



RESEARCH ARTICLE

WILD UNDERUTILIZED MEDICINAL PLANT; MOTHHA (*Cyperus rotundus* Linn.)

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ABSTRACT

This paper deals with focussing on multidimensional effect of *Cyperus rotundus* Linn. in curing no. of ailments. It is found at tropical and temperate climate throughout the country up to an altitude of 800 m. Aim of this study was to review the efficacy of plant in curing various ailments such as Ulcerative colitis, Dental disorders, Vomiting, Uterine contraction, Bad breath, Wound Healing, Diarrhoea, Indigestion, Cholera, Dyspepsia. Ethnomedicinal uses of the plants also helps in curing various health problems in human. In animal studies it shows a number of activities in various disorders or diseases such as Antiarthritic activity, Anticonvulsant activity, Antidiabetic activity, Antifungal activity, Antihistamine activity, Antihypertension activity, Antiinflammatory activity, Analgesic activity, Antimalarial activity, Antimicrobial activity, Antioxidant activity, Antipyretic activity, Hepatoprotective activity, Smooth muscle relaxant activity, Wound healing activity. It may prove to be source of good molecules for new drug design.

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INTRODUCTION

Plants have served as valuable components of medicines, nutraceuticals, cosmeceutical, teas, dyes and other miscellaneous uses. Plants play an important role in the treatment of several human ailments since ancient times. India has a great potential in traditional healthcare system by the means of Ayurveda. Herbs have been important contributors to the quality of human life for thousands of years. India is rich in indigenous herbal resources due to its diverse agro-climatic zones. Medicinal plants offer alternative remedies for various ailments in a safe and efficient way. These have enough potential to cure some incurable diseases also that need to be explored. According to WHO, people of developing countries majorly depend on the herbal medicines for primary healthcare. Plants derived products play an important role in the healthcare system of developed countries. Currently, at least 122 phytoconstituents, derived from 94 plant species, can be considered as important drugs that are in use therapeutically to cure no. of diseases. These are sources of potential molecules for new drug design. More than hundred antibiotics will be pathogen resistant by the year 2020. Motha (*Cyperus rotundus* Linn.) is one of the valuable medicinal plants found as wild in diverse zones of the country. Though, Motha and Naagarmotha are two different species of *Cyperus*. Motha is *Cyperus rotundus* Linn. and Naagarmotha is *Cyperus scariosus* R.Br. It

is found wild in temperate and tropical climate throughout the country up to an altitude of 800m. *Cyperus rotundus* Linn. has a wide spectrum of biological activities including lactation therapy for increasing milk quantity. Ethno-medicinal practices are used to prevent, alleviate or cure several human diseases such as Ulcerative colitis, Dental disorders, Vomiting, Uterine contraction, Bad breath, Wound Healing, Diarrhoea, Indigestion, Cholera, Dyspepsia. In animal studies it shows a number of activities in various disorders or diseases such as Antiarthritic activity, Anticonvulsant activity, Antidiabetic activity, Antifungal activity, Antihistamine activity, Antihypertension activity, Antiinflammatory activity, Analgesic activity, Antimalarial activity, Antimicrobial activity, Antioxidant activity, Antipyretic activity, Hepatoprotective activity, Smooth muscle relaxant activity & Wound healing activity. *Cyperus rotundus* is not only valued as a herbal drug but also utilized for food, fodder, essential oil & flavonoids etc. Antioxidants are present in the form of secondary metabolites like phenolic acids, polyphenols and flavonoids; these scavenge free radicals. Antioxidants are responsible for inhibiting the severe consequences of oxidative stress. Oxidative stress that results from an imbalance between the formation and neutralization of reactive molecules such as reactive oxygen species (ROS) and reactive nitrogen species (RNS). Rhizomes of *C. rotundus* Linn. is a highly valuable plant part officially mentioned in various texts of Ayurveda, Unani, Siddha and Homeopathy systems; indiscriminate collection has led to the exhaustion of their natural resources. The cultivation technology for the plants has been developed and concerted

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efforts are to be made for domestication of the species in order to ensure the availability of genuine planting material for propagation and research. GACP (Good Agriculture Cultivation Practices) enhances the percentage of phytoconstituents and their therapeutic potential in curing various diseases/disorders.

Details of the Plant

Botanical Name: *Cyperus rotundus* Linn.

Hindi Name: Motha

English Name: Nut Sedge

Family: Cyperaceae

Geographical Source: It is found at Tropical and temperate climate throughout the country up to an altitude of 800 m. It's a cosmopolitan weed having a high tolerance to biotic and abiotic stress.

Morphology: Nut sedge (Nut grass) is perennial plant growing 10-60 cm in height. Plant is harvested from wild for local use, mainly as a medicine but also for food, essential oil and basketry. Leaves are 10-18 cm long and 0.3-0.5 cm broad. Reddish brown inflorescence, ovoid & bluntly conical shaped rhizome.

