

A CLASSICAL REVIEW ON FORMULATION OF HERBAL ARISHTA FOR THE MANAGEMENT OF UROLITHIASIS

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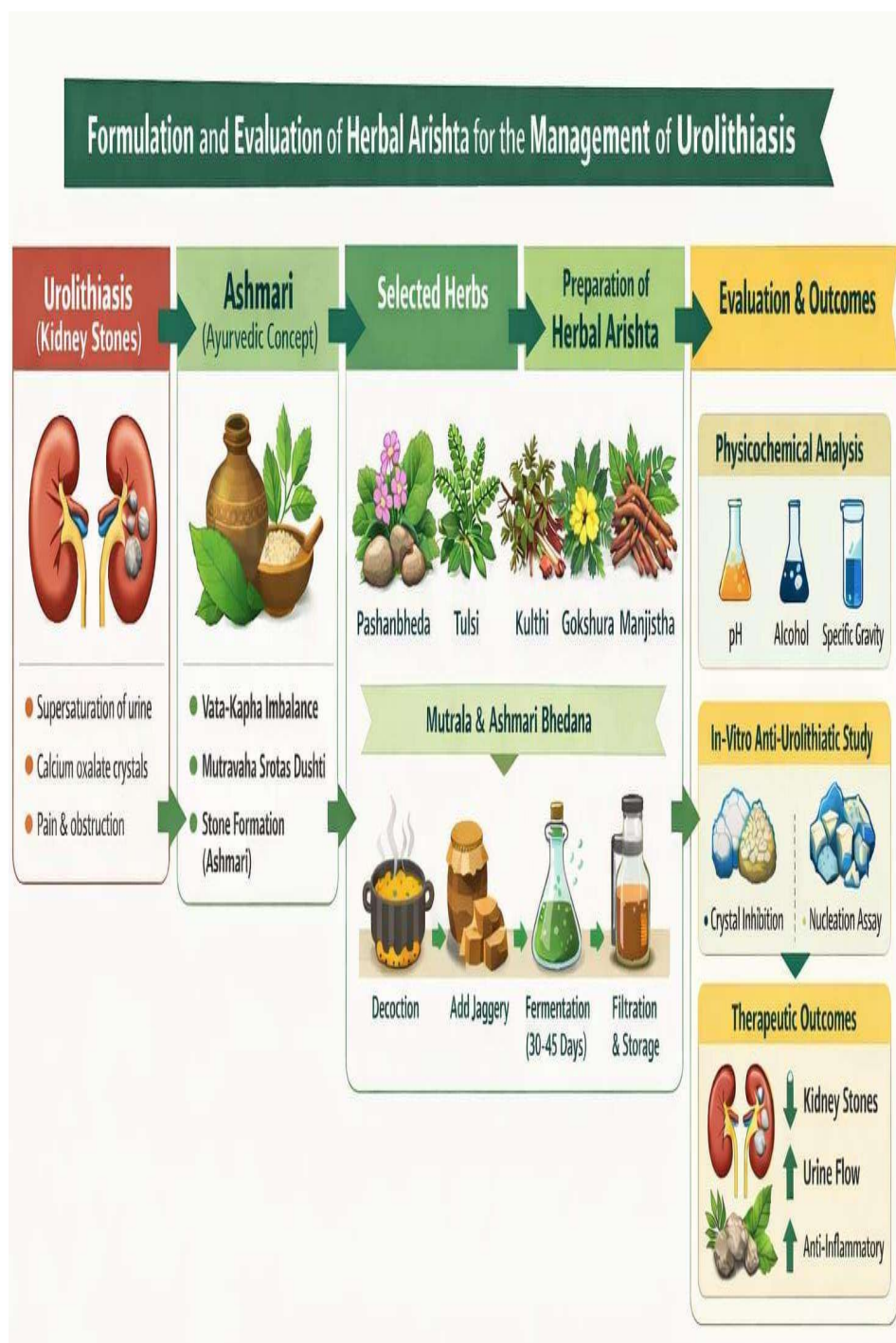
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Abstract

