



REVIEW OF CYPRUS ROTUNDUS LINN (MUSTA)

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ABSTRACT

Cyperus rotundus belonging to *Cyperaceae* family is commonly known as *Motha*. A lot of descriptions and various uses regarding this plant are available in our *Vedic* literature, *Nighantu* and *Samhitas* since long years ago. It is a perennial herb about 0.33 to 1 meter tall. It is found throughout India. It grows gregariously in aquatic and sub-aquatic regions. So, it is named *Musta*. It has been explained in our classical text that a single drug has a potent ability to cure multiple diseases. This article provides a review on medicinal uses and various properties of *Cyperus rotundus*. *Musta* is used to treat several maladies like fever, digestive system disorders, dysmenorrhea, Lipid disorder. Hence, we can say that it is one of the potential medicinal plants mentioned in our classics. *Musta* having several pharmacological actions likes anti-inflammatory, anti-spasmodic, anti-emetic, anti-pyretic, analgesic, carminative and also having hypolipidaemic activity.

Keywords: *Musta*, *Cyperus rotundus*, nutgrass,

INTRODUCTION

Herbal medicine is a major component in our ancient medical system. *Cyperus rotundus* is also one of the potent herbal drugs belonging to *Cyperaceae* family. It is also known as *nutgrass*. The genus name

Cyperus is an ancient Greek name whereas the species *rotundus* is a Latin word which means round and refers to the tuber. The drug also possesses pharmacological actions like anti-inflammatory, anti-pyretic,

anti-spasmodic, anti-emetic, etc. *Musta* is considered as the best for *Sangrahi* (Astringent), *Deepana* (appetizer), *Pachana* (Digestive) drug as per *Acharya Charaka* in *Sutrasthana*. *Musta* along with *Parpataka* is the best remedies for *Jwara* as per *Acharya Vagabhatta*. *Charaka* described the use of this plant in diarrhoea, as appetite stimulant and for skin infections. *Sushruta* elaborately discussed the medicinal uses of this plant. *Vagbhatta* specifically quoted *Musta* as febrifuge. Different *Nighantu* writers have de-

lineated *Musta* in their works. In *Atharva Parisista* *Musta* is attributed with *Vasikarana* property (A.P. 35/ 2/9). *Musta Phanta* is delineated in *Varaha Sroutra* (3/4/3/44). It is also reported that *C. rotundus* is described as '*Kayambu*' in Vedic literature. Its synonyms like *Gundra* and *Gangeyam* denote the hydrophytic nature of this plant. ⁽¹⁾

BOTONICAL CLASSIFICATION OF CYPRUS ROTUNDUS LINN (*Musta*)

Table 1

Kingdom	Plantae
Subkingdom	Tracheobionta
Super division	Spermatophyta
Division	Magnoliophyta
Class	Liliopsida
Subclass	Commelinidae
Order	Poales (Cyperales)
Botanical Name	<i>Cyperus rotundus</i> Linn. (<i>Bhadramusta</i>)
Family Name	<i>Cyperaceae</i>
Genus	<i>Cyperus</i>
Synonyms	<i>Musta</i> , <i>Varidhara</i> , <i>Musta</i> , <i>Meghakhya</i> , <i>Kuruwindaka</i> , <i>Varaha</i> , <i>Abda</i> and <i>Vajakaseruka</i>

Morphology

A grass type perennial herb about 0.33 to 1 meter tall. Stem- Thin, dark green, sprouting from the rhizome and triangular in the upper part.

Leaf - Long, growing from the root.

Flower - 5 to 20 cm. long.

Rhizome- Underground part of the stem turns thread-like and turns into oval bulbs which are 1 cm. in diameter, black from outside and smoky or white from inside with a pleasant smell ⁽²⁾.

Habitat

It is a plentiful species occurring throughout the plains of India, especially South India. It is found all over India at marshy places up to 2000 meters.

