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*Review article*

# Pharmaceutico analytical study of *Kadali kwatha*

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**ABSTRACT:**
About 15 % to 25 % population is suffering from renal stones. In Konkan area of India hot and humid climate conditions are the cause of dehydration and more chances of stone formation. In *Ayurveda*, Ashmari is a disease in which there is formation of stone, exerting to much suffering to a man like an enemy. Various Guti, Vati (Tablets), Churna (Powder), Kwath (Herb Decoction) are being used successfully for this condition. Kadali is the drug in Ayurveda which has medicinal properties like Alkaline in nature, high potassium and sodium might be responsible for diuretic effect. Previous literature and studies mentions its use as Kadali Kshar but not used in Kwath form in the treatment of *Mutrashmari*. Current study is carried out as one step towards its use. In this study Kadali kwath preparation, its physico-chemical analysis has been done.

**KEY WORDS:** *Mutrashmari*, Renal Stones, *Kadali*, *Kwath*

## INTRODUCTION:

*Ayurveda* is the science which deals with preventive medicine along with curative medicine to give holistic approach towards healthy living.[1] *Mutrashmari* is considered as *Ashtamahagad*[2] in *Ayurveda*.

Clinical symptoms of *Mutrashmari* are excruciating pain in urethra, ureter, urinary bladder and over umbilical region, hematuria[3] etc. and later obstruction in urination and stone formation. The thorough understanding of etiology, epidemiology and pathogenesis of renal Stones is necessary so as to develop effective Ayurvedic treatment and prophylaxis of disease. This drug study with medicinal properties and drug standardization helps it's role in treatment of *Mutrashmari*.

### Reference of Drug:

कदली शीतला गुर्वी वृष्या स्निग्धा च माधुरी |

पित्तम रक्तविकारम् च योनिदोषम तथा अश्मरीम || नि. रत्नाकर [4]

**Table No. 1: Properties of *Kadali* [5]**

| | |
|---|---|
| **Synonyms** | *Mocha, Rambha Ansumati, Ambu ara Varana, Phala, Mochaphala, Dirghapatrika,* |
| **Latin name** | *Musa paradisiaca* |
| **Family** | MUSACEAE |
| **Part Used** | Banana root, rhizome, leaves, stem, fruit |
| ***Doshaghnata*** | *Pittahar, Kaphakar* |
| ***Karma*** | *Vrushya, Shukrala, Rachikar, Sangrahi, Mutrakricharahar, Ashmarighna, Bruhana, Hridya* |
| ***Rasa, Virya, Vipak, Guna*** | *Madhur, Kashaya; Sheet; Madhur; Guru, Snigdha Sheeta* |

Standard operating procedure (S.O.P.) made according to textual method mentioned in Sharangadhar Samhita [6] for the preparation of Kwath.

1. Fresh Kadali kanda collected from the field.
2. Collected kadali kanda made into small pieces and dried in tray drier.
3. After complete drying coarse powder prepared and packed as 5 gm per packet after Authentication and standardization.
4. Taken one packet of 5 grams powder and put it in a stainless steel utensil and added about 80ml drinking water to it.
5. Heated the mixture on low flame until it remained ¼th of the total water (around 20ml), kept on stirring it while heating.
6. After the mixture is reduced to 20ml, it was filtered, cooled and stored in Bottle.

**Figure No. 1: Kadalikand Plant**

**Figure No. 1: Collected Kadalikand**

**Pharmaceutical Evaluation:**

Authentication and Standardization of Kadali kand raw material and kadali kwath done at B. V. Bhide foundations Research in *Ayurveda* and allied sciences, lab Pune.

Kadali kwath was analyzed using various standard physicochemical parameters such as colour, odour, taste, Ph, Total Ash, saponins, Mucilage, Tannins, Flavonoids, alkaloids, loss on drying and specific gravity.

**OBSERVATION AND RESULTS:**

**Table No. 2: Physico-chemical Analysis of Kadalikand**

| Sr. No. | Name of Test | Results |
|---|---|---|
| **1** | Colour | Brownish |
| **2** | Odour | Not specific |
| **3** | Taste | Slightly sweetish |
| **4** | PH | 9.96 |
| **5** | Total Ash | 18.75% |
| **6** | Saponins | Absent |
| **7** | Mucilage | Absent |
| **8** | Tannins | Trace |
| **9** | Flavonoids | Absent |
| **10** | Alkaloids | Absent |

Figure No. 3: Total Ash

Figure No. 4: Test for Alkaloids

Figure No. 5: Test for Tannins

Figure No. 6: Test for Flavonoids

Figure No. 7: Microscopy

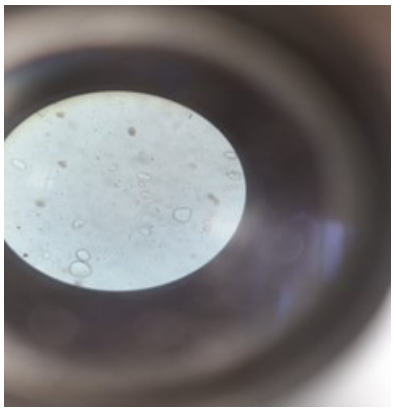

Table No. 3: Physico-chemical Analysis of Kadali Kwath

| Sr. No. | Name of the Test | Result |
|---|---|---|
| 1 | Colour | Deep brown |
| 2 | Odour | Aromatic |
| 3 | Taste | Slightly sweetish |
| 4 | PH | 9.62 |
| 5 | Loss on drying | 2.3% |
| 6 | Specific gravity | 1.010 g/ml |

**Antimicrobial and Antifungal Analysis:**

Kadalikand kwath has not shown antimicrobial activity against S. aureus, B. subtilis, P. mirabilis, E. coli.

Kadalikand kwath has not shown antifungal activity against C. albicans, A. niger.

**DISCUSSION:**

The The present work was the preparation of Kadali kwath with evaluating its pharmaceutical, physico-chemical parameters. The Kadali kwath was prepared and its Standard operating procedure (S.O.P.) made according to textual method mentioned in Sharangadhar Samhita [6] for the preparation of Kwath. After analysing Kadali kwath it was found that it has high pH of about 9.6 which proves its alkaline nature and observed high ash value in the Kadali kand this might be due to its high Alkali contents[7] which indicates to be true for traditional use of kadalikand in urinary tract disorders.

**CONCLUSION:**

Kadali Kwath was prepared by all necessary pharmaceutical parameters, as per SOP and it was analysed for its physico-chemical parameters. It is observed that it has high pH of about 9.6 which proves its alkaline nature and observed high ash value in the Kadali kand this might be due to its high Alkali contents[7].

Kadali has medicinal properties like Mutrakrichahar, Ashmarighna and Pittahar as per the textual references and above analysis indicates that it is Alkaline in nature which might be responsible for diuretic effect. So it may be useful in the management of *Mutrakricha, Mutrashmari*(renal Stones). Further clinical study is recommended to confirm its use as *Mutrakricharahar, Ashmarighna*(anti urolithiatic activity) activity.

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