Urolithiasis is a common disorder linked with metabolic diseases and characterized by the development of stones in the urinary tract. Nowadays it has spread around the world. It happens to those who are consuming less water and specific prescriptions. In certain cases, urolithiasis can cause severe abdominal pain, nausea, vomiting, dysuria, and urine retention. According to Ayurvedic literature, urolithiasis and mutrashmari are possibly connected. Surgery, ureteroscopy, percutaneous nephrostolithotomy (PCNL), and open or laparoscopic stone removal are expensive procedures. Many synthetic medications, such as diuretics and narcotic analgesics, are used to treat kidney stones; however, misuse of these medications, which increases the risk of negative pharmacological effects, is forcing people to turn back to natural remedies, such as herbal medicines. The goal of this review is to discuss traditionally used antiurolithiatic medicinal plants for the formulation and evaluation of an herbal arishta for the management of urolithiasis with classical literatures. This review will be useful for further student research.

Keywords: *Urolithiasis, Herbal Arishta, Traditional medicinal plants, Traditional use, Classical literatures.*

Graphical Abstract



Introduction

Urolithiasis, commonly known as kidney stones or nephrolithiasis, is a worldwide disease that has affected humans since ancient times. [1] There are several medicinal plants are described in Ayurvedic texts which help in management of urolithiasis. The traditional medical system uses *Bergenia ligulata*, a synonym for *B. pacumbis*, as an essential part of an Ayurvedic herbal remedy called "Pashanbheda" (Paashan = rockstone, bheda = piercing), which dissolves kidney stones.[2] The ancient Charaka Samhita explains that the plant "Paashanbheda" was first utilized in 600 BC to relieve painful urination and dissolve calculi. It is mentioned in the Sushruta Samhita as a treatment for blood sugar and kidney and bladder stones. Other traditional Indian texts, such as Bhavaprakash, Rajnighantu, and Chakradatta, advised using *B. ligulata* to treat urinary stones and infections as well as to purify the bladder.[3] *B. ligulata* exhibit antiurolithiatic, antipyretic, antidiabetic, antiinflammatory and hepatoprotective activity.[4] Tulsi is also known as holy basil or *O.sanctum* in hindi belongs to family Lamiaceae. Because of its medicinal properties, tulsi has been commonly used in Ayurveda for at least 3,000 years as an outcome to everyday problems. In herbal medicine, *Ocimum's* phytochemicals—alkaloids, flavonoids, phenolics, essential oils, tannins, and saponins—play a significant role.[5,6]

In Ayurvedic and Siddha medicine, tulsi has long been used to prevent and treat a number of health issues, including the common cold, headache, cough, influenza, earache, fever, colic pain, sore throat, bronchitis, asthma, hepatic diseases, malarial fever, flatulence, migraine headaches, fatigue, skin conditions, burns, insomnia, arthritis, digestive disorders, night blindness, and indigestion. *O. sanctum* contains two varieties i.e. black (Krishan tulsi) and green (Rama tulsi).[7,8] *R. cordifolia* (Family – Rubiaceae) is commonly known as Manjistha. Manjistha was widely used in ancient times to treat urinary, skin, and blood disorders since it was believed to be an effective blood purifier. Sweet, bitter, acrid, astringent, thermogenic, antidysenteric, anti-inflammatory, antipyretic, analgesic, anodyne, anthelmintic, antiseptic, constipating, diuretic, galactopurifier, febrifuge, rejuvenating, and tonic are some of the medicinal uses of the root. For bleeding piles, the traditional Ayurvedic script Sushrutasamhita prescribed manjistha extract in pure butter as a treatment.[9] *R. cordifolia* has been used in Unani system of medicine to treat paralysis, dropsy, jaundice, amenorrhea, obstruction of the urinary tract, multiple skin diseases, menstrual problems, renal stones, urinary disorders, and blood detoxification.[10] The Ayurvedic Pharmacopoeia of India states that the roots, leaves, and seeds of *Rubia cordifolia* are used to cure liver problems, amenorrhea, and gallbladder and kidney disorders.[11]