Properties of *Mustadravya*

मुस्तं कटु हिमं ग्राहि तिक्तं दीपनपाचनम् । कषायं कृमिपित्तसृक्कफतृष्णाज्वरापहम् ॥ २१२ ॥ ⁽³⁾

The following are the properties of *Musta* viz., *Katu-Tikta-Kaṣaya rasa*, *Katu Vipaka*, *Sitavirya*, *Grāhi*

and *Deepana-Pachana*. They are useful in case of *Kṛmi*, *Raktapitta*, *Kapha roga*, *Trisna*, *Jwara*.

Ayurvedic Properties

Rasa: Tikta, Katu, Kashaya

Guna: Laghu, Ruksha

Veerya: Sita

Vipaka: Katu

Doshakarma: Pittakaphahara, Shleshmaraktajit

Action & Uses ⁽⁴⁾

Grahi- absorbent, useful in diarrhoea, IBS.

Deepana- improves digestion strength.

Pachana- Digestive, relieves *Ama Dosha*.

Trushnahara- Relieves thirst.

Aruchihara- useful in relieving anorexia.

Krumi Vinashini, Jantughna- Relieves worm infestation, useful in infected wounds.

Raktajit- useful in blood disorders.

Pittajwarahara- Relieves fever with burning sensation and gastritis.

अनूपदेशे यज्जातं मुस्तकं तत्प्रशस्यते । तत्रापि मुनिभिः प्रोक्तं वरं नागरमुस्तकम्
॥९४॥ (5)

The 'Motha' that is produced in Anup country is the best. In that too, the Munis have described 'Nagar-motha' as the best.

मुस्ता - मुस्तयति सम्यक् हन्ति, 'मुस्त संघाते' । (6)

It destroys many diseases, or it arises in groups.

Sanskrit Synonyms

Table 02

<i>Hima, Varida, Gundra, Ghana, Megha, Raja Kaseruka Abda, Ambhoda, Ambudhara, Jalada, Jalavaha.</i>	grows in moist places.
<i>Sugandhid</i>	having good fragrant
<i>Varidnamakam</i>	originated from water
<i>Granthila</i>	Nodular tubers
<i>Mustakam</i>	grows in bushes
<i>Sughandhi</i>	tubers are aromatic.
<i>Kacchota</i>	grows in aquatic and subaquatic region.
<i>Kuruvinde</i>	Available in <i>Kuru pradesh</i>
<i>Krodeshta</i>	It is liked by pigs.
<i>Prachya</i>	commonly found in eastern regions
<i>Gangeyi</i>	found near ganga tat.

Classical Categorization

Table 03

<i>Acharya</i>	<i>Classification</i>
<i>Charaka Samhita</i> ⁽⁷⁾	<i>Triptighna, Trishnanigrahana, Lekhaniya, Kandughna, Stanya shodhana, Mutravi-rechaniya, Madhura skandha, Tikta skandha.</i>
<i>Sushruta Samhita</i> ⁽⁸⁾	<i>Mustadi, Vachadi.</i>
<i>Astanga Hridaya</i> ⁽⁹⁾	<i>Mustadi, Vachadi, Rodhradi, Eladi.</i>
<i>Bhavaprakasa Nighantu</i> ⁽¹⁰⁾	<i>Karpuradi.</i>
<i>Dhanvantari Nighantu</i> ⁽¹¹⁾	<i>Guducyadi.</i>
<i>Kaiyadev Nighantu</i> ⁽¹²⁾	<i>Ausadhivarga.</i>
<i>Madanpal Nighantu</i> ⁽¹³⁾	<i>Abhayadi.</i>
<i>Priya Nighantu</i> ⁽¹⁴⁾	<i>Shatapushpadi.</i>
<i>Raj Nighantu</i> ⁽¹⁵⁾	<i>Pippalyadi.</i>
<i>Nighantu Adarsha</i> ⁽¹⁶⁾	<i>Karpuradi.</i>
<i>Sodhala Nighantu</i> ⁽¹⁷⁾	<i>Guducyadi.</i>

Types of Mustas ⁽¹⁸⁾

There are mainly three varieties of *Musta* mentioned across all the *Brihatrayees* and *Nighantus*.

