

ANTI-UROLITHIATIC UNANI DRUGS – A REVIEW**Mohammad Shamim Khan^{1*}, Qamrul Hasan Lari² and Mahmood Ahmad Khan³**^{1*} Unani Medical Officer, Govt. Unani Dispensary, Kota, Rajasthan-324002, India.² Assistant Professor, Department of Kuliyat, State Takmeel-ut-Tib College, Lucknow, India.³ Unani Expert, TKDL, Unit Neeri, CSIR, New Delhi, India.Article Received on
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Kota, Rajasthan-324002,
India.**ABSTRACT**

Urolithiasis (Hisat-e-Bauliyah) is one of the most common urologic disorders that affect 15 % population worldwide and about 2.3% population of India. Despite the medical advancement for stone removal in the last three decades, the problem of recurrent stone formation still remains. Unani classical literatures have discussed in detail about the concept and cause of the formation of renal stone. Unani Medicine offers a vast scope for the treatment of urolithiasis. Since ancient time Unani physicians like Buqrat (Hippocrates), Jaleenoos (Galen), Ibn-e-Sina (Avicenna), Razi (Rhazus), Ibn-e-Zohr and Majoosi have successfully treated urolithiasis (Hisat-e-Bauliyah) through Ilaj Bid-Dawa (Pharmacotherapy), which contain

herboanimomineral source of medicine and have Litholytic, Lithotriptic, Diuretic, and nephroprotective properties. In the present paper, an attempt has been made to emphasize on anti-urolithiatic Unani single and pharmacopeal compound drugs used in treatment of urolithiasis (hisat-e-bauliyah).

KEYWORDS: Urolithiasis, Hisat-e-Bauliyah, Unani pharmacotherapy, Anti-urolithiatic, Unani pharmacopeal drugs.

INTRODUCTION

Since ancient times humankind is known to be suffering from urinary stone disease, which was first found in tombs of Egyptian mummies dating back to 4000 BC and in the graves of North American Indians from 1500- 1000 BC.^[1,2] Hippocrates in the 4th century BCE noted

renal stones together with a renal abscess and wrote in the Hippocratic oath ‘I will not cut the stone.’^[3]

Urolithiasis (*Hisat-e-Bauliyah*) is a term originated from three Greek words, ‘ouron’ for urine, ‘oros’ for flow, and ‘lithos’ for stone. It is referred to as the process of formation of stone in the Urinary system includes Nephrolithiasis (*Hisat-e-Kulyah*), Ureterolithiasis (*Hisat-e-Halib*) and Cystolithiasis (*Hisat-e-Masanah*).^[4]

Urolithiasis is a common urological disease that affects approximately 15 % population worldwide and about 2.3% population of India.^[5,6] It occurs in both the sexes but men are three times more prone than women. It is more prevalent in the 3rd and 4th decades of life.^[2,6]

Urolithiasis is a multicomplex process that results from supersaturation of solute in urine, nucleation, growth, aggregation and retention within the renal tubules.^[7] Supersaturation occurs when concentration of stone materials is higher in urine.^[8] There are many substances in the body known as promoters like Calcium, Sodium, Oxalate, Urate, Low urine pH, Tamm-Horsfall protein, Low urine volume, which promote the crystal growth, while inhibitors like Inorganic; Citrate, Magnesium, Pyrophosphate, Organic; Tamm-Horsfall protein (Glycoprotein), Urinary prothrombin fragment 1, Renal lithostathine, Glycosaminoglycans, Osteopontin (Uropontin), Nephrocalcin, High urine volume inhibit the crystal growth.^[7,9] Tamm-Horsfall protein is Promoter of nucleation and growth, inhibitor of aggregation.^[7] The occurrence of stone formation is also due to imbalance between the promoter and inhibitors in the kidney.^[10]

The major risk factors responsible for the nephrolithiasis are inadequate urinary drainage, microbial infections, diet with excess oxalates and calcium, vitamin abnormalities i.e.; deficiency of Vitamin-A, excess of vitamin D, metabolic diseases like hyperparathyroidism, cystinuria, gout, intestinal dysfunction and environmental factors related to regions with hot and dry climatic conditions.^[11]

