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**Khemkaran Ahirwar**  
Pharmacy, (UTD) Sant Gahira  
Guru Vishwavidyalaya  
Sarguja Ambikapur,  
Chhattisgarh, India

## Effective healthful medicinal plants as antilithiatic Agents

**Khemkaran Ahirwar**

### Abstract

There is associate recent and famed reality “the garden is that the poor man's apothecary” and treatment of every and each sickness is hidden in nature. Medicative plants area unit extremely reputable everywhere the globe as an expensive supply of therapeutic agents for the hindrance and treatment of varied diseases. Since ages, herbs area unit being employed for treating completely different| completely different} ailments in several components of world by different communities. A concretion, additionally referred to as a concretion could be a solid concretion or crystal aggregation shaped within the kidneys from dietary minerals within the excretion. The matter of urinary stones or calculi could be a terribly ancient one these stones area unit found altogether components of the tract, the kidney, and also the vesica and will vary significantly in size. Urolithiasis could be a complicated method that happens from series of many chemistry event together with super-saturation, nucleation, growth, aggregation and retention at intervals the kidneys. Gift article deals justifiably, varieties of excretory organ stones, risk factors associated, diagnosing and treatment ways together with several medicative plants as flavourer choice for treatment of urinary stones.

**Keywords:** Urolithiasis, kidney stone, traditional plant, antilithiatic herbal plant

### 1. Introduction

Kidney stone illness sometimes presents between the ages of twenty and sixty and is a lot of current in hot climates. It affects regarding one 10% of individuals over their life, incidence increasing with age; fiftieth can have a return among 5–10 years and seventy five within twenty years. Developed countries have seen speedy will increase over the last thirty years, particularly in ladies in whom incidence is currently nearly up to that of men. This article focuses on the pathophysiology, investigation and management of recurrent stone disease.

### 2. Pathophysiology

Stone growth starts with the formation of crystals in saturated body waste that then adhere to the urothelium, so making the nidus for subsequent stone growth. The biological processes that anchor crystals to the urothelium are incompletely understood. Many, however not all, atomic number 20 salt stones develop on Randall's plaques that are composed of orthophosphate (= hydroxyapatite) crystals. These grow to erode the urothelium, forming a nucleus for atomic number 20 salt deposition. More recent theories target the role of cell surface molecules that favour or inhibit crystal adhesion. Urothelial injury and repair once a stone episode might increase surface expression of those molecules to favour more crystal adhesion. therefore ‘stones generate stones’ as a result of there could also be a residual nucleus on that more stones might type and/or up regulation of molecules favouring crystal adhesion. Stone interference focuses on characteristic and amelioratory the danger factors for crystal formation.

### 3. The Urinary System and Stones

The urinary filtrate is made within the capillary and passes into the tubules wherever the degree and content are altered by biological process or secretions. Most substance biological process happens within the proximal tubules, whereas fine changes to body waste composition happen within the distal tube-shaped structure and aggregation ducts. The loop of Henle serves to concentrate body waste composed of ninety five water, 2.5% urea, 2.5% mixture of minerals, salts, hormones, and enzymes. Within the proximal tubules, glucose, sodium, chloride, and water are reabsorbed and came back to the blood stream together with essential nutrients like amino acids, proteins, carbonate, calcium, phosphate, and metallic element. Within the distal tube-shaped structure, the salt and acid-base equilibrium of blood is regulated.

**Correspondence**  
**Khemkaran Ahirwar**  
Pharmacy, (Utd) Sant Gahira  
Guru Vishwavidyalaya  
Sarguja Ambikapur,  
Chhattisgarh, India

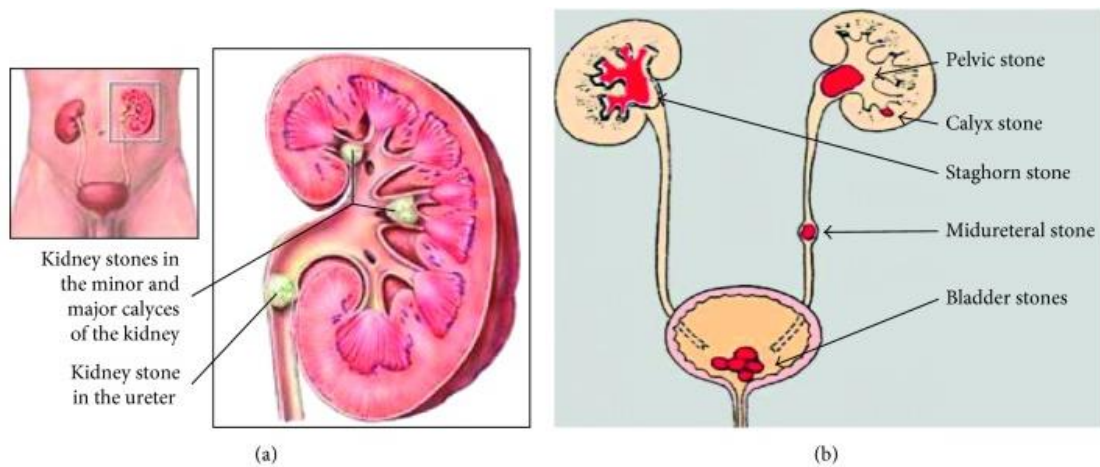


Fig 1: Urinary System and Stones

#### 4. Types of Kidney Stones

The chemical composition of urinary organ stones depends on the abnormalities in excretion composition of assorted chemicals. Stones dissent in size, shape, and chemical compositions (mineralogy) supported variations in mineral composition and pathologic process, urinary organ stones are unremarkably classified into 5 sorts as follows [38].