Kultha botanical name *Dolichos biflorus* from the Leguminosae family. Bhavprakash Nighantu listed this medication in Dhanya varga because its seeds are high in natural phenols, mainly flavonoids and phenolic acids, which are antioxidants. Strong anti-adipogenic, anti-hyperglycemic, antihypercholesterolemic, antioxidant, antimicrobial, and anti-urolithiatic properties are shown by the extract of *D. biflorus* seeds. *Dolichos biflorus* one of the most widely used medicinal plants for kidney stone prevention. *D. biflorus* seeds used as an herbal remedy to stop kidney stones formation in addition to their nutritional benefits.[12,13] *Tribulus terrestris* is an annual plant family Zygophyllaceae which is commonly known as hard thorn. It acts as a diuretic and dissolves up kidney and bladder stones. [14,15] In Charak Samhita, gokshura is also called Mutravirechaniya (diuretic), Shothahara (edemareliever), and Krimighna (antihelmenthic). The well-known Ayurvedic classic Ashtanga Hridaya advises the use of Gokshura to treat dysuria. [16]

Mechanism of Urolithiasis

According to modern texts[17]

- Stone formation occur due to
- Low volume of urine
- Low pH level
- High urinary saturation level
- Crystals may nucleate and aggregate into bigger fragments

Various risk factors include such as genetics, dietary habits, lifestyle, and health issues like metabolic syndrome or urinary tract infections affect development of stones.

According to Ayurvedic texts[18]

- Mutrashmari is a Kapha Pradhana Tridoshaja Vyadhi, in which vitiated
- Kapha helps in the rigidity and binding of stone formation
- Vata increases pain and movement
- Pitta causes irritation and burning sensations

In Ayurvedic treatments nonsurgical treatments are given priority over surgical operations. Acharya Susruta recommends using formulations like Ghrita, Taila, and Paneeya Kshara because of its Chedana (cutting), Bhedana (splitting), Lekhana (scraping), and Mutrala (diuretic) qualities, which helps in break down and elimination of stones.

Concept of Arishta in Ayurveda [19,20,21]

Arishta Kalpana is a kind of Sandhana Kalpana under madya kalpana. Even as they become older, these self-made alcoholic formulations maintain their pharmacological qualities, indicating their longer shelf life, which makes these preparations appear more beneficial, and have excellent pharmacological and therapeutic qualities. Arishta is a self-produced herbal fermentation using an ancient Ayurvedic method made by

- Boiling the herbs, either in kasaya or powder form.
- The addition of a sugar source along with dhataki (*Woodfordia fruticosa Kurz*) flowers allows the preparations to ferment.

Advantages of Arishta [22]

- Self-generated alcohol is quick to act.
- Increases rapid absorption of ingredients.
- Inhibits the growth of bacteria and mold.
- Extends shelf life.

Formulation of herbal Arishta [23]

1. The herbs are coarsely powdered and Kasaya is made, filtered, and stored in a fermenting vessel.
2. According to the recipe, sugar, jaggery, or honey is dissolved, cooked, and then added. At last, according to the formula, madhukapushpa or dhaphool/dhataki are added.
3. An earthen lid is placed over the vessel's mouth.
4. Seven layers are applied in sequence, sealing the top layer with a piece of cloth smeared with clay.
5. The vessel is kept in a hill of paddy or in an underground chamber to maintain a constant temperature for fermentation.
6. After a certain period of time, the lid is taken off, and the contents are checked to make sure the fermentation is done.
 - o According to ancient texts the minimum time limitation is 7 days and maximum is 6 months.
 - o The minimal time is 7 days in Astangasangraha, Susruta Samhita, and Caraka Samhita, and 15 days in Astangahrdaya. According to Acarya Caraka maximum limit is 1½ months, Susruta 4 months, Astangasangraha 6 months, and Astangahrdaya 1 month.
 - o In general, 7 to 10 days are sufficient in hot climates while 30 days are needed in cool temperate climates. [21]
7. After two or three days, the fluid is now strained and decanted. Arishta is filtered when the fine suspended particles are settled to make sure no particles will remain in the glass bottles during transfer. [23]

Ayurvedic conditions for fermentation process completion[24]

1. A clear, froth free liquid.
2. Alcohol's pleasant, fragrant scent.
3. It shouldn't taste bitter.
4. No sound of bubbles.
5. The bottom is where additives settle.

6. When a candle is placed inside or just above the Sandhan Patra, it burns brightly.
7. A taste that is a bit acidic and sweet.
8. Negative lime water test.

Storage[25]

In order to stop direct light exposure, arishta are kept in dark-colored bottles.