TYPES OF STONE

According to chemical components approximately 80% of stones are composed of calcium oxalate stone (*Hisat-e-Tootiyah*) and calcium phosphate stone (*Hisat-e-Qaimooliyavi*); Calcium oxalate monohydrate (40-60%), Calcium oxalate dehydrate (40-60%), Calcium

hydrogen phosphate (brushite) (2-4%) Calcium orthophosphate (<1%).10% of uric acid and urate stone (*Hisat-e-Bauliyah*) are composed of pure uric acid or ammonium / sodium urate.^[12-14] 1% of struvite (magnesium ammonium phosphate produced during infection with bacteria that possess the enzyme urease), The remaining 1% of cystine stone (*Hisat-e-Zubaniyah*) contains sulphur.^[12-14] 1% of Xanthine stone (*Hisat-e-Layyinah*) is very rare.^[14] Mixed Stones (50-60%); Mixed calcium oxalate-phosphate (35-40%) Mixed uric acid-calcium oxalate (5%) is common.^[15]

UNANI CONCEPT

Ibn-e-Sina (980-1037 AD) described that “The stone is formed in the kidney by *Quvat-e-Fayelah* (active power) which is the raised temperature rather than the normal temperature of kidney, and *Maaddat-ul-Hisat* (lithic matter) which is a viscous and sticky substance, may be either phlegm or viscous blood or pus. When expulsive power of kidney become weak due to altered temperament, hot inflammation or ulcer, then inspite of excreting out they retained in the calyces of kidney. Thus the lithic substance dried by the *Quvat-e-Fayelah* (active power) of kidney to form crystal and gradually becomes stone.”^[16]

Jaleenoos (Galen) discussed that “Nephrolithiasis mostly caused by the ulcer of kidney, if pus is not passing out, it consolidates to form stone.”^[17]

Zakaria Razi (850-923 AD) stated that “The cause of nephrolithiasis is abnormal humors and the body excretes the abnormal humor in the form of viscid fluid which moves towards the kidneys and form crests that cause the stone formation. Recurrence of stone formation is common.”^[17]

According to Unani concept, the potential causes for urolithiasis are considered as weakness of kidney, thick & viscous humor, concentrated & sticky fluid, *Su-e-Mizaj Kulyah* (ill temperament of kidney), *Warm-e-Kulyah* (nephritis), *Qurooh-e-Kulyah* (kidney ulcer), weakness of expulsive power (*Quwwat-e-Dafey'ah*) of kidney and high virulent temperature.^[16-20]

CLINICAL PRESENTATIONS

Clinically urolithiasis is presented as typical symptoms of intermittent colicky flank pain that may radiate to the lower abdomen or groin, often associated with nausea and vomiting.^[17,21] Hematuria, pyuria and burning micturition may be occur. Lower urinary tract symptoms such

as dysuria, urgency, and frequency may occur as the stone enters the ureter.^[17,19,20] Small urinary calculi pass out of the body without any clinical intervention.^[22] The spontaneous passage rates of urinary stones ranges between 70-98% for small (≤ 5 mm) distal ureteric calculi.^[23] Stones greater than 5 mm almost always require urological intervention.

UNANI PHARMACOTHERAPY (ILAJ BID-DAWA)

In unani system of medicine the main aim of management for nephrolithiasis is to make morbid and abnormal humors easily extractible from the body through the excretory system.^[16-20] Standard pharmaceutical drugs used to prevent and cure urolithiasis are not effective in all cases, costly, quite common reoccurrences, risks of long term fertility, potential side effects. Surgical treatment like Extracorporeal shock wave lithotripsy causes long term renal damage, hypertension and reoccurrence of stones.^[10] References prove that litholytic unani drugs for treatment of renal stones are used since ancient periods before inventing modern therapy. Unani drugs are reported to be effective safe with no side effects. The recommended principles of treatment to control nephrolithiasis and to expel out the destroyed stones are illustrated as Taft-e-Hisat (Litholytic), Ikhraj-e-Hisat (Lithotriptic), Idrar-e-Baul (Diuresis), Tahleel-e-Waram (Resolution), along with Taqwiyat-e-Kulyah (Nephroprotective).^[14,16-20]