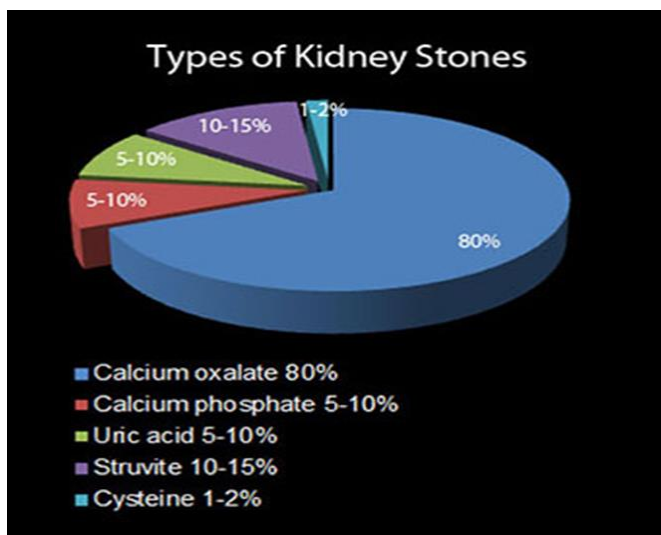


Fig 2: Graph of various % of kidney stones

#### 4.1. Calcium Stones: Calcium Oxalate and Calcium Phosphate

Calcium stones are predominant urinary organ stones comprising regarding 18 of all urinary calculi. The proportion of metal stones could account for pure calcium salt ( $\text{CaOx}$ ) (50%), inorganic phosphate ( $\text{CaP}$ , termed as apatite) (5%), and a mix of each (45%). the most constituent of metal stones is brushite (calcium chemical element phosphate) or hydroxyapatite metal salt is found within the majority of urinary organ stones and exists in the kind of  $\text{CaOx}$  hydrate (COM, termed as mineral names:  $\text{CaC}_2\text{O}_4 \cdot \text{H}_2\text{O}$ ), and  $\text{CaOx}$  dihydrate (COD,  $\text{CaC}_2\text{O}_4 \cdot 2\text{H}_2\text{O}$ ), or as a mixture of each that accounts for bigger than sixtieth. COM is that the most thermodynamically stable kind of stone. Many factors contribute to  $\text{CaOx}$  stone formation like hypercalcinuria (resorptive, renal leak, absorptive, and metabolic diseases), hyperuricosuria, hyperoxaluria, hypocitraturia, hypomagnesuria, and hypercystinuria [35]. Mostly, urinary pH scale of five. 0 to 6.5 promotes  $\text{CaOx}$  stones [36], whereas inorganic phosphate stones occur once pH scale is larger than

seven. 5 The repetition of metal stone is larger than alternative kinds of urinary organ stones [39, 40].

#### 4.2. Struvite or Magnesium Ammonium Phosphate Stones

Struvite stones occur to the extent of 10–15% and have additionally been spoken as infection stones and triple phosphate stones. It happens among patients with chronic tract infections that turn out enzyme, the foremost common being Proteus genus Mirabilis and fewer common pathogens embrace enter bacteria respiratory disorder, genus Pseudomonas aeruginosa, and Enterobacter enzyme is critical to split/cleave carbamide to ammonia and greenhouse emission, creating excrement additional base-forming that elevates pH (typically  $>7$ ). Phosphate is a smaller amount soluble at base-forming versus acidic pH, therefore phosphate precipitates on to the insoluble ammonium ion merchandise, yielding to an outsized staghorn stone formation. Women's are possible to develop this sort of stone than the male. Escherichia isn't capable of cacophonous carbamide and is not related to struvite stones [41].

#### 4.3. Uric Acid Stones or Urate

This accounts close to for 3–10% of all stone varieties. Diets high in purines particularly those containing animal super molecule diet like meat and fish, ends up in hyperuricosuria, low excretory product volume, and low urinary pH scale ( $\text{pH} < 5.05$ ).

#### 4.4. Cystine Stones

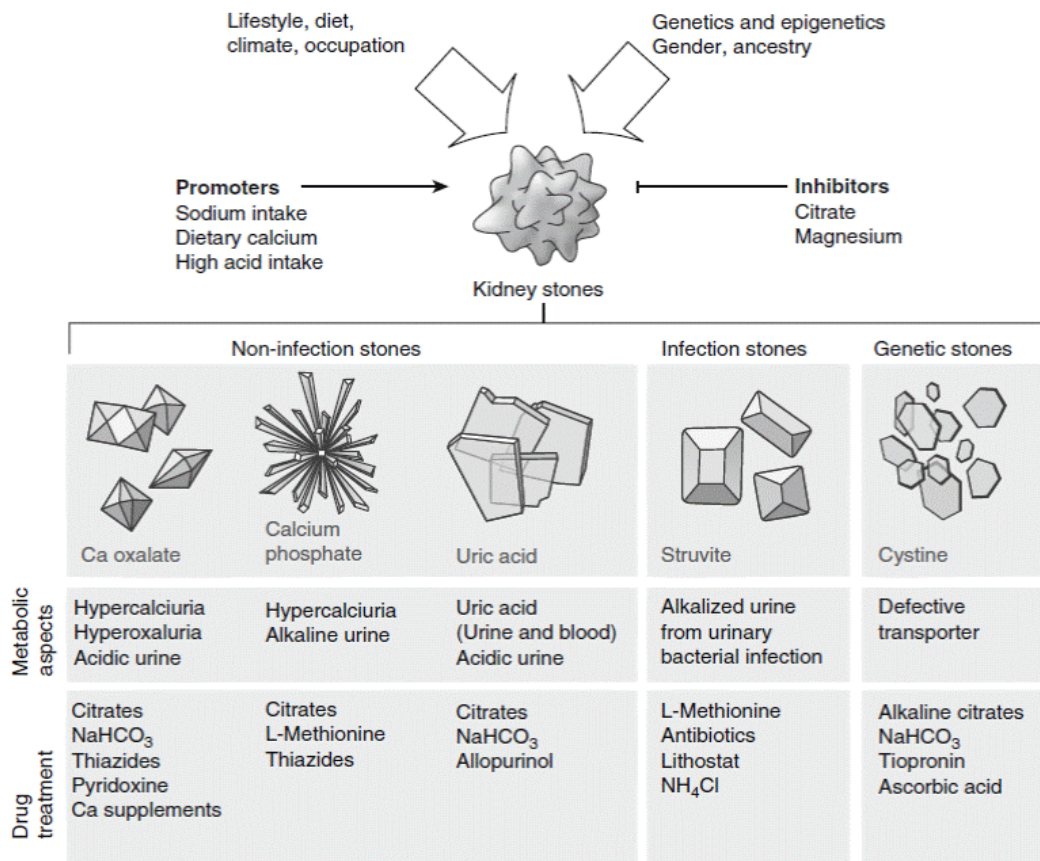
These stones comprise but two of all stone sorts. it's a hereditary condition of the transport of Associate in Nursing organic compound and amino acid. It leads to an far more than cystinuria in urinary excretions, that is Associate in Nursing chromosome recessive disorder caused by a defect within the rBAT sequence on body two leading to impaired urinary organ cannular absorption of amino acid or unseaworthy cystine into piddle. It doesn't dissolve in piddle and results in amino acid stone formation. Those that are homozygous for cystinuria eliminate quite 600 mill mole insoluble amino acid per day. The event of urinary amino acid is that the solely clinical manifestation of this cystine stone un wellness [42].

