

PHYTOPHARMACOLOGICAL OVERVIEW ON 'MUTRAVIRECHANIYA
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ABSTRACT

Aim & objective: The main objective of this review article is to discuss the therapeutic uses of *Mutravirechniya Mahakashaya* and to discuss the different pharmacological properties and therapeutic uses of isolated constituent drugs of *Mutravirechniya Mahakashaya*. **Basis of evidence:** The authentic subject material has been reviewed from Ayurveda and modern medical literature. Different research and review article were searched in different journals. The subject material has also been searched on internet. **Central Message:** *Mutravirechniya Mahakashaya* contain 10 drugs. This review is mainly focussed on different aspects of *Mutravirechniya Mahakashaya*. As relapses are common it is well recognised that most of the renal diseases are difficult to treat. In all the above mentioned diseases diuretics play an important role. *Mutravirechniya mahakashyaya* includes those drugs which enhances the process of formation of urine. These drugs in addition to the diuretic effect are supposed to have beneficial systemic action and help to contribute to the health. **Conclusion:** Here, an attempt has been made to address chemistry, pharmacology and different therapeutic uses of *Mutravirechniya Mahakashaya* and its constituent drugs.

KEYWORDS: Mutravirechniya, Mahakashaya, diuretics, urine.

INTRODUCTION

Medicinal plants have always been the principle source of medicine worldwide through centuries as it is believed that herbs have no side effect. According to World Health Organization, about 80% of world population relies chiefly on plant based traditional medicine for their primary healthcare need. [1] In the definition of *Swastha* given by *Sushruta* describes *samyak visarjan* of mala as an important part of *swastha purusha*. Any *vikriti* in *mala visarjan* is sufficient to make a person diseased. [2] The mala in Ayurvedic Samhita refers to *mutra*(urine), *purisha*(stool) and *sweda*(sweat). So the normal passage of urine is also important to remain healthy. *Ayurvedic* system of medicine is the oldest system of traditional medicine which has recognized the healing properties of plants to a great depth. Ayurveda approaches for remedies also reveal to the prevention and cure of microbial infectious diseases, and hence recommended herbal combinations and their extracts to improve health. The renal diseases are growing more rapidly and are very common now-a-days. In the treatment of renal diseases diuretics play an important role. These are the drugs which increases the process of urine formation. Modern diuretics have their own side effects. On the other hand the *mutrala* drugs used in Ayurveda in addition to the

diuretic effect are supposed to have beneficial systemic actions. *Acharaya Charaka* had explained almost 500 drugs in 50 *Mahakashya* which are used on various systems of body. All the classes of *Mahakashaya* cures various diseases and contributes to positive health. One of the very important *Mahakashaya* is *Mutravirechniya Mahakashaya* which is used to increase the formation of urine. This *Mahakashaya* includes 10 drugs which are used for the treatment of renal or uretric calculi, burning micturition, scanty urine, urinary tract infections in practice. All the 10 drugs are having the *mutrala* property. *Mutravirechniya Mahakashaya* helps to re-establish normal physiological function of the affected tissue and organ. Physician can select the best drug among these or can use combination with the help of *Yukti Pramana*.

Table 1: Drugs of Mutrvirechniya Mahakashaya

S. No.	Hindi/ Sanskrit Name	Botanical Name	Family	Part used
1.	Vrukshadani	<i>Dendrophthoe falcata</i>	Loranthaceae	Whole plant
2.	Shwadanstra	<i>Tribulus terrestris</i>	Zygophyllaceae	Fruit & root
3.	Vasuka	<i>Osmanthus fragrans</i>	Oleaceae	Leaves, flowers
4.	Vashira	<i>Eleusine aegyptica</i>	Poaceae	Root
5.	Pashanbheda	<i>Bergenia ligulate</i>	Saxifragaceae	Rhizome
6.	Darbha	<i>Imperata cylinderica</i>	Poaceae	Root
7.	Kusha	<i>Desmostachya bipinnata</i>	Poaceae	Root
8.	Kasha	<i>Saccharum spontaneum</i>	Poaceae	Root
9.	Gundra	<i>Typha australis</i>	Typhaceae	Rhizome, root
10.	Itkatmula	<i>Sesbania bispinosa</i>	Fabaceae	Root, stem

Table 2: Properties of Drugs of Mutrvirechniya Mahakashaya.

