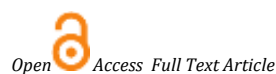


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Research Article

Cyperus rotundus commonly used drug in Unani medicine

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Abstract



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Herbal medicine is the oldest form of medicine known to mankind. *Cyperus rotundus* L. is the world worst weed native to India, which belongs to the family Cyperaceae. It is a smooth, erect, glabrous, grass like, fibrous rooted, perennial herb that grows up to 15–60 cm height, and reproduces widely through rhizomes and tubers. Rhizomes are dark brown and woody, while stems are trigonous, green and smooth. Chemically revealed that, its consist of alkaloids, flavonoids, glycosides, phenols, tannins, steroids, starch and many novel sesquiterpenoids. In Asian countries, the rhizomes of *C. rotundus*, which are used as traditional folk medicine for the treatment of various ailments like amenorrhea, loss of appetite, colic, constipation, cough, diarrhea, dysentery etc.

Keyword: *Cyperus rotundus*, weed, rhizomes, traditional folk medicines and Disease

INTRODUCTION

Traditional medicine as defined by WHO refers to the complementary/alternative/non-conventional/indigenous medicine that is developed based on the theories, beliefs and experiences innate to different cultures, whether interpretable or not, used to maintain health, as well as prevent, attenuate or cure physical and mental illnesses¹. It is a smooth, erect, glabrous, grass like, fibrous rooted, perennial herb that grows up to 15–60 cm height, and reproduces widely through rhizomes and tubers.

Cyperus rotundus L. known as nagarmotha, saad kufi in unani medicine and nut grass, is considered as one of the world's worst weeds². *Cyperus rotundus*, (family Cyperaceae), also

known as purple nutsedge or nutgrass, is a common perennial weed with sender, scaly creeping rhizomes, bulbous at the base and arising singly from the tubers which are about 1-3 cm long. The tubers are externally blackish in colour and reddish white inside, with a characteristic odour. The stems grow to about 25 cm tall and the leaves are linear, dark green and grooved on the upper surface. Inflorescences are small, with 2-4 bracts, consisting of tiny flowers with a red-brown husk. The nut is three angled, oblong-ovate, yellow in colour and black when ripe. *Cyperus rotundus* is a weed in tropical and warm-temperate countries including India, China, Taiwan, Korea, Philippines, Thailand, Vietnam, Malaysia, Indonesia, the Pacific Islands, Africa, South America, the Middle East, North America, Mexico, New Zealand and Australia³.

Vernacular name	
Hindi	Motha, Nagarmotha
Gujrati	Nagarmothaya
English	Nutgrass, purple nutsedge
Kanada	Koranari-gadde
Assamese	Keyabon
Malayalam	Korakizanna,
Marathi	Barik motha, Bimbal
Sanskrit	Muthakasu, Musta, Varida

Taxonomical classification	
Kingdom	Plantae
Subkingdom	Tracheobionta
Superdivision	Spermatophyta
Division	Magnoliophyta
Class	Liliopsida
Subclass	Commelinidae
Order	Cyperales
Family	Cyperaceae
Genus	Cyperus L
Species	<i>Cyperus rotundus</i>

C. rotundus revealed the presence of alkaloids, flavonoids, glycosides, phenols, tannins, steroids, starch and many novel sesquiterpenoids¹. It contains many secondary metabolites such as sesquiterpenes (with diverse skeletons such as patchoulane, rotundane, eudesmane, guaiane, cadinane and caryophyllene types), quinones, flavonoids (visnagin, khellin, ammiol, isorhamnetin, and tricetin), saponins, alkaloids, phenolic acids (salicylic acid, protocatechuic acid, caffeic acid and p-coumaric acid), coumarins and steroids (steroidal glycoside, sitosteryl(6'-hentriacontanoyl)- β -D-galactopyranoside)⁴.