Table- 04

<i>GRANTHA</i>		<i>Types of Mustas</i>
<i>Amarkosha</i>	03	1) <i>Kuruvinde</i> 2) <i>Bhadramusta</i> 3) <i>Chudala</i>
<i>Bhavaprakash</i>	03	1) <i>Nagarmusta</i> 2) <i>Musta</i>

		3) <i>Kaivartamusta</i>
Raj Nighantu	02	1) <i>Nagarmusta</i> 2) <i>Musta</i>
Saligram Nighantu	03	1) <i>Nagarmusta</i> 2) <i>Bhadramusta</i> 3) <i>Kaivartamusta</i>
Indian Medicinal Plants (Kirtikar and Basu)	03	1) <i>Nagarmusta</i> - <i>Cyperus scariosus</i> Br. 2) <i>Bhadramusta</i> - <i>Cyperus rotundus</i> Linn. 3) <i>Kshudramusta</i> - <i>Cyperus esculentus</i> Linn
Bhaisajya Ratnavali	03	1) <i>Anupadeshastha Musta</i> (Marshy land) - Best 2) <i>Mishrit Deshajanya Musta</i> (Mixed type of lands)- Medium 3) <i>Jangal Deshajanya Musta</i> (Dry land) - Worst

Chemical Constituents

Cineol (+) copadiene, copaene, cyperen I & II, cyperone, isopatchoulone, cyperotundone, cyperol, cyperolone, B-cyperone, (+) epoxyguaiene, isocyperol, isokobusone, kobusone, mustakone, patchulene, (+) rotundone, a- & B-selinene, sugenol, B-sitosterol etc.

Constituents

Fat, sugar, gum, carbohydrates, essential oil, albuminous matter, starch, fiber and ash. There are traces of an alkaloid. ⁽¹⁹⁾

Action

Stimulant, tonic, demulcent, diuretic, anthelmintic, stomachic, carminative, diaphoretic, astringent, emmenagogue and vermifuge. ⁽²⁰⁾

Ethno-medico- botanical uses

Romans used it as emmanagogue (stimulates menstrual flow). In Cambodia this tuber is known as diuretic and antiperiodic. Chinese medicine described these small tubers as effective against liver and lung diseases. In Nigeria the tuberous rhizome is used to relieve cough in children and in Congo basin the pulp of the root is used for rheumatic pains and oedema. In Ceylon, a decoction of the tuber is given in fevers, diarrhoea, dyspepsia and stomach complaints. Unani medicine claims that *Musta* nourishes the blood. Paste application (of tubers) on the breast is considered as galactagogue ⁽²¹⁾.

Therapeutic Uses

Decoction of *Musta* along with *Parpata*, *Ushira*, *Chanadana*, *Udeechya* and *Sunthi* etc. are useful in fever and thirst ⁽²²⁾. According to *Acharya Sushruta*, Decoction of *Musta* mixed with honey in case of Di-

arrhoea. The rhizome of *Musta* boiled with milk is also beneficial in the treatment of diarrhoea ⁽²³⁾. *Acharya Bhava Prakasha* explained that *Lauha Bhasma* mixed with *Musta* powder should be taken with decoction of *Khadira* in case of *Halimaka*. ⁽²⁴⁾ Use of parched grain flour prepared with *Musta* is efficacious in glandular Erysipelas. ⁽²⁵⁾ In *Vatarakta* predominant in *Kapha*, decoction of *Musta*, *Draksha* and *Haridra* mixed with honey should be taken. Similarly, that of *Triphala* or *Guduchi* is useful. ⁽²⁶⁾ According to *Acharya Charaka*, water boiled with *Musta* which digests all the *doshas*, should be used in all types of alcoholism. ⁽²⁷⁾ *Mustaka* is the main drug in *Mustadi Vati* useful in loose teeth. ⁽²⁸⁾ *Sarkaradi* formulation should be given mixed *Musta* and *Maricha* in cough caused by *Pitta* associated with *Kapha*. ⁽²⁹⁾ In order to control vomiting caused by *Kapha*, powder of sour *Badara* mixed with *Jambu* seeds; *Karkatasringi*, mixed with *Musta* or *Duralabha* and mixed with honey should be taken. ⁽³⁰⁾ The decoction used showed the presence of carbohydrates, reducing sugars, proteins, amino acids, tannins, flavonoids and saponins. Tannins and flavonoids, in general, have been reported to have antidiarrheal activity.