S. No.	Hindi/ Sanskrit Name	Rasa	Vipaka	Virya	Guna	Effect on Doshas
1.	Vrukshadani	Kasaya, Tikta, Madhura	Katu	Sheeta	Laghu, Rukksha	Tridosha nashak
2.	Shwadanstra	Madhura	Madhura	Sheeta	Guru, snighdha	Vata-pitta shamaka
3.	Vasuka	katu, tikta	Katu	Ushna	Laghu, tikshna	Vata shamaka
4.	Vashira	Kashaya	Katu	Ushna	Ruksha	Vata kopana
5.	Pashanbheda	Kashaya, tikta	Katu	Sheeta	Laghu, snighdha, tikshna	Tridosha shamaka
6.	Darbha	Madhura, Kashaya	Madhura	Sheeta	Laghu, snighdha	Tridosha shamaka
7.	Kusha	Madhura, Kashaya	Madhura	Sheeta	Laghu, snighdha	Tridosha shamaka
8.	Kasha	Madhura, Kashaya	Madhura	Sheeta	Laghu, snighdha	Vata- pitta shamaka
9.	Gundrah	Kasaya, madhura	Madhura	Sheeta	Guru	Pitta-vata shamaka
10.	Itkatmula	Madhura	Madhura	Sheeta	Snighdha, guru	Vata-pitta shamaka

1. Vrukshadani (*Dendrophthoe falcata*) API VOL -I (PART V) Page no.181,185

Vrukshadani (*Dendrophthoe falcate*) belongs to family Loranthaceae, an epiphyte, mostly on fruit trees, and distributed throughout India. Leaves petiolate, exstipulate, opposite, decussate, simple, ovate to oblanceolate, glabrous, soft and leathery when young, brittle when dry. Small twigs of aerial branches ranging from 2mm to 2.5 cm in thickness. Roots are adventitious greyish brown in colour. Different researches showed that Vrukshadani possesses antioxidant¹, antinociceptive¹, antifertility², contraceptive³ and antitumor activity.⁴

2. Shwadanstra (Goksura) *Tribulus terrestris*

The plant grows throughout India almost 3000 metres altitude. It is a prostrate spreading herb, densely covered with minute hair. The shrub is annual or perennial and thrives in moist soil. The leaves in opposite pairs, 5-8 cm long, compound and the leaflets 4-7 pairs are 8-12 mm long. The flowers are bright yellow, leaf-opposed, solitary 1-15 cm in diameter. The fruits very characteristic, are globose, consisting five woody cocci, each with two, paired sharp spines. Seeds, numerous, within each coccus.

Chemical composition- from the fruits and leaves, flavonoid components like kaempferol, kaempferol-3-glucoside, kaempferol-3-rutinoside and a new acylated kaempferol-3- glucoside is isolated. Other components like hecogenin, steroid sapogenins and neotigogenin is also reported. The bigger variety of goksura is

botanically known as *Pedaliium murex*. Disogenin, gitogenin and chlorogenin isolated; kaempferol, its glucoside, its 3-rutinoside and tribuloside isolated from fruits and leaves.