#### 4.5. Drug-Induced Stones

This accounts for concerning a hundred forty five of all stone varieties medication like guaifenesin, triamterene, atazanavir, and sulfonamide medication induce these stones for example,

those who take the antiviral drug PI sulfate, a drug accustomed treat HIV infection, are in danger of developing urinary organ stones. Such lithogenic medication or its metabolites might deposit to create a nidus or on urinary

organ calculi already gift. On the opposite hand, these medication might induce the formation of calculi through its metabolic action by officious with metal salt or purine metabolisms [43].



**Fig 3:** Epidemiology and Evaluation of Nephrolithiasis [45]

## 5. Kidney Stone Compositions

The chemical compositions of urinary stones embrace crystals and non-crystalline phases or the organic material (the matrix). The organic matrix of urinary stones consists of macromolecules like glycosaminoglycan's (GAG's), lipids, carbohydrates, and proteins. These molecules play a big role by promoting or inhibiting the processes of renal calculus development (Table 1). The most elements of the stone matrix are proteins (64%), non-amino sugars (9.6%), hexosamine as glucosamine (5%), water (10%), and inorganic ash (10.4%). The matrix acts as a example taking part within the assembly of urinary organ stones. The matrix of all stones contains phospholipids (8.6%) of the overall lipid, that successively represents regarding ten 3% of stone matrix. Semi permeable membrane phospholipids, as a part of organic matrix, promote the formation of atomic number 20 salt and phosphate stones. Albumen is that the major part of the matrix of all stone sorts. [44].

## 6. Risk factors associated with kidney stone formations

- Lifestyle habits and dietary/nutritional factors: like excessive intake of animal proteins and salt and deficiencies of chelating agents like turn, fiber, and alkali foods.
- Metabolic disorders: like symptom, hypocitraturia, hyperoxaluria, hyperuricosuria, and history of gouty arthritis (defective metabolism of excreta acid).

- Hypercalcemic disorders: primary gland disease and different disturbances of Ca metabolism excrement composition.
- Excessive excretion of promoters of urinary crystallization and reduced excretion of inhibitors (urine deficient in repressive substances).
- Low excrement volume: inadequate water intake (dehydration and saturated urine)
- perennial tract infections: abnormalities of urinary hydrogen ion concentration and alkalinization of excrement by microorganism enzyme (such as *Proteus mirabilis*)
- Genetic predisposition/inherited disorders: case history of stones (genetic susceptibility); factortic heritable diseases (single abnormal gene disorders on the autosomes); excretory organ cannular pathology.
- Anatomical abnormalities: factors like defects in medullary sponge urinary organ, ureteropelvic junction stricture, pyeloureteral duplication, polycystic excretory organ sickness, and horse's hourinar organ cardiovascular disease.
- Obesity.
- global climate change (global warming), occupation, geographic conditions, and differences due to the season (higher in summer than winter)
- Inflammatory viscus sickness and different enteric assimilation or associated disease states
- Absence of enteric oxalate-degradin gmicroorganism.

- Lithogenic drugs: like Crixivan (Crixivan), a PI, sulfonamides (sulfadiazine), uricosuric agents, that has low solubility and promotes the formation of calculi, and Mefoxin (high dose on long terms).

## 7. Antilithiatic Plant profile

### 1. *Achyranthes aspera*

The plant features a much-branched nonwoody annual to perennial plant, with stems which will become somewhat woody. It will grow from thirty - 200cm tall. *Achyranthes aspera* contains triterpenoid saponins, that possess oleanolic acid because the Anglican. Different chemical constituents like achyranthine, betaine, pentatriacontane, 6-pentatriacontanone, hexatriacontane, and tritriacontane also are gift <sup>[1, 2]</sup>.

### 2. Cashew tree Linn

*A. Occidentalis* L may be a little, spreading, evergreen tree reaching up to a height of twelve m. Leaves (10-20 cm long) are opposite, simple or Obovate- rectangular, inexperienced and hairless with entire typically undulated margin, Obtuse – retuse or rounded tip apex and unsubdivided like stout leafstalk. Flowers are little, yellow, with pink stripes, borne in 15-25 cm long, terminal panicles with each stamens and hermaphrodite flowers. Fruit is skinny yellow to scarlet skin, excretory organ formed nut, 2.5 cm long, borne on a five.0-7.5 cm long, pyriform, fleshy receptacle. *A. Occidentalis* containing varied sorts of chemical as Beta-pinene, Beta-selinene, Beta-sitosterol, Cadinene, Caryophyllene-oxide, Conyzorin, it's on the market in several a part of Asian country like geographic area, Karnataka, Belgaum, Chikmagalur, Coorg, Hassan, Mysore, Kerala <sup>[3, 4]</sup>.

### 3. *Ageratum conyzoides*

Plant furry annual weed grows up to one meter tall. Leaves easy, opposite and someday alternate, furry on each sides; flowers violet in color, heads, fruits little, black and attenuated and five angulate. A deciduous tree grows up to thirty meters tall. Leaves compound, odd-pinnate, large, centered at the sides of the branches. Leaflets 7-9 numbered, ovate-lanceolate, acuminate; flowers yellow in terminal cymes. Fruits long, slender cylindrical capsules, contains little compressed winged seeds.