The rhizomes are considered as an analgesic, anthelmintic, antiseptic, antispasmodic, antitussive, aphrodisiac, aromatic, astringent, carminative, diaphoretic, diuretic, emmenagogue, litholytic, sedative, stimulant, stomachic, vermifuge and tonic effects². Hypolipidemic, anti-ulcer, insecticidal, plasmodicidal, anti-pyretic, antidiarrhoeal, anti-inflammatory, antibacterial, anti-oxidant and anti-amoebic activity^{4,5}.

It is used to treat amenorrhea, loss of appetite, bleeding, blisters, boils, bronchitis, cervical cancer, colic, constipation, cough, diarrhea, dysentery, dysmenorrhea, dyspepsia, dysuria, fever, flatulence, food toxicity, indigestion, infertility, inflammation, insect bites, intestinal parasites, lacteal disorders, malaria, loss of memory, menstrual disorders, nausea, pyrexia, renal and vesical calculi, rheumatoid arthritis, stomach ailments, excessive thirst, skin rashes, urinary tenesmus, vomiting, worm infestation and wounds².

This research was designed to highlight organoleptic properties & microscopic studies on *C. rotundus* dried rhizome. All these studies will serve as a reference material in checking the adulteration and identification of authentic drug sample, that use in various compound formulations of Unani System of Medicine.

Important Formulation:

Shiyaf Duhna-e-Farang, Majoon-e-Bawaseer, Majoon Hafiz-ul-Ajsad, Majoon Luluvi, Majoon Maseehi.

MATERIAL AND METHODS

Sample collection, identification and microscopy

Dried rhizomes of *Cyperus rotundus* were collected from Pharmacy Laboratory, whereas it was authenticated by Pharmacognosy Laboratory, CCRUM – Drug Standardization Research Institute, Ghaziabad. The dried rhizomes were

cleaned, coarsely powdered and preserved in air tight container for further studies. Dried whole rhizomes were used to study the external appearance, color, odor and taste. Coarse and fine powders are also prepared to record the organoleptic characters. For powder microscopy, it was treated with chloral hydrate solution followed by staining with saffranin (1%, w/v) for 5-8 min and mounted in glycerine (60%, v/v)⁶. The slide was observed under light microscope and characters of identification were recorded.

RESULTS AND DISCUSSION

Organoleptic Characteristics of *Cyperus rotundus* L.

S.No.	Organoleptic Parameter	<i>Cyperus rotundus</i> L. Rhizome
1.	Appearance	Rhizome
2.	Color	Brown
3.	Taste	Slightly bitter and astringent
4.	Odour	Pleasant odour

Macroscopic identification

Rhizomes of *Cyperus rotundus* are bluntly conical with number of wiry and tough slender roots, often attached to one another by a thin and tough connective. Each rhizome is tumidate, varies in size and thickness, crowned with remains of stem and leaves forming a hairy to scaly covering. The rhizome length is 1.5 to 3.0 cm, whereas diameter is 0.8 to 1.6 cm. Its stolons are elongated upto 1.5 to 3.5 cm long. Surface of the rhizome is dark brown or black in color, whereas internal structure is light brown; odor- fragrant, taste- slightly pungent (Fig. 1 A). Coarse and fine powders are coffee brown in color, slightly pungent in taste, odor fragrant (Fig. 1 B & C).

Powder microscopy

Color of powder is brown; shows reddish brown cells, spiral and simple pitted vessel cells; fiber like, closely packed sclerified cells, narrow tracheid with pitted thickness and thick walled rounded to elongated parenchyma with brown content of tannin or pale oleo-resin, fragment of endodermis with pitted wall in surface view; round, oval to elongated starch grains and few rosette crystals of calcium oxalate (Fig. 2 A-I).