It is having diuretic, aphrodisiac, antiurolithic, immunomodulatory, antihypertensive, antihyperlipidemic, antidiabetic, hepatoprotective, anticancer, anthelmintic, antibacterial, analgesic, and anti-inflammatory.⁵

3. Vasuka (*Osmanthus fragrans*)

It is an evergreen shrub or small tree growing to 3-12 m (9.8-39.4 ft) tall. The leaves are 7-15 cm (2.8-5.9 in) long and 2.6-5 cm (1.0-2.0 in) broad, with an entire or finely toothed margin. The flowers are white, pale yellow, yellow, or orange-yellow, small, about 1 cm (0.39 in) long, with a four-lobed corolla 5 mm (0.20 in) diameter and have a strong fragrance; they are produced in small clusters in the late summer and autumn. The fruit is a purple-black drupe 10-15 mm (0.39-0.59 in) long containing a single hard-shelled seed; it is mature in the spring about six months after flowering.⁶

Table 2: Showing different pharmacological properties of Vasuka

It is having antioxidant and melanogenesis,⁷ inhibitory effect also used as food flavor additives.

4. Vashira (*Eleusine aegyptica*)

Crowfoot Grass is a slender to moderately robust, spreading annual herb, with wiry stems, that bend and root at the lower nodes, with tips that may rise to about 2 ft in height. It is a very common weed of open spaces and wasteland. Leaves are typically grass-like, 2-30 cm long, 2-9 mm wide, with blades and sheaths that are without hair. Leaf margins have long, stiff hairs. Flowers arise in 1-7 spikes, 1-6.2 cm long, 3-7 mm wide, at the tip of stems. Seed head resembles a crow's foot, hence the common name. Crowfoot Grass is native to Africa, but naturalized world-wide.^[8]

It posses antimicrobial, antidiabetic, antioxidant and cytotoxic activity.^[9]

5. Pashanbheda (*Bergenia ligulate*)

It is a controversial drug and therefore different botanist consider different plants as pashanbheda in different part of the country such as-

1. Aerva lanata
2. Northosaerva brachiata
3. Ammania baccifera
4. Rotula aquatica
5. Berginia ligulata
6. Coleus amboinicus
7. Bryophyllum pinnatum
8. Iris species
9. Ocimum basilicum
10. Bridelia retusa
11. Homonia reperia
12. Didymocarpus pedicellata

The plant grow all over India, in rocky beds of streams, upto 1000-3000 meters elevation. It is found in the foothills of Himalayas, Khasi hills and Assam. It is much branched perennial growing 60-180 cm in height. the stems are short and thick. The leaves ovate, 12-25 cm in diameter, rather sessile and are rounded at the apex. The flowers are white, pink or purple, and flowering occurs in april and may. The fruits, orange red drupes, subglobose. The roots are red in colour and 2-5 cm in thickness.

Chemical composition- berginin and its glycosides like c- glycoside, β - sitosterol and catechin -3- gallate; afzelchin and saxin is isolated from roots. It posses antipyretic, antidiabetic, anti-inflammatory, anti-bacterial, anti-tussive, anti-ulcer, anti-microbial, antimalarial and most important anti- urolithic properties.^[10]

6. Darbha (*Imperata cylindrica*)

It is a tall grass up to 2 m tall. Leaves are linear, held erect (180 cm long, 2.5 cm wide) and emerge from the stem bases. The underground stem, known as a rhizome, is whitish and produces many stems. The plume-like inflorescence, known as a branched panicle, is white and hairy (30 cm long, 2 cm wide). Tiny, reduced flowers called florets are arranged in pairs, forming a spikelet.

Each spikelet is composed of a sterile floret and a bisexual floret with 2 orange stamens (male parts) and 1 purple stigma (female part). The spikelets are typically arranged in pairs with one about twice as long as the other (0.8 mm long and 1.8 mm long).^[11]

It is used as a anti-inflammatory agent, diuretic,^[12] and shows vasodilative activity,^[13] anticancer effect.^[14]

7. Kusha (*Desmostachya bipinnata*)

It is distributed throughout India in hot and dry places. It is a perennial, tall, tufted grass with a thick scaly root stock, creeping stout root stock is covered with shining sheaths. Many leaves, basal facicled, reaching 20 in long, broad at the base, with filiform tips and hispid margins. Panicles are erect, narrowly pyramidal, sessile spikelets, 2- seriate and crowded, pale brown. Grains obliquely ovoid, laterally compressed.^[15]