Dose

According to the Sharangdhara Samhita, one pala (48 ml) of arishta should be taken with the same amount of water.

Plant Profile**Pashanbheda[26]**

Botanical Name – *Bergenia lingulata*

Family – Saxifragaceae

Part Used – Rhizome



Fig.1 – Pashanbheda Rhizome

Vernacular Names[27]

Table 1 : Vernacular Name of Pashanbheda.

Sr. No.	Language	Vernacular Names
1	Sanskrit	Ashambheda, Silabhed
2.	Hindi	Pakhanabhed, Dakachru
3.	Gujrati	Pakhanbheda, Pashanbheda
4.	Punjabi	Dharposh, Kachalu
5.	Kashmiri	Pashanbheda
6.	Bengali	Himasagra, Patharchuri
7.	Assamese	Patharkuchi

Taxonomical Classification

Table 2 : Taxonomical Classification of Pashanbheda.

Sr. No.	Category	Classification
1.	Kingdom	Plantae – Plants
2.	Subkingdom	Tracheobionta- Vascular Plant

Sr. No.	Category	Classification
3.	Superdivision	Spermatophyta- Seed Plant
4.	Division	Magnoliophyta - Flowering Plant
5.	Class	Magnoliopsida – Dicotyledones
6.	Subclass	Rosidae
7.	Order	Rosales
8.	Family	Saxifragaceae- Saxifrage family
9.	Genus	<i>Bergenia Moench</i> - Elephant ear
10.	Species	<i>Bergenia lingulata</i> (Wall.)

Botanical Description

A perennial herb that grows up to 50 cm.

Rhizome – Compact, hard, and somewhat cylindrical in shape. The black outer layer is covered in lines, wrinkles, small roots, and root marks. Both a pleasant and an astringent scent.

Leaves – During blossoming, leaves are round and round in shape. The leaves become red in October and have short, stiff hairs that are 30 cm long. The silky upper and lower surfaces of leaves completely disappear as they mature.

Flowers – 3.2 cm in diameter, white, pink, or purple.

Rasa Panchak[28]

Rasa – Ksahaya, Tikta

Guna – Snigdha, Tikshna

Virya – Shita (cold potency)

Vipaka - Katu

Karma – Tridoshashamaka

Pharmacological activity of Pashanbhed[3]

Table 3 : Pharmacological activity of Pashanbheda.

Sr.No.	Activity	Description
1.	Antilithiatic activity	Extract of <i>Bergenia lingulata</i> rhizome help to prevent ethylene glycol induced urolithiasis by inhibiting CaC2O4 crystal deposition in renal tubules and improve renal functions in rats.
2.	Antipyretic activity	Ethanollic extract of roots and rhizome of <i>B.lingulata</i> shows antipyretic activity in albino wistar rats against yeast induced fever.
3.	Antidiabetic activity	Bioactive compound of <i>B.lingulata</i> (+)-afzelechin inhibit α -glucosidase enzyme effective in the treatment of hyperglycemia by inhibiting the absorption of carbohydrates in rat's small intestine.
4.	Anti-inflammatory activity	Aqueous and ethanollic extract of rhizome of <i>B.lingulata</i> both shows anti-inflammatory activity in rats.
5.	Hepatoprotective activity	Ethanollic extract of root shows hepatoprotective activity in albino wistar rats.

Formulations[28]

Table 4 : Uses and Formulations of Pashanbheda.

Sr.No.	Name of Formulations	Indications
1.	Pashanabhedadi kwatha	Mutrakrichra
2.	Pashanabhedadi ghrita	Vataja, Ashmari
3.	Gokshuradyavaleha	Ashmari, Mutrakrichra
4.	Pashanabheda kashaya	Mutravarodha

Classical Categorisation**Table 5 : Classical Categorisation acc. To different Acharyas.**

Acharya	Categorisation
Charaka	Mutravirechaniya
Sushruta	Viratarvadi gana
Bhavaprakash Nighantu	Haritakyadi varga

Tulsi[29]**Botanical Name** – *Ocimum sanctum***Family** – Lamiaceae**Part used** – Leaves**Fig.2 – Tulsi Leaves****Vernacular Names****Table 6 : Vernacular Names of Tulsi.**

Sr.No.	Different Languages	Vernacular Names
1.	English	Holy basil
2.	Hindi	Tulsi
3.	Kannada	Tulasi
4.	Malayalam	Shiva Tulasi

Taxonomical Classification[30]

Table 7 : Taxonomical Classification of Tulsi.

