



## A REVIEW ON MEDICINAL HERBS USED IN THE AYURVEDA MEDICAL SYSTEM FOR THE MANAGEMENT OF URINARY DISORDERS

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### Review article

#### ABSTRACT

Urine disorders are one of the major health issues in the modern world. Urinary tract infections (UTI), Urinary calculi, Urinary incontinence and Kidney failure are the most common urinary disorders which are mostly reported. Ayurveda medical system collectively termed these conditions as *mutravaha srotas roga* and explains many single herbs and polyherbal formulations which can be used in the management and treatment of these disorders. The single medicinal herbs which are used can be categorized under 4 groups as *mutra sangrahaniya* (anti-diuretic), *mutra viranjaniya* (imparts normal colour in urine), *mutra virechaniya* (diuretic) and *ashmaribhedana* (anti-urolithic). Examples for commonly used herbs are, *Gokshura*, *Varuna*, *Punarnava*, *Kusha*, *Kasha*, *Ikshu*, *Padma*, *Pashanabheda*, *Kulaththa*, *Shigru*, *Gorakshaganja*, *Kushmanda* etc. Analysis of pharmacodynamic properties according to Ayurveda authentic texts and analysis of previous research findings on modern pharmacological actions of these medicinal herbs show that these herbs are very effective in the management of urinary disorders.

**Keywords:** *Mutravaha srotas roga*, Urinary disorders, Herbs, *Mutra virechaniya*, *ashmaribhedana*, *mutra sangrahaniya*

**INTRODUCTION:** Urine disorders are a common burden in the modern world that affects men, women and children also. The urinary system which comprises of two kidney, two ureters, the bladder and the urethra is designed to eliminate excess fluid and toxins (urine) from the body and to balance electrolytes in the body. If the efficiency of this system gets affected it may result in several urinary disorders. Urinary Tract Infections (UTI), Urinary calculi, Urinary incontinence and Kidney failure are the most prevalent urinary disorders in the world [1]. The ancient system of Ayurveda has described the group of organs which is responsible for

the formation and elimination of *Mutra* (urine) as *Mutrahava srotas*. According to Ayurveda any impairment in this *srotas* can cause *mutravaha srotas roga* (urinary disorders) like *Mutrakrichcha* (Dysuria), *Mutraghata* (Urinary retention), *Mutra ashmari* (Urinary calculi) and *Prameha* (Diabetes mellitus). Ayurveda medical system uses many herbs which act on *mutravaha srotas* to treat these conditions. These herbs possess *karma* (pharmacological actions) like *mutra sangrahaniya* (anti-diuretic), *mutra viranjaniya* (imparts normal colour in urine), *mutra virechaniya* (diuretic) and *ashmaribhedana* (anti-urolithic) which

aids in the prevention of urinary disorders. The objective of this review is to describe some commonly used medicinal herbs in Ayurveda for the management and treatment of urinary disorders.

Intense review of literature to identify the medicinal herbs which can be used in the management of urinary disorders were carried out using *Vruddhathraya* (greater triad); *Charaka Samhitha*, *Susrutha Samhitha*, *Ashtanga hridaya samhitha* and *Laghutraya* (lesser triad); *Bhava prakash*, *Madhava nidana* and *Sharangadhara Samhitha* which are the main texts in Ayurveda. Twelve (12) plants which are mainly used in the treatments were selected for further review process. The book series on Medicinal plants used in Ceylon were used to review regarding the botanical description of the selected plants. Review of literature to recognize the *Rasadi panchaka* (Pharmacodynamic properties), *Dosha-Karma*, *Guna-Karma* (Pharmacological actions) and *Prayoga* (Indications) of the selected plants were

carried put using Ayurveda pharmacopeia. Databases like Google scholar, Pubmed, and Sciencedirect were used to carry out the literature review regarding the chemical constituents and pharmacological actions of the selected medicinal herbs used in urinary disorders according to modern pharmacology

#### LITERATURE REVIEW

Ayurveda authentic texts like *Charaka Samhitha*, *Susrutha Samhitha*, *Ashtanga hridaya*, *Bhava prakasha* etc. mention regarding the medicinal herbs which can be used in the management and treatment of urinary disorders. These herbs can be used either singly or as combined forms (eg: decoctions) for the management by Ayurveda practitioners. Such commonly used herbs are, *Gokshura*, *Varuna*, *Punarnava*, *Kusha*, *Kasha*, *Ikshu*, *Padma*, *Pashanabheda*, *Kulaththa*, *Shigru*, *Gorakshaganja*, *Kushmanda* etc. Table no1-4 shows the botanical description, pharmacodynamic properties, and modern pharmacological actions of these herbs.