It is used as antioxidant,^[16] and shows anti-ulcerogenic activity,^[17] laxative activity, diuretic.^[18]

8. Kasha (*Saccharum spontaneum*)

It is a perennial grass with slender culms, 100-200 cm tall, growing in stools or forming continuous cane-brakes and usually exhibiting vigorous rhizomatous tillering. Culms remain green, grey, ivory or white, hard, but very pithy and often hollow in the centre, varying in diameter from 5 to 15 mm; often rooting at the nodes, internodes usually long and nodes always thicker than internodes. Culms produce long, silky white panicles, 50-60 cm long. Spikelets 3-4 mm long, surrounded by hairs which are 3-6 times their length; glumes long, pointed with ciliate margins, lemma very small or lacking; palea of same size as lodicules. Leaves narrow-lanceolate, involute, with long hairs at base; ligule short. The stomata on the abaxial leaf surface are located in the veinal grooves and are covered by a spine-like siliceous structure.^[19]

It posses anti-diarrhoeal and CNS activity.^[20]

9. Gundra (*Typha australis*)

It is a hardy perennial, monoecious plant, often growing gregariously in fresh water and marshy places, commonly found throughout India, upto 1730m. rhizome 1-5 cm long and 1-2.5 cm wide pieces, external surface light brown, core yellowish brown, transverse ridges on external surface, small roots and scaly leaves present attached on runners. Root is adventitious, rootlets present, 2-15 cm long. **API VOL-1(PART-5) Page no.-39**

Typha are aquatic or semi-aquatic, rhizomatous, herbaceous perennial plant. The leaves are Glabrous (hairless), linear, alternate and mostly basal on a simple, jointless stem that bears the flowering spikes. The plants are monoecious, with unisexual flowers that develop in dense racemose. The numerous male flowers form a narrow spike at the top of the vertical stem. Each

male (staminate) flower is reduced to a pair of stamens and hairs, and withers once the pollen is shed. Large numbers of tiny female flowers form a dense, sausage-shaped spike on the stem below the male spike. In larger species this can be up to 30 centimetres (12 in) long and 1 to 4 centimetres (0.4 to 2 in) thick. The seeds are minute, 0.2 millimetres (0.008 in) long, and attached to fine hairs. When ripe, the heads disintegrate into a cottony fluff from which the seeds disperse by wind.^[21]

It possesses antioxidant and anti-inflammatory activities.^[22]

10. Itkatmula (*Sesbania bispinosa*)

Itkata consists of dried stem of *Sesbania bispinosa*, an erect 1.5 to 2.5 m tall, annual, shrub with minute prickles on rachis and young branches, usually found as a weed in the rice fields or water logged areas in the plains of India. Chopped pieces of roots of variable sizes and thickness usually irregular in shape and with thick and thin rootlets having light brown outer surface, odourless and tasteless. API vol-1(part-5) Page no.-45

It shows anti-inflammatory activity.^[23]

CONCLUSION

Mutravirechniya Mahakashaya contains 10 drugs. These drugs possess various medicinal properties and hence used in the treatment of various disorders of urinary system. Mutravirechniya Mahakashaya helps re-establish normal physiological function in the affected tissues and organs. Physician can select the best drug among these with the help of Yukti Pramana. In Mutravirechniya Mahakashaya some drugs are controversial like Pashanbheda and some are rarely seen like Gundra and Itkatmoola. So proper identification is necessary for better results. These are also good source of various biologically active phytoconstituents. These phytoconstituents used directly as therapeutic agents as well as starting material for the synthesis of pharmacologically active compounds. In the present paper an attempt has been made to provide a collective knowledge on therapeutic, pharmacological and medicinal applications of Mutravirechniya Mahakashaya and its constituent drugs. This collective knowledge of drugs would motivate the research scholar for further researches so that a better outcome will come, which can compete with the other systems of medicine.

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