### 4. *Alhagi maurorum*

*Alhagi maurorum* may be a vesicatory weed outside its native vary. It a stuff of alfalfa seed, and grows without delay once accidentally introduced to a cultivated field. It's a large soil tolerance, thriving on saline, sandy, rocky, and dry soils. It will best once growing next to a supply of water, like associate ditch. The plant contains carbohydrates, flavonoides, sterols, resin, anthraquinones and saponines. The plant components contains oil. The plant on the market in endemic to temperate and tropical Eurasia and also the Middle East, in: Afghanistan; northern Asian country <sup>[5]</sup>.

### 5. *Armoracia Lophatifolia*

*Armoracia Rusticana* may be a perennial plant of the Brassicaceae (which conjointly includes mustard, wasabi, broccoli, and cabbage). it's a veggie used as a spice and ready as a flavoring. The plant is maybe native to southeastern Europe and western Asia. it's fashionable worldwide. It grows up to one.5 meters (4.9 feet) tall, and is cultivated primarily for its giant, white, tapered root.

## 6. *Boerhavia diffusa*

*Boerhavia diffusa* may be a species of seed plant within the four o'clock family, that is often referred to as punarnava (meaning, that that rejuvenates or renews the body in Ayurveda) red Spiderling, spreading herbaceous plant, or tarvine. It's taken in flavorer drugs for pain relief and different uses. The leaves of *Boerhavia diffusa* are typically used as a inexperienced vegetable in several components of Asian country. The key chemical constituents are A. quinolone organic compound, and lunamarine <sup>[6]</sup>.

## 7. *Bryophyllum Pinnatum Roxb*

The "leaves" of this species are literally leaf-stem combos referred to as phylloclades. They're thick, fleshy, elliptical in form, curved, with a current or rough margin, typically ruby-red. Easy at the bottom of the stem, the leaves are odd-pinnate at the highest, 10-30 cm long, with 3-5 pairs of fleshy limb lobes.

The fruits are follicles (10-15 mm) that are found within the persistent ringlet and curl. *Bryophyllum pinnatum* has become naturalized in tropical and subtropic areas, inhabiting heat and temperate climates from water level to a pair of 600 meters, occupying sites on rock in tropical evergreen and deciduous forests, further as mountain forests. It's found in components of Asia Bufadienolide compounds isolated from *Bryophyllum pinnatum* embody bryophyllin <sup>[7, 8]</sup>.

## 8. *Artistic religiosa*

Description - little spreading tree; leaves compound, aromatic once bruised; corymbs terminal, flowers giant, white to yellow and purple, 2.5-5.0 cm in diameter, stamens purple, indefinite, adnate to base of ginger, ovary on as loaner stalk; berry fleshy, globose, 2.5-5.0 cm in diameter, many-seeded. It contains glucoside and tannic acid <sup>[9]</sup>.

## 9. *Carica papaya l*

The papaya may be a little, sparsely branched tree, typically with one stem growing from five to ten m (16 to thirty three ft) tall, with spirally organized leaves confined to the highest of the trunk. The lower trunk is prominently scarred wherever leaves and fruit were borne. The leaves are giant, 50–70 cm (20–28 in) in diameter, deeply palmately compound, with seven lobes. All components of the plant contain latex in articulated laticifers. Papayas are dioecious. The flowers are 5-parted and extremely dimorphous, the male flowers with the stamens consolidated to the petals. Native to United Mexican States and northern South America, papaya has become naturalized throughout the Caribbean Islands, Florida, Texas, California, Hawaii, and different tropical and subtropic regions of the globe.

Papaya skin, pulp and seeds contain a range of phytochemicals, together with carotenoids and polyphenols, further as benzyl group isothiocyanates and benzyl glucosinates, with skin and pulp levels that increase throughout ripening <sup>[10]</sup>.

## 10. *Capsella bursapastori*

*Bursa-pastoris* plants grow from a rosette of compound leaves at the bottom. From the bottom emerges a stem concerning zero. 2–0.5m (0.66–1.64ft) tall, that bears some pointed leaves which partially grasp the stem. The flowers, that seem in any month of the year within the island, are white and little, 2.5 mm (0.098 in) in diameter, with four petals and 6 stamens. they're borne in loose racemes, and manufacture planate, divided seed pods referred to as silks, that are triangular to

unsubdivided, every containing many seeds acid is one chemical substance that has been isolated from *C. bursa-pastoris* [11].

### 11. *Cucumis sativus*

The cucumber may be a travel tracheophyte that roots within the ground and grows up trellises or different supporting frames, wrapping round the supports with skinny, coiling tendrils. The plant might also root in a very soilless medium and can sprawl on the bottom if it doesn't have supports. The tracheophyte has giant leaves that kind a cover over the fruits. The fruit of typical cultivars of cucumber is roughly cylindrical, however elongated with tapered ends, and should be as giant as sixty centimeters (24 in) long and ten centimeters (3.9 in) in diameter. Chemical constituents is 24-ethylcholesta-7, 22, 25-trienol, 24-ethylcholesta-7, 25-dienol (2), avenasterol (3), spinasterol (4), karounidiol (5) and isokarounidiol (6) were separated and known from the unsaponifiable matter. saturated fatty acid (7, 0.12%), hexadecanoic acid (8, 12.04%), palmitoleic acid (9, 0.09%). [12].

### 12. *Ficus carica*

*Ficus carica* may be a gynodioecious deciduous tree or giant bush, growing to a height of 7–10 metres (23–33 ft), with swish white bark. Its odorous leaves are 12–25 centimetres (4.7–9.8 in) long and 10–18 centimetres (3.9–7.1 in) across, and deeply compound with 3 or 5 lobes. The complicated inflorescence consists of a hollow fleshy structure referred to as the aggregate fruit, that is lined with varied sexual flowers. The fruit consists of the mature aggregate fruit containing varied one-seeded fruits (droplets). Chemical constituents are Polyphenols, such as acid, chlorogenic acid, syringic acid, (+)-catechin, (–) [13].

### 13. *Hemidesmus indicus* Linn

It is a slender, laticiferous, twining, generally prostrate or semi-erect bush. Roots are woody and aromatic. The stem is varied, slender, terete, thickened at the nodes. The leaves are opposite, short-petioled, terribly variable, elliptic-oblong to linear-lanceolate. The flowers are light-green outside, chromatic within, packed in sub-sessile axillary cymes. It happens over the bigger a part of Asian country, from the higher Gangetic plain eastward to province and in some places in central, western and South Asian country. The roots of *H. index* contain hexatriacontane, lapel, its octacosanoate,  $\alpha$ -amyrin,  $\beta$ -amyrin, its acetate and sitosterol. The leaves contain tannins, flavonoids, hyperoside, rutin and coumarino. *Leucoderma* legends like hemidesminine, hemidesmin I and hemidesmin II are a rare cluster of present compounds gift within the leaves [14].

