesophyll composed of oval to polygonal thin walled parenchymatous cells and not differentiated into palisade and spongy parenchyma cells stomata anisocytic present on both surfaces. Stomatal index 30 to 38 on lower surfaces, 20 to 29 on upper surfaces. Stomatal number 47 to 54 per sq. Mm on lower surfaces 15 to 22 per sq.mm on upper surfaces. Vein islet number 20 to 26.

Root - Epidermis single layered, rectangular; secondary cortex composed of oval to tangentially elongated, thin walled, parenchymatous cells having arechyma; secondary phloem composed of thin-walled, oval to polygonal cells, a large number of groups of lignified phloem fibres found scattered in this zone; central portion occupied by lignified, secondary xylem having usual elements; vessels simple pitted; starch grains simple, round to oval with concentric striations and distinct hilum. Measuring 13 to 27 μ in diameter, present in secondary cortex.

Physico-chemical parametres of drug^[23]

Identity, Purity and strength

Table 4: Physico-chemical parametres

SN	Parameter	Permissible limit
1.	Foreign matter	Not < 2%
2.	Total Ash	Not < 23%
3.	Acid insoluble Ash	Not < 9%
4.	Alcohol Soluble Extractive	Not > 2%
5.	Water Soluble Extractive	Not > 6%

PHARMACOLOGY

Table 5: Rasa Panchaka of Mundi^[9,5,6,10,4,12,7,14,15]

Nighantus	Rasa	Guna	Virya	Vipaka	Doshaghna
D.N	Tikta, Katu			Katu	
Ma.N	Tiktha, Katu	Laghu	Madhura	Katu	
R.N	Kashaya		Ushna	Katu	Kaphapitahara
K.N	Madhura, Tikta, Kashaya		Ushna	Katu	Vatakaphahara
B.P.N	Madhura	Laghu	Ushna	Katu	
P.N	Tikta		Ushna		
Ni.A	Madhura, Katu, Tikta, Kashaya		Usna	Katu	Vatakaphahara

Note: All the *Nighantus* have mentioned *Rasa* as *Tikta* and B.P.N, Ni.A and K.N have also mentioned *Madhura Rasa*. R.N and Ni.A has mentioned *Kashaya Rasa*, almost all mentioned *Vipaka* as *Katu* and *Veerya* as *Ushna* except M.N who mentioned as *Madhura Veerya*.

Table 6: Showing the indications

<i>Nighantus</i>	Indications
D.N	<i>Aama, Aruchi, Apasmara, Ganda, Slipada.</i>
Ma.N	<i>Medhya, Ganda, Apachi, Kruchra, Krimi, Yoniroga, Pandu.</i>
R.N	<i>Aamatisara, Kasa, Visha, Chardi</i>
K.N	<i>Ganda, Apachi, Pleeha, Medha, Apasmara, Pandu, Sleepada, Aruchi, Yoniroga,</i> <i>Kasa, Kruchra, Guda and Krimirogas.</i>
B.P.N	<i>Medaroga, Medhyagudaarathi, Ganda, Apachi, Pleeha, Apasmara, Pandu, Sleepada, Aruchi, Yoniroga, Kruchra and Krimiroga.</i>
P.N	<i>Raktashodaka, Vrana, Ganda, Vidradhi, Sleepada, Aruchi, Raktadusti</i>

Note: All *Nighantus* are highlighted the indication of *Mundi* in *Gandamala, Slipada*, Ma.N and B.P.N has mentioned in *Mutrakruchra*.

Drug action in other literatures [14],[24]

The plant is stomachic, stimulant, alterative, pectoral, demulcent and emollient.

It is used in epilepsy, hemicrania, jaundice, liver and gastric disorders.

The roots are bitter, acrid, sweet, thermogenic, Diuritic, expetorent, febrifuge, stomachic. They are useful in Diabetes, leprosy, Fever, Pectoralgia, Cough, Hernia, Haemorrhoids, Helminthiasis and Dyspepsia.

The flowers are highly esteemed as an alternative, Depurative, Refrigerant

Anti-tubercular properties have also been ascribed to the plant.

Posology [23]

- *Swarasa* - 10-20ml
- *Puspachurna* - 1-2gm
- *Kwatha* - 50-100ml

Part Used [4] - *Panchanga* (Whole plant)

Toxicology [25],[26]

- The acute toxicity of plant *S. indicus* Linn. was determined by using albino mice of either sex (16-20g.), maintained under standard husbandry conditions. The animals were fasted for 3 hrs prior to the experiment and the extract was administered as single dose and observed for the mortality upto 48 hours study period (short term toxicity). Based on the short term toxicity profile, the consecutive dose of the extract was determined as per Organization for Economic Co-operation and Development Guidelines No. 420. The maximum dose tested (2000 mg/kg) for LD₅₀. From the LD₅₀, doses like 1/15th, 1/10th and 1/5th were selected and considered as low, medium and high dose i.e. 100mg/kg, 200mg/kg, 300mg/kg respectively to carry out this study.
- The herb is employed as a fish poison. An aqueous extract of whole plant was slightly toxic to American cockroaches. [14]

PHYTO-CHEMISTRY [24]

Chemical Constituents

The drug consists of the whole plant along with Capitula (inflorescences). Steam distillation of fresh flowering herb yields a red, viscous essential oil (yield, 0.01-0.02%); which is highly soluble in water.