Sr. No.	Category	Classification
1.	Kingdom	Plantae
2.	Subkingdom	Tracheobionta
3.	Superdivision	Spermatophyta
4.	Division	Magnoliophyta
5.	Class	Magnoliopsida
6.	Subclass	Asteridae
7.	Order	Lamiales
8.	Family	Lamiaceae
9.	Genus	<i>Ocimum</i>
10.	Species	<i>Ocimum sanctum</i>

Botanical Description[29]

A perennial herb with a strongly fragrant odor.

Stem – Straight up quadrangular, branching, solid, with hairy branches that are slightly woody.

Leaves – Simple, reversible, oval in form, angled, reticulate venation, short petioled leaves.

Flowers – Pedicellate, bisexual, zygomorphic, full of flavor, and purple flowers. Sepals is five. There are five petals. From the beginning, the ovary is bilocular, but later on, it becomes tetralocular.

Fruits – Carcerulus, schizocarps, and four nuts formed.

Varieties

According to Bhavaprakash Nighantu

2 types : 1. Shweta tulasi 2. Krishan tulasi

Rasa Panchaka

Rasa – katu, Tikta

Guna – Laghu, Ruksha

Virya - Katu

Vipaka - Katu

Karma – Kaphavatashamaka

Pharmacological Activity of Tulsi [31]**Table 8 : Pharmacological activities of Tulsi.**

Sr. No.	Activity	Description
1.	Anticancer activity	Leaf extract of tulsi is effective in swiss albino mice for its anticancer activity.
2.	Antibacterial activity	<i>O. sanctum</i> fixed oil shows antibacterial activity against <i>Bacillus pumilus</i> , <i>Pseudomonas aeruginosa</i> and <i>S. aureus</i> .
3.	Antiarthritic activity	Fixed oil of tulsi is effective against formaldehyde induced arthritis in rats.
4.	Antiinflammatory, Analgesic and Antipyretic activity	Methanolic and aqueous extract of tulsi shows analgesic, antipyretic and antiinflammatory effect in acute and chronic inflammation in rats.

Formulations[29]**Table 9 : Uses and Formulations of Tulsi.**

Sr. No.	Name of formulations	Indications
1.	Surasadi kwatha	Krimi
2.	Tulashiswarasadi taila	Putinasa
3.	Tribhuvanakirti rasa	Vatakaphajwara
4.	Agurvadya taila	Shitajwara
5.	Hingusauvarchaladya ghrita	Vatagulma

Classical Categorisation**Table 10 : Classical Categorisation acc. To different Acharyas.**

Acharya	Categorisation
Charaka	Swasahara varga
Sushruta	Surasadi gana
Bhavaprakash Nighantu	Pushpa varga

Manjistha[32]**Botanical name** – *Rubia cordifolia***Family** – Rubiaceae**Part used** – Root**Fig.3 – Manjistha Root****Vernacular names****Table 11 : Vernacular Names of Manjistha.**

Sr. No.	Different Languages	Vernacular Name
1.	English	Indian madder
2.	Hindi	Manjit
3.	Kannada	Manjishte
4.	Malayalam	Poont
5.	Marathi	Manjistha

Taxonomical Classification[33]

Table 12 : Taxonomical Classification of Tulsi.

Sr. No.	Category	Classification
1.	Kingdom	Plantae
2.	Class	Dicotyledoneae
3.	Subclass	Sympetalae
4.	Order	Rubiales
5.	Family	Rubiaceae
6.	Genus	<i>Rubia</i>
7.	Species	<i>Cordifolia</i>

Botanical Description[32]

Herbaceous, evergreen perennial shrub with thin red bark and circular roots.

Stem – Long, hard and quite woody, with white bark.

Leaves – There are four leaves in a whorl, and two of the leaves are oval and longer than the other two. Triangular petals with sharp and rigid prickles.

Flowers – Tiny pedicels with green petals and a calyx.