### 14. *Helianthus anus*

The plant has associate erect rough-hairy stem, reaching typical heights of three metres (9.8 ft). The tallest *helianthus* on record achieved nine. 17metres (30.1ft). *Helianthus* leaves are broad, coarsely toothed, rough and largely alternate. Every "petal" consists of a legal composed of consolidated petals of associate asymmetrical blossom. They sexually sterile and should be yellow, red, orange, or different colours. The flowers within the center of the top are referred to as disk flowers. These mature into fruit (sunflower "seeds") [15].

### 15. *Kalanchoe pinnata lam*

*Kalanchoe pinnata lam* has become naturalized in tropical and subtropical areas, inhabiting heat and temperate climates from water level to a pair of 600 meters, occupying sites on rock in tropical evergreen and deciduous forests, further as mountain forests. It's found in components of Asia, Australia, New Sjaelland, the West Indies, the Philippines, Macaronesia, the Mascarenes, the island, Melanesia, Polynesia, and Hawaii [6]. In several of those, like Hawaii, it's thought to be associate invasive species. Abundant of the rationale for the widespread naturalization of this plant will be copied to its quality as a plant.

### 16. *Momordica*

This nonwoody, tendril-bearing tracheophyte grows up to five m (16 ft) long. It bears easy, alternate leaves 4–12 cm (1.6–4.7 in) across, with 3 to seven deeply separated lobes. Every plant bears separate yellow male and feminine flowers. Within the hemisphere, flowering happens throughout Gregorian calendar month to July and mature during Gregorian calendar month to November. The fruit features a distinct rough exterior associated an rectangular form. It's hollow in crosswise, with a comparatively skinny layer of flesh encompassing a central seed cavity stuffed with giant, flat seeds and pith. The fruit is most frequently eaten up inexperienced, or because it is commencing to flip yellow. At this stage, the fruit's flesh is fresh and watery in texture, the same as cucumber, coyote or inexperienced bell pepper, but better. The skin is tender and edible. Seeds and pith seem white in unripe fruits; they're not intensely bitter and may be removed before preparation. Gourd L. leaves principally contain sterols, saponins and their derivatives [16].

### 17. *Mangifera indica*

*Mangifera indica*, ordinarily referred to as mango, may be a species of seed plant within the sumac and poison rosid dicot family magnoliopsid family. It's native to the Indian landmass wherever it is endemic. Many cultivated varieties are introduced to different heat regions of the globe. It's an outsized fruit-tree, capable of a growing to a height and crown breadth of concerning thirty metres (100ft) and a trunk circumference of quite three. 7metres (12ft). The species, domestication is attributed to Asian country around 2000 BCE. Mango was delivered to East Asia around 400–500 BCE, within the fifteenth century to the species, domestication is attributed to Asian country around 2000 BCE. The species was assessed and 1st named in biological science language by Carolus Linnaeus in 1753. Mango is that the national fruit of Asian country, Islamic Republic of Pakistan and also the Philippines and the national tree of Asian country [17, 18].

### 18. *Mentha pipertia*

It is a nonwoody stem perennial plant that grows to be 30–90 cm (12–35 in) tall, with swish stems, sq. in cross section. The rhizomes are wide-spreading, fleshy, and bear fibrous roots. The leaves will be 4–9 cm (1.6–3.5 in) long and one. 5–4 cm (0.59–1.57 in) broad. They're dark inexperienced with ruby-red veins, and that they have associate acute apex and coarsely toothed margins. The leaves and stems are typically slightly fuzzy. The flowers are purple, 6–8 mm (0.24–0.31 in) long, with a four-lobed curl concerning five millimetre (0.20 in) diameter; they're made in whorls (verticillasters) round the stem, forming thick, blunt spikes. Peppermint features a high

lotion content. The oil conjointly contains menthone and carboxyl esters, significantly menthyl acetate <sup>[19, 20, 21]</sup>.

### 19. *Mycrotyloma uniflorum*

Horse gram may be a short day, twining, succulent, annual mounting herb that has compound leaves, white colored flowers, long linear pubescent pods with sinuate beak, planate little seeds with lightweight red, brown, grey. Horse gram and leguminous plant are legumes of the tropics and semitropics, full-grown largely beneath dry-land agriculture. The chemical composition is comparable a lot of ordinarily cultivated legumes. Like different legumes, these are deficient in essential amino acid and tryptophane, although horse grain is a wonderful supply of iron and atomic number 42 relatively, horse grain seeds have higher enzyme matter and hemagglutinin activities and natural phenols than most bean seeds. Natural phenols are largely synthetic resin acids, namely, 3,4-dihydroxybenzoic, 4-hydroxybenzoic, vanillic, caffeic, p-coumaric, acid <sup>[22]</sup>.

### 20. *Olea europaea*

Common olive (*Olea europaea* subsp. *Europea*) is wide naturalized in southern and jap Australia, significantly in temperate regions. It commonest in southeastern Australian state, however is additionally naturalized within the sub-coastal regions of central and northern New South Wales, in western and central Victoria, in several different components of Australian state, and within the coastal and sub-coastal districts of southwestern Western Australia. Associate evergreen tree typically growing 2-10 m tall, however sometimes reaching up to fifteen m tall. One in all these doubtless bioactive compounds is that the board oleuropein, which may represent up to 6-9% of dry matter within the leaves <sup>[23]</sup>.

