DOI: 10.55522/jmpas.v6i1.0122 ISSN NO. 2320 – 7418

International peer reviewed open access journal

Journal of Medical Pharmaceutical and Allied Sciences

Journal homepage: www.jmpas.com CODEN: JMPACO

Review article

# Effect of shwetha parpati in mutrakrichra: an article review

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**Received –** 20 January 2017**, Revised** - 25 January 2017, **Accepted** – 23 February 2017 **(DD-MM-YYYY)**

Refer This Article

Geethu Balakrishnan, Vineeth P K, Ramesh N V, 2016. Effect of shwetha parpati in mutrakrichra: an article review. Journal of medical pharmaceutical and allied sciences, V 6 - I 1, Pages -456 – 458. Doi: https://doi.org/10.55522/jmpas.V6I1.0122.

## ABSTRACT

*Mutrakrichra* is an important disease pertaining to the *mutravaha shrotas*, and has been mentioned in almost all *Ayurvedic* classical texts. It is a condition in which difficulty in micturation is a main symptom affecting the daily activities of the person. Based on the theoretical and clinical symptomatology it is being correlated to dysuria **.**In modern medicine there are a number of medicines indicated, but they have side effects and are addictive drugs.*Shwetha parpati*,a *parpati kalpana* is indicated for *mutrakrichra* and *mutra asmari*, is not an addictive preparation and has multidimensional property, hence it can be withdrawn at any point of time, whereas modern drugs may cause metabolic disorders and might be habitual. Easy method of preparation and very minute dosage add on to the benefits of this kalpana.This paper is an effort done to assess the mode of action of the drug considering the potential of each ingredient: *suryakshara, sphatika* and *navasadara*.Detailed review of literature, including the recent research works, are included done on the single ingredients. In diuresis one more thing to be tested symptomatically is potassium depletion, which other diuretics make, whereas in *shwetha parpati* it is absent. The action of the drug based on the alkalinity/acidity is also tried to be explained.

**Keywords:** *Shwethaparpati, Mutrakrichra*, Dysuria.

## INTRODUCTION

*Mutrakrichra* is an important disease pertaining to the *mutravaha shrotas*, and has been mentioned in almost all *Ayurvedic* classical texts.It is a condition in which difficulty in micturation is a main symptom affecting the daily activities of the person.Based on the theoretical and clinical symptomatology it is being correlated to Urinary tract infection (UTI).

UTIs are a leading cause of morbidity & healthcare expeditures in the persons of all ages. Each year UTI accounts for 9.6 millions doctor visits. Women are especially prone to UTI and one in 5 women develops UTI during her lifetime. An estimated 40% of women reported having had UTI at some point in their lives.

Among the *Rasoushadis* classification as *Kharaliya,Parpati,Pottali & Kupipakwa rasayana,Parpati kalpana* is a unique therapeutic mode of presentation with flake like appearance and can be easily powdered.

In modern medicine there are a number of medicines indicated,but they have side effects and are addictive drugs. Antibiotics are the standard treatment for UTIs,but in this era of strains gaining drug- resistance *Rasoushadis* could do better results.Hence the need of an *Ayurvedic drug* is essential. *Shwetha parpati* is one among *parpati kalpana* and is a *kajjalirahita* preparation.Easy method of preparation and very minute dosage adds on to the benefits of this *kalpana*.Ingredients are also easily available and are economical [1, 2].

## AIM AND OBJECTIVES

To study about the Mutrakrichra vyadhi and its samprapti.

To study in detail the yoga of Shwetha parpati with its each ingredient- suryakshara,spatika and navasadara.

To study the possible mode of action of Shwetha parpati along with that of the contemporary remedies.

To study about Diuretics and Alkalinisers in Modern medicine [3].

## MATERIALS AND METHODOLOGY

Review of Mutrakrichra from Madhava nidana & Kashyapa samhitha.

Review of Shodhana and properties of the ingredients of Shwetha parpati – suryakshara,sphatika & navasadara from Rasatarangini,Ayurveda prakasha and various other text books [4, 5].

## OBSERVATIONS

From the reviews on the disease Mutrakricha the following observations were noted:

As per the commentry on Madhava Nidana Mutrakrichra is a condition of painful micturation and also with great difficulty.