Fruits – When ripe, the fruits are delicate, vibrant, purple-black.

Varieties

According to RajNighantu

4 types – 1. Chola 2. Yojani 3. Crounci 4. Simhali

Rasapanchak

Rasa – Kashaya, Tikta, Madhura

Guna – Guru, Ruksha

Virya - Ushna

Vipaka - Katu

Karma – Pittakaphashamaka

Pharmacological activity of Manjistha[34]**Table 13 : Pharmacological activities of Manjistha.**

Sr. No.	Activity	Description
1.	Nephroprotective activity	Hydroalcoholic extract of root of manjistha inhibit urolithiasis in rats.
2.	Antiarthritic activity	Ethanol extract of manjistha show antiarthritic activity in albino rats.
3.	Antioxidant activity	Alcoholic root extract of manjistha is effective in swiss male albino rats show antioxidant activity.
4.	Antiinflammatory activity	Methanolic extract of manjistha is effective in carragenna induced paw edema rats show antiinflammatory activity.
5.	Antidiabetic activity	Alcoholic extract of manjistha is effective on alloxan treated rats shows antidiabetic activity.
6.	Cardioprotective activity	Root extract of manjistha is effective in cardioprotectivity against cyclophosphamide in wistar rat model.

Formulations[32]**Table 14 : Uses and Formulations of Manjistha.**

Sr. No.	Formulations	Indications
1.	Manjishtadi taila	Netraroga, siroroga
2.	Manjishtadi lepa	Shotha
3.	Pinda taila	Daha, vatarakta
4.	Mahamanjishtyadi kshaya	Kustha, vatarakta

Classical Categorisation**Table 15 : Classical Categorisation acc. to different Acharyas.**

Acharya	Categorisation
Charaka	Vranya varga, vishghna varga, jwaraharavarga
Sushruta	Priyangvadi gana
Bhavaprakash Nighantu	Haritkyadi varga

Kultha[35]**Botanical Name** – *Dolichos biflorus***Family** – Fabaceae**Part used** – Seeds**Fig.4 – Kultha Seeds****Vernacular Names****Table 16 : Vernacular Names of Kultha.**

Sr. No.	Different languages	Vernacular Names
1.	English	Horse gram
2.	Hindi	Kulthi
3.	Kannada	Hurali kalu
4.	Malayalam	Muthera
5.	Marathi	Kulthi

Taxonomical Classification [12]

Table 17 : Taxonomical Classification of Kultha.

Sr. No.	Category	Classification
1.	Kingdom	Plantae
2.	Subkingdom	Tracheobionta (Vascular plants)
3.	Division	Spermatophyta
4.	Subdivision	Magnoliophytina (Angiospermae)
5.	Class	Magnoliatae (Dicotyledonae)
6.	Subclass	Archichlamydeae
7.	Order	Rosales (Fabales)
8.	Family	Fabaceae (Leguminosae)
9.	Subfamily	Papilionaceae
10.	Genus	<i>Dolichos</i>
11.	Species	<i>Biflorous</i>

Botanical Description[35]

Oval stipules, annual herb.

Leaves – Compound leaves with 2.5–5 cm long leaflets.

Flowers – 1–3 yellow flowers with 1–2 cm long petals.

Fruit – Brownish red or grey in color.

Seeds – One fruit bear five to six seeds.

Varieties

According to Bhavamishra : Based on cultivation

2 types : 1. Gramya (cultivated) 2. Vanya (wild)

According to RajNighantu

2 types : 1. Tamrabija 2. Shweta bija

Rasapanchaka

Rasa - Kashaya

Guna – Laghu, Ruksha, Tikshna

Virya – Ushna

Vipaka – Katu

Karma – Vatakaphashamaka

Pharmacological Activity[12]**Table 18 : Pharmacological activities of Kultha.**

Sr. No.	Activity	Description
1.	Antirolithiatic activity	Chaitnya et. al. Aqueous and alcohol extract of kultha seed on ethylene glycol induce urolithiasis in albino rats.
2.	Diuretic activity	Ravishankar et. al. Ethanolic extract of kultha seeds show diuretic activity in albino rats.
3.	Antioxidant activity	Singh et. al. Ethanolic extract of kultha seeds reported antioxidant activity by in-vitro experiment.