**Table no 1: Botanical description of the medicinal herbs used for urinary disorders**  
[2][3][4][5][6]

Sanskrit name of the herb	Botanical name	Family	Morphological features	Used part in Ayurveda medicine
<i>Gokshura</i>	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Herb, hairy stem, pinnately compound leaves, yellow flower with 5 petals	Whole plant
<i>Varuna</i>	<i>Crateva adansonii</i> DC.	Capparidaceae	Tree, grayish bark, trifoliate leaves, white flower, berry type fruit	Bark
<i>Punarnava</i>	<i>Boerhavia diffusa</i> L.	Nyctaginaceae	Herb, purplish stem, dark pink flower, achene fruit	Root
<i>Kusha</i>	<i>Desmostachya bipinnata</i> L.	Poaceae	Grass, linear large leaves, panicle type	Roots

			inflorescence	
<i>Kasha</i>	<i>Saccharum spontaneum</i> L.	Poaceae	Grass, linear leaves, whitish cluster of flowers	Roots
<i>Ikshu</i>	<i>Saccharum officinarum</i> L.	Poaceae	Herb, cylindrical stems, stilt roots present, large leaves with a sheathing base, spikelets	Roots
<i>Padma</i>	<i>Nelumbo nucifera</i> Gaertn.	Nelumbonaceae	Aquatic herb, oval leaves with long petioles, white or pink flowers, ovoid fruit	Leaves, Rhizome, Seeds
<i>Pashanabheda</i>	<i>Bergenia ligulata</i> (Wall.) Engl.	Saxifragaceae	Herb, ovate leaves, purple flower, drupe fruit	Root, Leaves, Rhizome
<i>Kulaththa</i>	<i>Dolichos biflorus</i> L.	Fabaceae	Herb, trifoliolate leaves, flat curved pods, brown colour seeds	Seeds
<i>Shigru</i>	<i>Moringa oleifera</i> Lam.	Moringaceae	Tree, tripinnate leaves, fragrant flowers with yellowish white corolla, capsule fruit	Roots
<i>Gorakshaganja</i>	<i>Aerva lanata</i> L.	Amaranthaceae	Herb, green stem, spatulate leaf lamina, White colour inflorescence	Whole plant
<i>Kushmanda</i>	<i>Benincasa hispida</i> Thunb.	Cucurbitaceae	Climber, yellow campanulate corolla with 5 petals, berry fruit	Seeds

**Table no 02: Rasadi panchaka (Pharmacodynamic properties) of the medicinal herbs used for urinary disorders [7]**

Name of the herb	Rasa	Guna	Virya	Vipaka	Prabhava
<i>Gokshura</i>	<i>Madhura</i>	<i>Guru, Snigdha</i>	<i>Sheeta</i>	<i>Madhura</i>	--
<i>Varuna</i>	<i>Tikta, Kashaya</i>	<i>Laghu, Ruksha</i>	<i>Ushna</i>	<i>Katu</i>	<i>Ashmaribhedana</i>