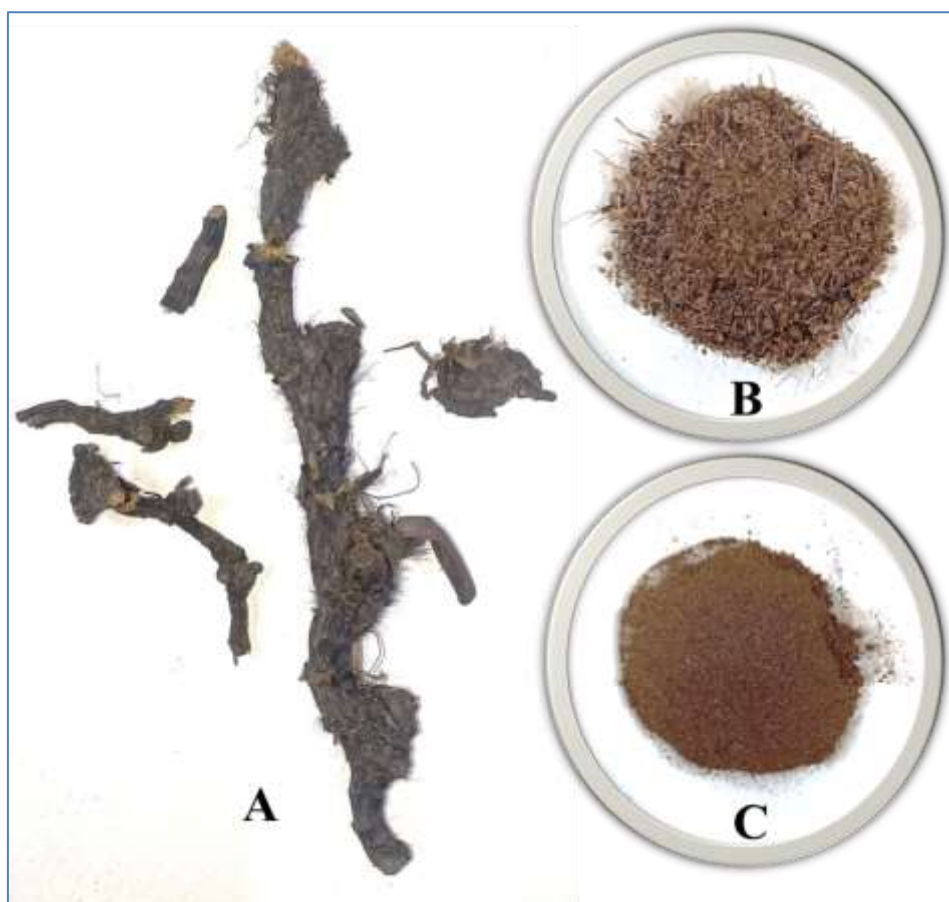


Figure 1: *Cyperus rotundus* L. (A) Dried rhizome; (B) Coarse powder; (C) Fine powder