Part Used- Tubers

PROPERTIES AND USES:

Root-pungent, acrid, cooling; astringent, appetizer, stomachic, anthelmintic; useful in leprosy, thirst, fever, blood diseases, biliousness, dysentery, pruritis, pain, vomiting, epilepsy, ophthalmia, erysipelas (Ayurveda).

Root- diuretic, emmenagogue, diaphoretic, anthelmintic, vulnerary; useful for ulcers and sores, fevers, dyspepsia, urinary concretions (Yunani).⁽³²⁾

Dosage- Powder 3-6 g.
Decoction 50-100 ml.

Important Preparations- *Mustariṣṭa, Gangadhara curṇa, Sadanga panyam, Mustadivaṭi. Balacaturbhadra curṇa, Mustadi Kaṣaya, Mustakadi curṇa.*

PHARMACOLOGICAL ACTIVITIES⁽³³⁾

Anti-Inflammatory Activity

The PE extract of roots showed anti-inflammatory activity against carrageenan-induced oedema in albino rats (Gupta et al., 1970). The triterpenoid obtained from PE extract of *C. rotundus* revealed highly potent anti-inflammatory activity which was found to be 8 times greater than that of hydrocortisone (Gupta et al., 1971a). The oil of *C. scariosus* was found to have potent anti-inflammatory activity (100 mg/kg i.p.) in rats against carrageenin-induced oedema and cotton pellet-induced inflammation. The activity was found comparable to that of hydrocortisone activity (Gupta et al., 1971b).

Antitranquillising, Antipyretic, Anti-emetic Activity of *C. rotundus*

The alcoholic extract of tubers showed tranquillising activity in rats. The same had antipyretic activity also. It produced persistent fall in the BP of anaesthetized dogs. It has a smooth muscle relaxant effect on rabbit ileum. It also stimulated the respiration in mice, rats and anaesthetized dogs. Anti-emetic activity was as evidenced by protection against apomorphine-induced emesis in dogs (Singh et al., 1969 & 1970)

Anti-spasmodic Activity

The essential oil also shown relaxation of the isolated uterus of guinea pigs and rats indicating the possibility of the oil being useful in spasmogenic pain associated with uterus (Indira et al., 1956b).

Hypolipidaemic activity

The hypolipidaemic effect of the drug was studied in 30 clinical cases and found that it effectively reduces serum cholesterol levels and serum triglyceride levels (Ansary, 1994). In a clinical report of 30 cases, *C.*

rotundus (1 gm to 2 gm twice daily orally) showed significant weight reduction and total serum cholesterol lowering effect (Simhadri, 1998).

Antibacterial Activity

Except cyperone other fraction like cyperene I, II and cyperol have shown anti-bacterial activity against a number of organisms (more specifically against *Staph. aureus*)- (Radomir et al., 1956).

DISCUSSION

Cyperus rotundus is an important medicine which is used in various diseases. The tuber *C. rotundus* is rich in various phytochemicals, which have a diverse variety of pharmacological properties. It is a multi-purpose plant, widely used in ethnomedicine around the world to treat gastrointestinal diseases, boils, wounds, blisters.

CONCLUSION

C. rotundus is a potent herb having medicinal properties mentioned in ancient texts. It is easily available and one of the popular remedies among the various *Ayurvedic* practitioners for treatment of ailments.

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