Plant part used: Rhizome and aerial part of nut grass

Chemical constituents: Starch, Protein, Fulgicidic acid (antiinflammatory), Carbohydrates, sesquiterpene hydrocarbons, cyperene, cyperenone, alpha cyperone, glucose, fructose, Phenolic compounds, Phytotoxins, Flavonoids, Luteolin, Carotenoids & and some saponins and tannins in small amounts

Purity

Total Ash	-	5.9-6.5%
Acid-soluble Ash	-	3%
Water soluble Ash	-	1.10%
Alcohol –soluble extractive	-	9.1%

Medicinal uses

Cyperus rotundus Linn. a nut grass is a pungent bitter – sweet herb that relieves spasms & pain, acting on digestive and uterine system. It is also used to cure number of disorders and disease. It is diuretic, litholytic, carminative (decreases flatulence), emmenagogue, anthelmintic, analgesic, antiinflammatory, anti-dysenteric, anti-rheumatic, antibacterial, antimicrobial, fever, antispasmodic, astringent, diaphoretic, anorexia, ulcerative colitis, epilepsy, menstrual disorder and vatarakta. It is also used as general tonic to enhance vigour and vitality of the body. It is good source of flavonoids and antioxidants. It is Abhava pratinidhi/ substitute drug for Aconitum heterophyllum (Similar in Ayurvedic pharmacology profile but also in phytochemical and antidiarrhoeal properties).

Animal Studies

- Antiarthritic activity-Ethanollic extract in rats
- Anticonvulsant activity-Ethanollic extract in albino rats
- Antidiabetic activity-Hydro-ethanollic extract in rats
- Antifungal activity- Ethanollic extract on *Phytophthora capsid*, *Helminthosporium*, *Collectotrichum*

- Antihistamine activity-Hydro-ethanollic extract on guinea pig ileum
- Antihypertension activity-Ethanollic extract on rats
- Antiinflammatory activity-Ethanollic extract on rats
- Analgesic activity-Ethanollic extract on mice
- Antimalarial activity-Chloroform extract on *P.falciparum*
- Antimicrobial activity-Ethanollic extract on Gram +ve and Gram –Ve bacteria
- Antioxidant activity-Hydroalcoholic extract on rats
- Antipyretic activity-Ethanollic extract on mice
- Hepatoprotective activity-Ethyl acetate extract on rats
- Smooth muscle relaxant activity-Hydro-ethanollic extract on rat ileum
- Wound healing activity-Ethanollic extract on male wistar rats

Ethnomedicinal usage of the plants in various disorders

Ulcerative colitis: Powder of Motha (*Cyperus rotundus* Linn.), Indrayavu (*Holarrhena antidysentrica*), Nagakeshara (*Mesua ferrea*), Mulethi (*Glycyrrhiza glabra*), Amla (*Embllica officinalis*) are taken in equal quantity and uniform mixture is prepared. Taken twice a day after meal for better results.

Dental disorders: Take one –one part of *C.rotundus* Linn., *T. chebula*, *Trikut*, *T.ribes* and two part of leaves of *A.indica* and mixed to make homogenised mixture in cow urine (Gomutra). Vatti is prepared. Taken twice or thrice a day.

Vomitting: Take powder of *Cyperus rotundus* Linn., *Embelia ribes*, Dry ginger in equal quantity and mixed to form uniform powder. Take the powder with honey once or twice.

Uterine contraction: Take powder or Fant of rhizome of *Cyperus rotundus* Linn. for contraction. Miscarriage problem is cured.

Bad breath: Take *C.rotundus* Linn., *Glycyrrhiza glabra*, *Coriandrum sativum* & *Elettaria cardamomum*. Make pills of it. Place in mouth for curing disorder.

Wound Healing: Lepa of the plant is highly effective in ruptured tissue healing. Swaras of the plant is mixed with Cow ghee and slow heat boiling is done for 30 minutes. Lepa is prepared.

Diarrhoea, Indigestion, Cholera, Dyspepsia: Take 100 gms of *Cyperus rotundus* Linn. powder and 50-50 gms of powders of *Cinnamomum camphora*, *Piper longum*, *Ferula asafoetida*. Uniformly mixed in Camphor water. Make pills of uniform size for better administration.

Summary and Conclusion

India is emerging country. It has great potential to cure various disorder and disease through wild or cultivated medicinal plants. *Cyperus rotundus* Linn. is found wildly in temperate and tropical climate of India up to an altitude of 800 metres. *Cyperus rotundus* Linn. has great potential to cure number of ailments as revealed from ethnomedicinal practices such as Ulcerative colitis, Dental disorders, Vomitting, Uterine contraction, Bad breath, Wound Healing, Diarrhoea, Indigestion, Cholera, Dyspepsia. It is also used to cure number

of disorders and disease such as diuretic, litholytic, carminative (decreases flatulence), emmenagogue, anthelmintic, analgesic, anti-inflammatory, anti-dysenteric, anti-rheumatic, antibacterial, antimicrobial, fever, antispasmodic, astrigent, diaphoretic, anorexia, ulcerative colitis, epilepsy, menstrual disorder and vatarakta. It balances the oxidative stress occurring due to ROS and RNS. Quality, Purity and Strength of the herbs depends up on Good Agriculture Cultivation Practices. Percentage of sec. metabolites enhances resulting in better therapeutic potency. Further screening and investigations may give efficient molecules for new drug designing. More than hundred antibiotics will be pathogen resistant up to 2020. The Wild Medicinal plants may prove to be boon for us.

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