Sr. No.	Activity	Description
4.	Antimicrobial activity	Kawsar et. al, Ram et. al and Gupta et. al. Extract of kultha seeds shows antimicrobial activity against <i>Bacillus subtilis</i> , <i>Staphylococcus aureus</i> , <i>Escherichia coli</i> and <i>Pseudomonas aeruginosa</i> .
5.	Antiinflammatory activity	Giresha et al. Aqueous extract of kultha coat as well as pulp inhibit Phospholipase A2 by in vitro method shows antiinflammatory activity.

Formulations[35]**Table 19 : Uses and Formulations of Kultha.**

Sr. No.	Formulation	Indications
1.	Kulatthadya ghrita	Ashmari, Mutrakrichra
2.	Kulattha guda	Swasa, Kasa
3.	Kulattha yusha	Shula, Vatadosha
4.	Pashanabhedadi ghrita	Ashmari, Vatavyadhi

Classical Categorization**Table 20 : Classical Categorisation acc. to different Acharyas.**

Acharya	Categorisation
Charaka	Swedopaga varga
Sushruta	Vatasamshamana
Bhavaprakash Nighantu	Dhanya varga

Gokshura[36]**Botanical Name** – *Tribulus terrestris***Family** – Zygophyllaceae**Part used** – Fruit**Fig.5 – Gokshura Fruit****Vernacular Names**

Table 21 : Vernacular Names of Gokshura.

Sr. No.	Different languages	Vernacular Name
1.	English	Small caltrops
2.	Hindi	Chota-Gokhru
3.	Kannada	Neggilamullu
4.	Malayalam	Nerungil
5.	Marathi	Gokharu

Taxonomical Classification[37]**Table 22 : Taxonomical Classification of Gokshura.**

Sr. No.	Category	Classification
1.	Kingdom	Plantae
2.	Division	Phanerogams
3.	Subdivision	Angiospermae
4.	Class	Dicotyledonae
5.	Subclass	Polypetalae
6.	Series	Disciflorae
7.	Order	Giraniales
8.	Family	Zygophyllaceae
9.	Genus	<i>Tribulus</i>
10.	Species	<i>terrestris</i> Linn

Botanical Description[36]

Prostrate herb.

Stem – Branching, curving, thin, and flexible.

Leaves – Four to five pairs of round leaflets and are multilayered, opposite, or even pinnate in shape.

Flowers – Vibrant yellow, bisexual, actinomorphic flower with five sepals. Five oval and free petals are present.

Fruit – Schizocarp with five hard, roughly arranged spinous cocci.

Rasapanchaka**Table 23 : Rasapanchaka of Gokshura.**

	Phala (Fruit)	Mula (Root)
Rasa	Madhura	Madhura
Guna	Guru, Snigdha	Guru, Snigdha
Vipaka	Madhura	Madhura
Virya	Shita	Ushna
Karma	Vatapittashamaka	Tridoshashamaka

Pharmacological Activity of Gokshura[37]

Table 24 : Pharmacological activities of Gokshura.

Sr. No.	Activity	Description
1.	Antiuro lithiatic activity	Anand et. al. Ethanolic extract of gokshura fruit tested in urolithiasis by induced glass bead implantation in albino rats.
2.	Diuretic activity	Ali et. al. Aqueous extract of gokshura fruit and leaves in rat diuretic model.
3.	Aphrodisiac activity	Singh et. al. Lyophilized aqueous extract of gokshura dried fruit help in the management of sexual dysfunction in male rats.
4.	Antidiabetic activity	Ethanolic extract of gokshura is effective against Streptozotocin – induced diabetic rats by inhibiting oxidative stress.

Formulations[36]**Table 25 : Uses and Formulations of Gokshura.**

Sr. No.	Formulation	Indications
1.	Gokshuradyavaleha	Ashmari, Mutralracchra
2.	Gokshurabija churna	Ashmari
3.	Gokshura kwatha	Mutraghata
4.	Gokshuradi modaka	Vajikaranartha
5.	Shwadmshtadya ghrta	Hradroga, shula

Classical Categorization**Table 26 : Classical Categorisation acc. to different Acharyas.**

Acharya	Categorisation
Charaka	Mutra virechaniya varga, Shothahara varga, Krimighna varga, Anuvasanopaga varga
Sushruta	Vidarigandhadi gana, Viratarvadi gana, Laghu panchamula, Kantakapanchmula
Bhavaprakash Nighantu	Guduchyadi varga

Traditional Use, Dose and Chemical Constituents

According to Ayurvedic literature traditional use, dose and chemical constituents of all plant part are given below[28,29,32,35,36]

Table 27 : Traditional use, dose and Chemical constituents acc. to Ayurvedic Literature.