Acharya Kashyapa in the Mutrakrichra chikitsa adhyaya has given the samprapthi of the disease as with the vitiation of Pitta followed by Kapha and Vata causes impairment to the functioning of Vasthi producing difficulty in micturation.Hence Mutrakrichra is a Pitha pradanaja vyadhi with the Vasthi as its adishtana.

## Drug review

*Shwetha parpati* is a *Kajjalirahitha Parpati Kalpana*, which got its name pertaining to the colour. Unlike other *parpati kalpanas* which are mainly meant for the *Grahani vikaras Shwetha parpati* acts on the *Mutravaha shrothas.*The references of *Shwetha parpati* is from *Rasatantrasara and Siddha Prayogasangraha*. The yogam contains just three ingredients of:

| | |
|---|---|
| *Suryakshara*(Potassiumnitrate) | 1 part. |
| *Sphatika* (Potash Alum) | 1/8th part. |
| *Navasadara* (Ammonium chloride) | 1/16th part. |

**Role of Shodhana**

Specific methods had been mentioned for the shodhana of these ingredients. Each of these have an added-on effect in the action of the drug in the condition of Mutrakrichra.

As per Rasatarangini, the shodhana of Suryakshara is by doing 3 bhavanas (trituration) in Ela (Elatteria cardamomum) toya.As the classsics says, Mardanam guna vardhanam here also we can see that this enhances the mootrala property of the drug.Also in Dhanwanthari Nighantu[5], Ela has been ascertained with the Vasthi doshagna effect. The same reference mentions that Ela is having madhura rasa,sheeta veerya and is having properties of rojani and deepani and hence is effective in the conditions of Mutrakrichra, Shwasa, Kasa and Kshaya

Recent researches on the drug of Ela had proven its antibacterial potential (invitro) and also its diuretic potential.

In vitro evaluation of antibacterial potential of dry fruit extracts of Elatteria cardamomum"has shown the antibacterial activity of the extracts the drug obtained from different solvents against 6 strains of bacteria- Gram-negative and Gram- positive bacteria (*Escherichia coli* MTCC-739, *Salmonella typhi* MTCC-531, *Bacillus cereus* MTCC-430, *Bacillu subtilis* MTCC-736, *Streptococcus pyogenes* MTCC-442, and *Staphylococcus aureus MTCC-740*).

Gut modulatory, blood pressure-lowering, diuretic and sedative activities of Cardamom" has stated in addition to diuretic action the drug also enhanced the $Na^+$ and $K^+$ excretion.

According to a report published in 2012 in the Journal Emerging Infectious Diseases, E.coli is responsible for more than 85 percent of all UTIs.Antibiotics are the standard treatment for Urinary tract infections, but some strains of E.coli,called Extended Spectrum Beta-Lactamase (ESBL)E.coli, are resistant to most of the drugs. By tracking UTI cases from 2000 to 2010, the researchers found that UTI cases caused by E.coli resistant to the drug Ciprofloxacin rose from 3 to 17.1%.

**Suryakshara**

As per Rasatarangini 14/28, *Suryakshara* is having *Katu* and *Lavana rasa* with *Ushna veerya*.Its having the properties of *Teekshna,Atyushna and Deepaka* and also *Katu vipaka*.Hence having *Vahnipradeepana,Ashmarihara and Mutrakrucha nashaka* properties.

**Sphatika**

Rasatarangini 11/181-183 attributes the following properties of Sphatika that is it's having *Madhura rasa* and its having *Guru and Snigdha* properties. Having *Ushna veerya and Madhura vipaka*,its having *Vishanashana, Garadoshahara and Tridosha hara* properties NAVASADARA Rasatarangini 14/5-7 gives the properties of Navasadara as *Snigdha, Sookshma, Laghu, Saraka* and *Teekshna.* Its having *Lavana rasa and Ushna Veerya* and *karma of Tridoshagna, Pachaka and Agni pradeepaka.*