### 21. *Pimpinella anisum*

Anise is associate nonwoody annual plant growing to three linear unit (0.9 m) or a lot of tall. The leaves at the bottom of the plant are easy, 3/8-2 in (1-5 cm) long and shallowly compound, whereas leaves higher on the stems are feathery compound, divided into varied little leaflets. The flowers are white, just about 1/8 inches (3 mm) in diameter, made in dense umbels. The fruit is associate rectangular dry fruit, 1/8-1/4 in (3-6 mm) long, typically referred to as "aniseed". Anise may be a food plant for the larvae of some Lepidoptera species (butterflies and moths), together with the lime-speck pug-dog and suffrutex pug. it contain Moisture: 9-13% Protein: eighteenth, Fatty oil: 8-23%, Essential oil: 2-7%, Starch: 5%, N-free extract: 22-28%, Crude fibre: 12-25% <sup>[24, 25]</sup>.

### 22. *Rosmarinus officinalis*

Rosemary is associate aromatic evergreen bush with leaves the same as hemlock needles. It's native to the Mediterranean and Asia, however in all fairness hardy in cold climates. It will face up to droughts, living a severe lack of water for long periods. Forms vary from upright to trailing; the upright forms will reach one. 5 m (5ft) tall, seldom a pair of m (6 linear unit seven in). The leaves are evergreen, 2-4 cm (0.8-1.6 in) long and 2-5 millimetre broad, inexperienced on top of, and white below, with dense, short, woolly hair. The plant flowers in spring and summer in temperate climates, however the plants will be in constant bloom in heat climates; flowers are white, pink, purple or deep blue. Rosemary conjointly features a

tendency to flower outside its traditional flowering season; it's been acknowledged to flower as late as early Gregorian calendar month, and as early as period (in the northern hemisphere). In some components of the globe, it's thought-about associate invasive species <sup>[26, 27]</sup>.

### 23. *Solanum lycopersicum* Linn

It is a hort-lived herb, 50-150 cm tall, typically densely pubescent, aromatic. Leaves ovate in define, the plate to thirty cm long, deeply compound with 7-9 major lobes; leafstalk 2-5 cm long.

Inflorescence raceme- or cyme-like. Calyx-lobes narrowly unsubdivided, 4-10 millimetre long curl to twenty five millimetre diameter; lobes narrowly triangular, to ten millimetre long, typically crooked. Anthers 5-10 millimetre long, together with sterile appendage 2-3 mm long Ovary hairless or pubescent Berry round or depressed-globular, 10-20 millimetre diameter, red at maturity. Seeds 2-3 millimetre long, pilose, yellow-grey. Inexperienced and unripe components contain steroid glycosides, within the sort of glycoalkaloids, Their sapogenine sarediosgenin, hispigenin, neochlorogenin, solagenin, tigogenin, yamogenin, and conjointly contain flavonone <sup>[28, 29]</sup>.

### 24. *Stereospermum coalis*

Leaves compound, odd-pinnate, opposite, decussate, to sixty cm long; reaches' 6-16.5 cm long, furrowed, glabrous; leaflets 3-5 pairs, opposite with odd terminal one; stem zero 8-1.5 cm long, canaliculate; plate 5-15 x a pair of 5-7.5 cm, elliptic, apex caudate (acumen one.5-4 cm long) base unsubdivided to uneven, margin entire, stuff, glabrous; nervure flat above; secondary nerves 8-10 pairs bit by bit curved; tertiary nerves sapless percurrent. Inflorescence lax terminal panicles, flowers chromatic purple, yellow among, petals wooly Capsule, 4-angled, contorted, to forty cm long; seeds several, winged <sup>[30]</sup>.

### 25. *Santalum album*

The height of the evergreen tree is between four and nine metres. They will live to 1 hundred years old. The tree is variable in habit, typically upright to sprawling, and should intertwine with different species. The plant parasites the roots of different tree species, with a enation adaptation on its own roots, however while not major impairment to its hosts. It's parasitic in nature throughout the growing stage, native to semi-arid areas of the Indian landmass. [citation needed] it's currently planted in Asian country, China, Sri Lanka, Indonesia, Malaysia, the Philippines and Northern Australia. The plant contain  $\alpha$ -santalol <sup>[31]</sup>.

### 26. *Tamarind indica*

The tamarind may be a long, medium-grown tree, that attains a most crown height of twelve to eighteen metres (39 to fifty nine ft). The crown has associate irregular, vase-shaped define of dense foliage. The tree grows well fully sun. It prefers clay, loam, sandy, and acidic soil varieties, with a high resistance to drought and aerosol salt (wind-borne salt as found in coastal areas). The evergreen leaves are alternately organized and pinnately compound. The leaflets are bright inexperienced, elliptic-ovular, pinnately patterned, and fewer than five cm (2.0 in) long. The branches droop from one, central trunk because the tree matures, and are typically cropped in agriculture to optimize tree density and simple the fruit harvest. At night, the leaflets clean up. As a tropical species, it's frost-sensitive. The compound leaves with opposite

leaflets provides a billowing result within the wind. Tamarind timber consists of arduous, redness duramen and softer, xanthis wood. tamarind seeds contained room, procyanidin B2, caffeic acid, Ferulic acid, antibiotic drug, myricetin, Morin, quercetin, apigenin and kaempferol [32, 33].

### 27. *Urginea maritima*

*Urginea maritima* may be a BULB growing to one m (3ft 3in) by zero.3 m (1ft).

It is hardy to zone (UK) nine. It's in leaf from October to July, in flower from Gregorian calendar month to October. The species are hermaphrodite (has each male and feminine organs) and is pollinated by Bees.

It is noted for attracting life. Suitable for: lightweight (sandy) and medium (loamy) soils and prefers well-drained soil. appropriate pH: acid, neutral and basic (alkaline) soils. It cannot grow within the shade. It prefers dry or wet soil. The plant will tolerate sturdy winds however not maritime exposure [34].

### 28. *Urtica dioica*

*Urtica dioica* may be a dioecious, herbaceous, perennial plant, one to a pair of m (3 to seven Ft) tall within the summer and dying all the way down to the bottom in winter [2]. It's wide unfold rhizomes and stolons, that are bright yellow, as are the roots. The soft, inexperienced leaves are three to fifteen cm (1 to six in) long associated are borne oppositely on an erect, wiry, green stem. The leaves have a powerfully rough margin,

a unsubdivided base, associated an acuminate tip with a terminal leaf tooth longer than adjacent laterals. It bears little, light-green or chromatic, varied flowers in dense axillary inflorescences. The leaves and stems are terribly furry with non-stinging hairs, and in most race, conjointly bear several stinging hairs (trichomes or spicules), whose tips return off once touched, remodeling the hair into a needle which will inject many chemicals inflicting a painful sting or symptom, giving the species its common names: nettle, burn nettle, burn weeds, or burn heals. Carotenoids will be found primarily within the leaves, wherever totally different varieties of Latin, lutein [35, 36, 37].