Oil obtained by steam distillation of the plants showed the following constituents: Cadinene, 15.3; α -ionone, 12.6; β -caryophyllene, 7.4; P-methoxy cinnamaldehyde, 7.4; Eugenol, 7.0; α -Phellandrene, 7.0; ocimene, 6.1; Citral, 5.4; α -Terpinene, 2.2%; and an unidentified Sesquiterpene.

The constants and constituents differed some what from those of the oil obtained from Varanasi (yield, 0.01%) which contained methyl chavicol, α -ionone, D-cadinene and P-methoxy cinnamaldehyde as the major constituents and ocimene, α -Terpinene, Citral-geraniol, geranylacetate, β -Ionene(?), A new sesquiterpene alcohol called Sphaeranthol, two new sesquiterpenes (sphaeranthene and indicusene); and probably a phenolic ketone (semicarbozone) as the minor constituents.

Besides the essential oil, the herb yields 3% of a fatty oil, yellowish green in colour. A bitter alkaloid, Sphaeranthine has been reported to occur in the plant. Later work has revealed the presence of a glycoside which, on hydrolysis, yields an alkaloid.

Capitula contain albumins, a semi-drying fatty oil (upto 5%), reducing sugars, tannins, mineral matter, a volatile oil (0.07%) with a characteristic odour and a bitter taste and a glycoside (yield 0.002%). No alkaloid was detected in the inflorescence. The glycoside on hydrolysis gave a water soluble Aglucone, Phenolic in nature. The unsaponifiable matter of the fatty oil showed β -sitosterol, stigmasterol, n-tricontanol, n-pentacosane and hentriacontane. β -D- glycoside of β -sitosterol has been isolated from the flower heads.

Medicinal uses and formulation's [27-37]

Table 7: Indications of the formulations.

Yoga's	Indications
Chandanadi Taila	In which is used for <i>Abhyanga</i> , which reduces <i>Daha</i> and <i>Jwara</i> .
Bala Taila	<i>Vata-Pitta Janya Yoni Roga</i> and helps for <i>Garbhadharana</i> .
Dhamargava Avaleha	<i>Hruddaha</i> and <i>Kasa</i> .
Nishotha Yoga	<i>Virechana</i> in <i>Vata-Pittajanyavikara</i> ,
Jeevantyadi Anuvasana Yamaka	<i>Bruhmana</i> , <i>Vata-Pittaghna</i> , <i>Balya</i> , <i>Shukra</i> and <i>Agnivardhaka</i> , <i>Mutrashukra</i> and <i>Arthavastitha Doshanashaka</i> .
Shravanyadi Gritha	<i>Vatarakta</i>
Amrutadya Taila	<i>Vatavyadi</i> and <i>Unmada</i> , <i>Arati</i> , <i>Apasmara</i>
Sthiradi Ksheerapaka	<i>Kasa</i> , <i>Jwara</i> , <i>Daha</i> , <i>Kshata</i> , <i>Kshaya</i>
Swadamstradi Gritha	<i>Vata-Pitta Janyahrudrava</i> , <i>Shoola</i> , <i>Mootrakrichra</i> , <i>Prameha</i> , <i>Arshas</i> , <i>Kasa</i> , <i>Shosha</i> and also it increases <i>Bala</i> and <i>Mamsa</i> .

<i>Trutiyasarpī Guda</i>	<i>Kasa</i> , <i>Hikka</i> , <i>Jwara</i> , <i>Yakshma</i> , <i>Tamakaswasa</i> , <i>Rakta-Pitta</i> , <i>Halimaka</i> , <i>Shukrakshaya</i> , <i>Trushna</i> , <i>Karshya</i> , <i>Kamala</i> and dosage as 1 <i>Tola</i>
<i>Vrishya Gritha</i>	<i>Vrishya</i> , <i>Balya</i> , <i>Varnya</i> , <i>Kantya</i> , <i>Brihmana</i>
<i>Indrokta Rasayana</i>	It is taken with milk for one month, useful as <i>Uttamaparamaayu</i> , <i>Taruna</i> and <i>Rogarahitavasta</i> etc.
<i>Madhura Skanda</i>	<i>Basti Chikithsa</i>
<i>Ropana Churna</i>	<i>Vrana Ropana</i>
<i>Swadamstradi Gritha</i>	<i>Kasa</i> , <i>Mutrakrichra</i>
<i>Grita</i>	<i>Vatarakta</i>
<i>Vamanakalpa, Leha</i>	Cough and heart burn.
<i>Taila</i>	<i>Khandoshta</i> , <i>Vatapittajanya Rogas</i> and helps for conception
<i>Amrutadhya Churna</i>	<i>Amavata</i>
<i>Alambushadi Churna</i>	<i>Amavata</i> , <i>Vatarakta</i> , <i>Trika</i> , <i>Jaanu</i> , <i>Uru</i> and <i>Sandhistavata Jwara</i> , <i>Aruchi</i>
<i>Dwitiyaalambushadi Churna</i>	<i>Pravruddaamavata</i>
<i>Tritiya Alambushadi Churna</i>	<i>Amavata</i> , <i>Sandhisotha</i>
<i>Alambusha Swarasa + honey and ghee</i>	<i>Apachi</i> , <i>Gandamala</i> and <i>Kamala</i> .
<i>Mundi Swarasa + Maricha Choorna</i>	<i>Suryavarta</i> and <i>Ardhava Bedhaka</i> .
<i>Dehadourgandh yahara Yoga</i>	<i>Mundi Churna</i> with sour gruel.
<i>Vata Gajankusa Rasa</i>	<i>Koshtusheershaka</i> , <i>Avabahuka</i> , <i>Urustamba</i> , <i>Hanustamba</i> , <i>Manyastamba</i> , <i>Pakshaghata</i>