<i>Punarnava</i>	<i>Madhura, Tikta, Kashaya</i>	<i>Laghu, Ruksha</i>	<i>Ushna</i>	<i>Madhura</i>	--
<i>Kusha</i>	<i>Madhura, Kashaya</i>	<i>Laghu, Snigdha</i>	<i>Sheeta</i>	<i>Madhura</i>	--
<i>Kasha</i>	<i>Madhura, Kashaya</i>	<i>Laghu, Snigdha</i>	<i>Sheeta</i>	<i>Madhura</i>	--
<i>Ikshu</i>	<i>Madhura</i>	<i>Guru, Snigdha</i>	<i>Sheeta</i>	<i>Madhura</i>	--
<i>Padma</i>	<i>Kashaya, Madhura, Tikta</i>	<i>Laghu, Snigdha</i>	<i>Sheeta</i>	<i>Madhura</i>	--
<i>Pashanabheda</i>	<i>Kashaya, Tikta</i>	<i>Laghu, Snigdha</i>	<i>Sheeta</i>	<i>Katu</i>	<i>Ashmaribhedana</i>
<i>Kulaththa</i>	<i>Kashaya</i>	<i>Laghu, Ruksha</i>	<i>Ushna</i>	<i>Amla</i>	<i>Ashmaribhedana</i>
<i>Shigru</i>	<i>Katu, Tikta</i>	<i>Laghu, Ruksha, Tikshna</i>	<i>Ushna</i>	<i>Katu</i>	--
<i>Gorakshaganja</i>	<i>Tikta, Kashaya</i>	<i>Laghu, Tikshna</i>	<i>Ushna</i>	<i>Katu</i>	<i>Ashmaribhedana</i>
<i>Kushmanda</i>	<i>Madhura</i>	<i>Laghu, Snigdha</i>	<i>Sheeta</i>	<i>Madhura</i>	<i>Medhya</i>

**Table no 03: Dosh-Karma, Guna-Karma (Pharmacological actions) and Prayoga (Indications) of the medicinal herbs related to *mutravaha srotas* [7]**

Name of the herb	Dosha-Karma	Guna-Karma	Prayoga
<i>Gokshura</i>	<i>Vata-pitta shamaka</i>	<i>Ashmaribhedana, mutra virechaniya</i>	<i>Mutra ashmari, Mutrakrichcha</i>
<i>Varuna</i>	<i>Kapha-vata shamaka</i>	<i>Ashmaribhedana, mutra viranjaniya</i>	<i>Mutra ashmari, Mutrakrichcha, Vastishoola</i>
<i>Punarnava</i>	<i>Tridosahara</i>	<i>Mutra virechaniya</i>	<i>Mutrakrichcha</i>
<i>Kusha</i>	<i>Tridosahara</i>	<i>Mutra virechaniya, ashmaribhedana</i>	<i>Mutrakrichcha, Mutra ashmari, Vastishoola</i>
<i>Kasha</i>	<i>Vata-pitta shamaka</i>	<i>Mutra virechaniya</i>	<i>Mutrakrichcha</i>
<i>Ikshu</i>	<i>Vata-pitta shamaka</i>	<i>Mutra virechaniya</i>	<i>Mutrakrichcha</i>
<i>Padma</i>	<i>Kapha-pitta shamaka</i>	<i>Mutra virechaniya, mutra viranjaniya</i>	<i>Mutrakrichcha</i>
<i>Pashanabheda</i>	<i>Tridosahara</i>	<i>Mutra virechaniya, ashmaribhedana</i>	<i>Mutrakrichcha, Mutra ashmari</i>
<i>Kulaththa</i>	<i>Kapha-vata shamaka</i>	<i>Mutra virechaniya,</i>	<i>Mutrakrichcha, Mutra</i>

		<i>ashmaribhedana</i>	<i>ashmari, Vastishoola</i>
<i>Shigru</i>	<i>Kapha-vata shamaka</i>	<i>Mutra virechaniya, ashmaribhedana</i>	<i>Mutrakrichcha, Mutra ashmari</i>
<i>Gorakshaganja</i>	<i>Kapha-vata shamaka</i>	<i>Mutra virechaniya, ashmaribhedana</i>	<i>Mutrakrichcha Mutra ashmari,</i>
<i>Kushmanda</i>	<i>Vata-pitta shamaka</i>	<i>Mutra virechaniya</i>	<i>Mutrakrichcha, Mutra ashmari</i>

**Table no 04: Chemical constituents and pharmacological actions of the medicinal herbs used in urinary disorders according to modern pharmacology**