**Mode of action**

When we closely observe the properties of the ingredients, we could see that two them ie,*suryakshara & sphatika* are *ksharas*, and hence they have the *karma* of *shodhana* and *ropana*.From the *samprapthi vighadana* it was clear that *Mutrakrichra* is a *pitta pradhana tridoshaja vyadhi.Sphatika* with its *madhura rasa* and *vipaka* alleviates *pitta.Suryakshara* being *teekshna and ushna* could acts on *kapha and vata.*

Moreover,the presence of salts and their alkaline pH would further reduce the chances of bacterial survival within the Urinary tract. Diuretic action is due to the salts, which maintain the water exchange between the blood and lymph and thus promote the functioning of the kidneys, thereby preventing stasis of microbes and helping in flushing of microbes.

$K^+$, which is secreted by distal tubules, is more diuretic. When $K^+$ taken additionally, it diminishes $H^+$ exchange with Na due to the common ion effect. Suryakshara reduces $H^+$ concentration in urine acidity. In the acidity of urine, due to obstruction, it helps to protect the alkaline nature. If $K^+$ is not supplied to the exchange for $Na^+$, more K may be lost- leading to K depletion.

A diuretic is a substance that promotes the production of urine. There are several categories of diuretics. All diuretics increase the excretion of water from body, although each class does so in a

distinct way.

Based on their action they are of different types as High ceiling/loop diuretic, Thiazides, Carbonic anhydrase inhibitors,Potassium-sparing diuretics, Calcium-sparing diuretics,Osmotic diuretics and Low ceiling diuretics.

**Potassium sparing diuretics**

A class of Diuretics which do not promote the secretion of potassium into the urine. Potassium is normally secreted in the collecting ducts of the kidney,under the control of aldosterone and in proportion to the amount of sodium appearing in the lumen at this level.The aldosterone level is increased when there ia a net sodium loss or a decrease in the effective circulation blood volume.Most diuretics increase the amount of potassium excreted because they present more sodium to the collecting ducts and increase the circulating aldosterone level.The potassium-sparing agents effectively reduce sodium reabsorption in this part of the tubule and thereby reduce potassium excretion.

Their basic mode of action is based on two ways as Aldosterone antagonists like spironolactone; Spironolactone prevents aldosterone from entering the principal cells, preventing sodium reabsorption thereby preventing Potassium loss. Other group as blockers. They causes the inhibition of Na+/K+ exchanger.Site of action of this class is the Cortical collecting ducts.

**Alkalinizer**

An alkalinizer is a basifier – A chemical which converts into a salifiable base (Capable of neutralizing an acid to form a salt; said of bases; thus, ammonia is salifiable). An alkalinizer is the drug used in all conditions of dysurea. But the most notable thing is that it is contraindicated in the condition of Hyperkalemia and during the administration of $K^+$-sparing agents.

**Mechanism of Action**

Urinary tract alkalinizer; produces an alkaline load that increases urinary pH and raises urinary citrate by augmenting citrate clearance without measurably altering ultrafilterable serum citrate. Produces urine that is less conducive to crystallization of stone-forming salts.

## DISUSSION

*Mutrakrichra* is a condition which can be effectively managed by the *Shwetha parpati*. It's a *kajjali rahita parpati kalpana*.Easy availability of ingredients and low cost of production adds on to its benefits. A minimal dosage of 725 mg to 1.250 g(AFI) is needed and the method of preparation is also easy. Moreover, it's a non- addictive preparation – can be withdrawn at any point of time and hence is non-habitual. In this era of stains attaining drug resistance the shodhana of *Suryakshara* in *Ela toya* and the proven anti-bacterial property of *Ela* adds on to the efficacy of the yoga. By comparing its action to the contemporary remedies,the action of this yoga prove that its having the coupled effect of an alkaliniser and as a potassium sparing diuretic. Its a water-soluble preparation with quick absorption & quick action.

## CONCLUSION

*Mutrakrichra* is a common clinical condition-frequently come across in general practise. Urinary tract infection and urinary calculi are the two common causes for dysurea.*Shwetha parpati* is a simple,safe,easy to prepare and administer preparation explained in *Ayurvedic classics*. The effect of *Shwetha parpati* can be understood very well according to *Ayurveda* and contemporary sciences [5].

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