### 29. *Zingiber officinale*
















Ginger (*Zingiber officinale*) may be a seed plant whose rootstock, ginger root or ginger, is wide used as a spice and a folks drugs [2]. It is a herbaceous perennial which grows annual pseudostems (false stems made of the rolled bases of leaves) about a meter tall bearing narrow leaf blades. The inflorescences bear pale yellow with purple flowers and arise directly from the rhizome on separate shoots. The characteristic fragrance and flavor of ginger result from volatile oils that compose 1-3% of the weight of fresh ginger, primarily consisting of zingerone, shogaols and gingerols with [6] -gingerol (1-[4'-hydroxy-3'-methoxyphenyl] -5-hydroxy-3-decanone) as the major pungent compound [27]. Zingerone is produced from fingers during drying, having lower pungency and a spicy-sweet aroma [38].

**Table 1:** Medicinal plant recommended for the treatment of kidney stone





















S. No.	Botanicals	Family	Common Name	Usable Part of plant	Chemical Constituents	Traditional therapeutic
1.	<i>Achyranthes aspera</i> L.	Amaranthaceae	Chirchiri	leaf	Triterpenoid saponins, oleanolic acid	Kidney stone
2.	<i>Anacardium occidentale</i> Linn.	Anacardiaceae	Kaju & cashew	Fruit	Anacardic acids, cardol, cardanol	Kidney stone
3.	<i>Ageratum conyzoides</i>	Asteraceae	Sahadevi		Volatile oil, $\beta$ -caryophyllene	Kidney stone
4.	<i>Alhagi mamifera</i>	Fabaceae	Camels throne	Roots	Flavanone glycosides alhagitin and alhagidin	Kidney stone
5.	<i>Armoracia lopathifolia</i>	Brassicaceae	Horse radish	Seeds	Allyl isothiocyanate, glucosinolates sinigrin	Kidney stone
6.	<i>Boerhaavia diffusa</i> Linn.	Nyctaginaceae	Pathribaji	Root	Rotenoids, quinolone alkaloid, lunamarine	Kidney stone
7.	<i>Bryophyllum pinnatum roxb</i>	Crassulaceae	Pather kuchi	Leaf	Triterpenes, steroid, phenanthrene, flavonoid, bryophyllin a	Kidney stone
8.	<i>Barbarea vulgaris</i>	Brassicaceae	Rocket	Roots leaves	Gluconasturtiin in <i>b verna</i> and sinalbin	Kidney stone
9.	<i>Crateava religiosa</i>	Capparaceae	Varuna	Bark	Saponin and tannin	Kidney stone
10.	<i>Carica papaya</i> L.	Caricaceae	Papita	Whole plant	Benzyl isothiocyanates and benzyl glucosinates	Kidney stone
11.	<i>Capsella bursapastori</i>	Brassicaceae	Mother heart	Entire plant	Fumaric acid	Kidney stone
12.	<i>Cucumis sativus</i>	Cucurbitaceae	Cucu	Fruit, latex	Palmitic acid (8, 12.04%), palmitoleic acid (9, 0.09%)	Kidney stone
13.	<i>Ficus carica</i>	Moraceae	Fig, jaggadamur	Seed	Gallic acid, chlorogenic acid, syringic acid, (+) - catechin	Kidney stone
14.	<i>Hemidesmus indicus</i> Linn.	Asclepiadaceae	Anatmool	Whole plant	A-amyrin, $\beta$ -amyrin, its acetate and sitosterol.	Kidney stone
15.	<i>Helianthus anus</i>	Asteraceae	Surujmukhi	Leaf, flower, seed	Polyphenols, protein content, seeds, sunflowers, tannins	Kidney stone
16.	<i>Kalanchoe pinnata</i> Lam.	Crassulaceae	Amarpoi	Whole plant	Alkaloids, triterpenes, glycosides, flavonoids, cardenolides, steroids, bufadienolides	Kidney stone
17.	<i>Momordica charantia</i>	Cucurbitaceae	Karel	Fruit	Sterols, saponins	Kidney stone
18.	<i>Mangifera indica</i>	Anacardiaceae	Aam	Fruit	Monoterpenes, $\alpha$ -gurjunene	Kidney stone
19.	<i>Mentha pipertia</i>	Lamiaceae		Leaf	Menthol, menthone and carboxyl esters	Kidney stone
20.	<i>Mycrotoloma uniflorum</i>	Leguminosae	Kulthi	Seed, hole plant	Phenolic acids.	Kidney stone
21.	<i>Olea europaea</i>	Oleaceae		Leaves	Oleuropein	Kidney stone
22.	<i>Pimpinella anisum</i>	Apiaceae	Peppermint	Fruit	Protein: 18%, fatty oil: 8-23%, essential oil:	Kidney stone
23.	<i>Rosmarinus officinalis</i>	Lamiaceae	Rosemary	Leaves	P-cymene, linalool, gamma-terpinene	Kidney stone
24.	<i>Solanum lycopersicum</i> Linn.	Solanaceae	Tomato	Fruit	Sapogenine sarediosgenin, hispigenin, neochlorogenin	Kidney stone
25.	<i>Stereospermum coalis</i>	Bignoniaceae	Adakapari	Leaf	Stereospermum coalis	Kidney stone
26.	<i>Santalum album</i>	Santalaceae		hole plant	Palmitic and oleic acids	Kidney stone
















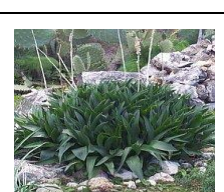






27.	<i>Tamarind indica</i>	Fabaceae	cocoa	fruit	Caffeic acid, ferulic acid, chloramphenicol, myricetin	Kidney stone
28.	<i>Eugenia maritime</i>			Leaf	Eugenol, $\beta$ -caryophyllene	Kidney stone
29.	<i>Urtica dioica</i>	Urticaceae	Sqill bulb	Bilb leaves	Carotenoids	Kidney stone
30.	<i>Zingiber officinale</i>	Zingiberaceae	Stingigng nettles	Roots	Terpenes and oleoresin, gingerol and shogaol	Kidney stone