Name of the herb	Chemical constituents	Pharmacological actions
<i>Gokshura</i>	Saponins, Flavonoids, Tannins, Terpenoids	Diuretic, Anti-inflammatory, Anti-bacterial [8]
<i>Varuna</i>	Flavonoids, Phenolics, Saponins [9]	Anti-urolithiatic, Anti-oxidant [10] [11]
<i>Punarnava</i>	Alkaloid (Punarnavine)	Diuretic, Kidney stone dissolving properties, Anti-inflammatory, [12]
<i>Kusha</i>	Flavonoids, Phenolics, Carbohydrates, Triterpenes	Diuretic, Anti-inflammatory, Anti-oxidant [13]
<i>Kasha</i>	Phenols, Flavonoids, Steroids, Triterpens, Alkaloids	Anti-oxidant, Anti-bacterial [14]
<i>Ikshu</i>	Phenols, Flavonoids, Glycosides	Diuretic, Anti-inflammatory, Analgesic [15]
<i>Padma</i>	Alkaloids, Flavonoids, Glycosides, Triterpenoid	Anti-oxidant, Diuretic, Anti-inflammatory [16]
<i>Pashanabheda</i>	Phenols, Tannins, Terpenes, Glycosides	Anti-urolithiatic, Diuretic, Anti-inflammatory, Anti-oxidant [17]
<i>Kulaththa</i>	Phenols, Alkaloids, Flavonoids	Diuretic, Analgesic, Anti-inflammatory [18]
<i>Shigru</i>	Saponins, Flavonoids, Alkaloids	Anti-inflammatory, Anti-microbial [19]
<i>Gorakshaganja</i>	Flavonoids, Alkaloids	Anti-inflammatory, Anti-microbial, Diuretic [20]
<i>Kushmanda</i>	Flavonoids, Saponins	Diuretic [21]

**DISCUSSION:** There are many medicinal herbs which are used by the Ayurveda practitioners effectively in the treatment and management of urinary disorders. According to the analysis of the *dosha-karma* of the selected medicinal herbs, it shows that many of these herbs are having *kapha-vata shamaka* action and analysis of

*guna-karma* shows that they are having *Mutra virechaniya* and *ashmaribhedana* actions. Analysis of pharmacodynamic properties reveals that these herbs are having *madhura, tikta* and *kashaya rasa* and *laghu guna*. Some of these herbs are having *sheeta veerya* and some are having *ushna virya*. *Katu vipaka* is prominent in

some herbs while *madhura vipaka* is prominent in some. Some of the herbs like *gorakshaganja*, *kulaththa*, *varuna* and *pashanabheda* are even having an *ashmaribhedana prabhava*. All of these herbs are indicated for either *mutrakrichcha*, *mutra ashmari* or for both in authentic texts. The modern pharmacological studies have proved that these herbs are having pharmacological actions like diuretic, anti-urolithic, anti-oxidant, anti-microbial etc which makes them effective in the management of urinary disorders. Previous studies show that phytochemicals like flavonoids, tannins and alkaloids have contributed to the diuretic activity [22] and phenolic compounds have contributed to the anti-urolithic activity [23] of the medicinal plants. Phenols, flavonoids and phenols are the main phytochemicals which are responsible for anti-oxidant activity of medicinal plants according to the previous studies [24]. It is evident that all most all the plants among the above selected plants are having those phytochemicals which are responsible for each of the specific pharmacological actions.

### CONCLUSION

Medicinal herbs used in Ayurveda plays an important role in the management and treatment of the urinary disorders. Their *guna-karma* and *prayoga* related to *mutravaha srotas* explained in authentic texts and evidences on their modern pharmacological actions concludes that these herbs can be used in urine disorders effectively. Furthermore it concludes that plants like *Varuna*, *Kushmanda*, *Gorakshaganja*, *Shigru*, *Kulaththa*, *Pashanabheda* and *Gokshura* can be mainly indicated for *mutra ashmari* and plants like *Padma*, *Ikshu*, *Kasha*, *Kusha*

and *Punarnava* can be mainly indicated for *mutrakrichcha*.

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