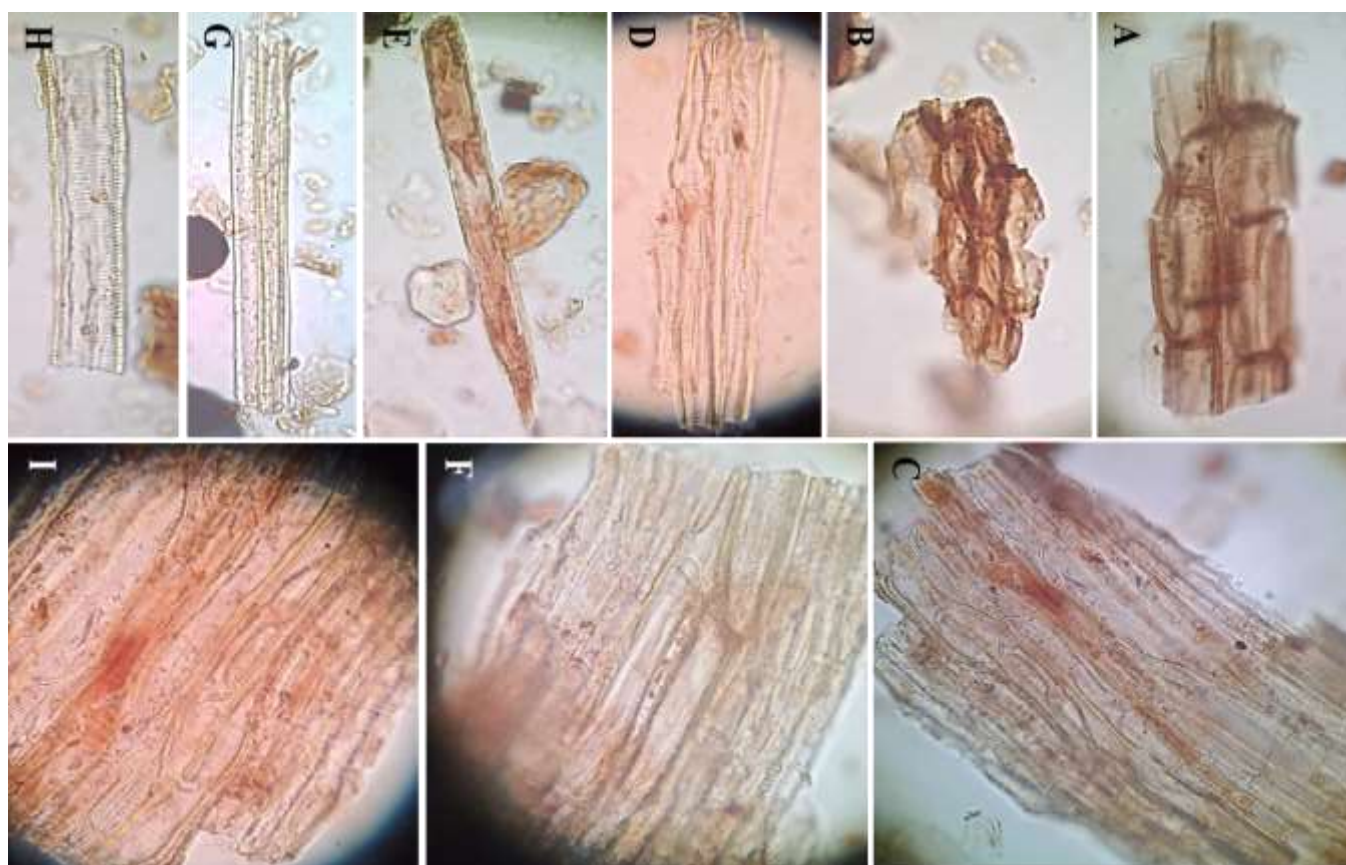


Figure 2: Powder microscopy of rhizome of *Cyperus rotundus* L. (A) Parenchyma cells; (B) Endodermis cells; (C) Group of closely packed sclerified cells and vessels cells; (D) Narrow tracheids with pitted thickness; (E) Starch grains containing cell, sclereidal fiber and crystal of calcium oxalate; (F) Thick walled parenchyma with content; (G) Fiber cells; (H) Spiral pitted vessels cell; (I) Group of pitted sclerified cells and parenchyma with oleo-resin.

CONCLUSION

Herbal medicine is the oldest form of medicine known to mankind. It was the mainstay of many early civilizations and still the most widely practiced form of medicine in the world today.

Cyperus rotundus popularly called “the world's worst weed” is widely distributed in subtropical and tropical regions of the world. It is a perennial plant and this plant is mentioned in the ancient Unani literature.

There are many compound formulations having Saad koofi as an important ingredient in their powdered form. Identification of authentic material in those formulations is highly essential in order to maximize their efficacy and minimize the adverse side effect. In this regard literature review, macroscopy and microscopic studies are one of the simplest and cheapest methods to establish the correct identity of the Unani drugs material.

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Conflict of Interest: No conflict of interest.

Author Contribution: Reesha Ahmed conceived the idea and designed the manuscript. Anees Ahmad compiled the data and analysis of botanical identification of plant used. Asma

Sattar Khan done the physic-chemical analysis of plant used in the current manuscript. Mohammed Wasim Ahmed edited the paper critically.

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