Ratnagiri Rasa	Nava Jwara
Navaratna Raja Mrganka	Vataroga, Swasa, Grahani, Aruchi, Shula, Agnimandhya, Apasmara, Sarvajwara.
Guduchi Taila (Brihaddwitiya)	Pumsavana Karma, Garbhaprada, Vatarakta, Kandu, Sweda, Pama, Shirakampa, Ardita.
Mundyadi Gutika	Grahanivikara

- Keeping cotton tampon soaked in *Mundi* oil removes vaginal pain (R.M)
- Paste made up of root of *Mundi* mixed with powdered *Sarja* and cooked in mustard oil.
- *Munditikachurna Vatarakta, Mundi 3g, Grita 5g, Madhu 10g, taken with Guduchi Kwata 50ml, Vangasena 27/35/575.*
- The juice of the leaves is used as a gargle to cure sore throat.
- Till it becomes semisolid should be applied locally in disease named *Vicchi* (tearing of rectal orifice (paediatric disorder)).
- The paste of the herb made with oil is applied in itch.
- The powdered seeds and roots are given as an anthelmintic.
- A decoction of the root is used in chest pains, cough and bowel complaints
- The papery bark was ground and mixed with whey and is said to be useful application in piles.
- Leaf juice was boiled with milk and sugar candy and prescribed for cough.
- The Juice of plant was used in vitiated conditions of *Vata*, epilepsy, hemicrania, Jaundice, hepatopathy and gastropathy.
- A paste of the herb mixed with gingelly oil is good for pruritus and painful swellings.
- Oil prepared by using the root is useful in scrofula.
- The powdered leaf and flower is good for skin diseases and is considered as nervine tonic.

Controversy^[38]

In *Charaka* and *Sushruta* '*Munditika*' is not mentioned but the other synonyms such as *Sravani*, *Mahasravani* are there. *Munditika* and *Alambusha* synonyms. in short *Sravani*, *Mahasravani*, *Munditika*, *Alambusha* are all synonyms. there is no controversy for *Munditika* or *Gorakh Mundi* (Gujarati), but '*Alambusa*' is controversial. Bhava Misra has described *Alambusa* as *Lajjalu Bheda*. *Lajjalu* as its name signifies is the sensitive plant. Its scientific name is *Mimosa Pudica* (Leguminosae). *Lajjalu Bheda* is *Biobhytums ensitivum* (Oxalidaceae). *Lajjalu* is called *Rosamani* in gujarati. *Lajjalubheda* is *Jarara* (gujarati) and it is also a sensitive plant. Bhavamisra has given *Alambusa*, *Kharatwaku*, *Medogala* as the synonyms.

Bhavamisra has shown 2 varieties *Mundi*, *Mahamundi*. But the properties of both are the same. *Alambusa* is *Mundi* but is not a "*Lajjalubheda*" (*Lakajan*) as Bhavamisra has suggested. Let us not confuse *Lajjalu* and *Lajjalubheda* with *Alambusa*. *Alambusa* is *Munditika*. It is better if we drop *Medogala* from *Munditika*.

CONCLUSION

During literature survey it was observed that the plant *Mundi* is widely available in paddy fields and also is having wide range of phyto chemicals. There are classical references available for the drug. The reference of the drug is quoted in Brihatrayi's, Laghutrayi's, Nighantu's and even in Siddha system and modern literatures. The literature review of the drug was done from available literatures, different floras, research papers and reliable internet sources. It is told in classics that मुन्डीः मुन्डतिखण्डयति गण्डादीन्नोगान्इति ! It removes lymphatic growths and diseases. The same has been appreciated during literature review. During Literature survey it was observed that lots of researches are done on different activities of this plant *Mundi* by various streams of medicine and pharmacy. *Mundi* is abundantly available in paddy fields, after the harvest of paddy crop, for its easy availability and cost effectiveness, this drug can be used in treatment of various diseases.

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