S. No.	Plant part	Chemical constituents	Traditional use	Dose
1.	Pashanbheda rhizome	Bergenin, beta – sitosterol, gallic acid, tannic acid. Amino acids – isoleucine, leucine, methionine etc.	Ashmari, mutrakrichra, arsha, prameha, sula, yoniroga, pliharoga, hridroga, daha, vrana.	Kanda churna (Powder of rhizome) – 1 to 3g
2.	Tulsi leaves	Cardinene, camphere, carvacrol, eugenaol, limonene, ascorbic acid, beta – carotene, oreantin, ursolic acid.	Swasa, kasa, hikka, hridroga, krimi, agnimandya, kustha, jwara, vishavikara.	Swarasa (Juice) – 10 to 20ml
3.	Manjistha root	Manjishtin, purpurin, xanthopurpurin, rubifolic acid, rubianin, sitosterol, beta – scopoletol, ruberythric acid, fatty acids.	Kustha, twak roga, visarpa, yoniroga, shotha, netraroga, raktatisara, prameha, vrana, arsha, jwara.	Kwatha (Decoction) 60 to 100ml; Churna (Powder) – 1 to 3g

S. No.	Plant part	Chemical constituents	Traditional use	Dose
4.	Kultha seeds	Strepogenin, g – sitosterol, genistein, urease, kievitone, coumesterol, psoralidin, D – glucose, D – galactose, L – thamnose, D – arabinose and aspartic acid.	Ashmari, Shwasa, kasa, medoroga, jwara, mutrakrichra, arsha, Shula, vrana, aruchi.	Kwatha (Decoction) – 50 to 100ml; Churna (Powder) – 3 to 5g
5.	Gokshura fruit	Flavonoid components like kaempferol, steroid sapogenins, neotigogenin and hecogenin.	Ashmari, mutrakrichra, shotha, prameha, Shwasa, kasa, hradroga, arsha, shukra dourbalya.	Phala churna (Powder) – 3 to 6g; Kwatha (Decoction) – 50 to 100ml

Morphological Characteristics of all Plant Parts

Table 28 : Morphological Characteristics of all Plant part.

Sr. No.	Plant Name	Part Used	Morphological Characteristics
1.	Pashanbheda	Rhizome	Color – brown; Odour – fragrant odour; Taste – astringent; Shape – slightly cylindrical; Size – 1-3cm long
2.	Tulsi	Leaves	Color – green to purple; Odour – aromatic odour; Taste – characteristic taste; Shape – elliptic, oblong; Size – 2.5–5cm long
3.	Manjistha	Root	Color – brown; Odour – characteristic; Taste – bitter and astringent; Shape – cylindrical; Size – 2"-6" length
4.	Kultha	Seeds	Color – reddish brown to black; Odour – odourless; Taste – astringent; Shape – flattened, ellipsoid; Size – 1/8–¼ inch
5.	Gokshura	Fruit	Color – greenish yellow; Odour – slightly aromatic; Taste – slightly bitter and astringent; Shape – globose; Size – 1.3 cm in diameter and 8.5mm thick

Conclusion

Ayurveda largely uses plant based medications to treat a variety of conditions, providing safe and holistic therapeutic uses. Urolithiasis is a common disorder linked with metabolic diseases and characterized by the development of stones in the urinary tract. Traditional Ayurvedic plants including Pashanbheda, Tulsi, Manjistha, Kultha and Gokshura have potent antilithiatic, antiinflammatory, antioxidant, antiurolithiatic and diuretic effects that directly address urolithiasis. In the future, a scientifically created polyherbal arishta including these medications could provide an effective, cost efficient and patient-friendly treatment for urolithiasis by merging traditional wisdom with modern pharmaceutical standardisation.

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