**Table 2:** Medicinal Plant: Scientific Name, Family Name and Plant Parts Used

Botanical Name	Kingdom	unranked	Order	Family	Genus	Species	Uses part	Plant
<i>Achyranthes aspera</i> L.	Plantae	Angiosperms	Caryophyllales	Amaranthaceae	<i>Achyranthes</i>	<i>A. aspera</i>		
<i>Anacardium occidentale</i>	Plantae	Angiosperms	Sapindales	Anacardiaceae	<i>Anacardium</i> L.	<i>A. occidentale</i>		
<i>Ageratum conyzoides</i>	Plantae	Angiosperms	Asterales	Asteraceae	<i>Ageratum</i>	<i>A. conyzoides</i>		
<i>Alhagi mannifera</i>	Plantae	Angiosperms	Fabales	Fabaceae	<i>Alhagi</i>	<i>A. maurorum</i>		
<i>Armoracia lopathifolia</i>	Plantae	Angiosperms	Brassicales	Brassicaceae	G. Gaertn	<i>A. rusticana</i>		
<i>Boerhavia diffusa</i>	Plantae	Angiosperms	Caryophyllales	Nyctaginaceae	<i>Boerhavia</i>	<i>B. diffusa</i>		
<i>Bryophyllum pinnatum</i>	Plantae	Angiosperms	Saxifragales	Crassulaceae	<i>Bryophyllum</i>	<i>B. pinnatum</i>		
<i>Barbarea vulgaris</i>	Plantae	Angiosperms	Brassicales	Brassicaceae	<i>Barbarea</i>	<i>B. vulgaris</i>		
<i>Crateva religiosa</i>	Plantae	Angiosperms	Brassicales	Capparaceae	<i>Crateva</i>	<i>C. religiosa</i>		



<i>Carica papaya</i>	Plantae	Angiosperms	Brassicales	Caricaceae	<i>Carica</i>	<i>C. papaya</i>		
<i>Capsella bursa-pastoris</i>	Plantae	Angiosperms	Brassicales	Brassicaceae	<i>Capsella</i>	<i>C. bursa-pastoris</i>		
<i>Cucumis sativus</i>	Plantae	Angiosperms	Cucurbitales	Cucurbitaceae	<i>Cucumis</i>	<i>C. sativus</i>		
<i>Ficus carica</i>	Plantae	Angiosperms	Rosales	Moraceae	<i>Ficus</i>	<i>F. carica</i>		
<i>Hemidesmus indicus</i>	Plantae	Angiosperms	Gentianales	Apocynaceae	<i>Hemidesmus</i>	<i>H. indicus</i>		
<i>Helianthus annuus</i>	Plantae	Angiosperms	Asterales	Asteraceae	<i>Helianthus</i>	<i>H. annuus</i>		
<i>Bryophyllum pinnatum</i>	Plantae	Angiosperms	Saxifragales	Crassulaceae	<i>Bryophyllum</i>	<i>B. pinnatum</i>		
<i>Momordica charantia</i>	Plantae	Angiosperms	Cucurbitales	Cucurbitaceae	<i>Momordica</i>	<i>M. charantia</i>		
<i>Mangifera indica</i>	Plantae	Angiosperms	Sapindales	Anacardiaceae	<i>Mangifera</i>	<i>M. indica</i>		
<i>Mentha piperita</i>	Plantae	Angiosperms	Lamiales	Lamiaceae	<i>Mentha</i>	<i>M. piperita</i>		

<i>Macrotyloma uniflorum</i>	Plantae	Angiosperms	Fabales	Fabaceae	<i>Macrotyloma</i>	<i>M. uniflorum</i>		
<i>Olea europaea</i>	Plantae	Angiosperms	Lamiales	Oleaceae	<i>Olea</i>	<i>O. europaea</i>		
<i>Pimpinella anisum</i>	Plantae	Angiosperms	Apiales	Apiaceae	<i>Pimpinella</i>	<i>P. anisum</i>		
<i>Rosmarinus officinalis</i>	Plantae	Angiosperms	Lamiales	Lamiaceae	<i>Rosmarinus</i>	<i>R. officinalis</i>		
<i>Solanum lycopersicum</i>	Plantae	Angiosperms	Solanales	Solanaceae	<i>Solanum</i>	<i>S. lycopersicum</i>		
<i>Stereospermum tetragonum</i>	Plantae	Angiosperms	Lamiales	Bignoniaceae	<i>Stereospermum</i>	<i>S. tetragonum</i>		
<i>Santalum album</i>	Plantae	Angiosperms	Santalales	Santalaceae	<i>Santalum</i>	<i>S. album</i>		
<i>Tamarind indica</i>	Plantae	Angiosperms	Fabales	Fabaceae	<i>Tamarindus</i>	<i>T. indica</i>		
<i>Drimys maritima</i>	Plantae	Angiosperms	Asparagales	Asparagales	<i>Drimys</i>	<i>D. maritima</i>		
<i>Urtica dioica</i>	Plantae	Angiosperms	Rosales	Urticaceae	<i>Urtica</i>	<i>U. dioica</i>		
<i>Zingiber officinale</i>	Plantae	Angiosperms	Zingiberales	Zingiberaceae	<i>Zingiber</i>	<i>Z. officinale</i>		

## 7. Conclusion

Since history, medicative plants has wide acceptance because of an outsized no. of benefits like lesser noxious effects, safe, effective, cheap, less possibilities of repeat of malady, simply accessible in rural areas. There's no correct drugs in medical aid for the treatment of urolithiasis, and people medication are gift are having aspect effects. What is more the surgical operation is another choice however it's the more possibilities of repeat. So, medicative plants are thought of appropriate for the treatment of urinary organ stones. The current review containing data of urinary organ stones and plants used as antiurolithiasis agents, it'll facilitate in guiding the man of science to spot new supply of medicine for this ever prevailing human ill to beat the varied disadvantages round-faced by the wide selection of population now-a-days and find relieve from the malady.

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