Mechanism of Action in Unani Pharmacotherapy

The drugs used in Unani system of medicine, act by allowing spontaneous passage of small calculi in urine by increasing the urinary volume, PH. The herbs also act by regulating oxalate metabolism, by maintaining balance between inhibitors and promoters of crystallization, anti-inflammatory activities.^[24] Unani drugs produce multiple mechanism of action such as litholytic activity which helps disintegration of large calculi into the smaller particles by forming of soluble complex, diuretic activity which increase the urinary volume that allows the easy passage of destroyed stone and small calculi out of the body in urine, lithotriptic activity Avoid binding mucin of calculi to prevent crystal aggregation to form a large stone)and anti-inflammatory activities helps to escape the symptoms of stone formation). Herbs act as nephroprotective by improving the renal function and inhibiting the different stages of stone formation by maintaining the balance between inhibitors and promoters of stone formation which help in reducing the re occurrence of renal calculi.^[16,17,19,20,25]

ANTI-UROLITHIATIC UNANI DRUGS

The drugs used for the treatment of urolithiasis in Unani system of medicine are mostly herbal or plants origin but some medicines of animals and mineral origin has been also used. Chief pharmacological actions of the drugs are involved as Mufattit-e-Hisat (Litholytic), Mukhrij-e-Hisat (Lithotriptic), Mudirr-e-Baul (Diuretic), Muhallil-e-Waram (Anti-inflammatory) and Muqawwi-e-Gurdah (Nephroprotective).^[14,16-20] Keeping in view of these above pharmacological properties, the unani drugs to be prescribed in urolithiasis, are as follows;

Table 1: List of Unani Single Drugs Used as anti-urolithiatic in Hisat-e-Bauliyah (Urolithiasis).^[14, 16-19, 26, 27]

Plants Origin				
Unani Name	Scientific Name	Family	Parts Used	Pharmacological Action
Aabnoos	<i>Diospyros ebenum</i> J. Koenig.	Ebenaceae	Sawdust	Litholytic
AaluBalu	<i>Prunus cerasus</i> Linn.	Rosaceae	Fruit	Lithotriptic, Diuretic
Afsanteen	<i>Artemisia absinthium</i> Linn.	Asteraceae	Leaves	Anti-inflammatory
Baladar	<i>Semicarpus anacordium</i> Linn.	Anacardiaceae	Fruit	Litholytic, Lithotriptic
Banafshah	<i>Viola odorata</i> Linn.	Violaceae	Root	Litholytic, Anti-inflammatory
Bhangrah	<i>Eclipta alba hasak</i> Linn.	Asteraceae	Whole Plant	Litholytic, Lithotriptic
Brinjasif	<i>Artemisia vulgaris</i> Linn.	Asteraceae	Whole Plant	Litholytic, Anti-inflammatory, Diuretic
Beekh-e-Hina	<i>Lawsonia inermis</i> Linn.	Lythraceae	Root	Litholytic
Beekh-e-Neil	<i>Ipomoea nil</i> Linn.	Convolvulaceae	Root	Litholytic
Beekh-e-Halyoon	<i>Asparagus officinalis</i> Linn.	Asparagaceae	Root	Diuretic, Thrombolytic, Litholytic, Lithotriptic
Beekh-e-Gh'ar	<i>Prunus laurocerasus</i> Linn.	Rosaceae	Root	Diuretic, Anti-inflammatory
Beekh-e-Badyan	<i>Foeniculum vulgare</i> Mill.	Apiaceae (Umbelliferae)	Seed	Diuretic
Charchatah	<i>Achyranthes aspera</i> Linn.	Amaranthaceae	Whole Plant	Diuretic
Dooqu	<i>Peucedanum grande</i> C. B. Clarke.	Apiaceae (Umbelliferae)	Fruit	Diuretic, Litholytic, Lithotriptic
Ghafis	<i>Agrimonia eupatoria</i> Linn.	Rosaceae	Flower	Diuretic, Anti-inflammatory
Habb-ul-Qilt	<i>Dolichos biflorus</i> Linn.	Fabaceae	Seed	Litholytic, Lithotriptic
Habb-e-Kaknaji	<i>Physalis alkekengi</i> Linn.	Solanaceae	Fruit	Diuretic, Litholytic, Lithotriptic
Habb-e-Balsan	<i>Commiphora opobalsamum</i> Linn.	Burseraceae	Fruit	Litholytic

Habb-ul-Gh'ar	<i>Prunus laurocerasus</i> Linn.	Rosaceae	Seed	Litholytic, Lithotriptic
Izkhar	<i>Andropogon schoeranthus</i> Linn.	Gramineae	Whole Plant	Litholytic
KababChini	<i>Piper cubeba</i> Linn.	Piperaceae	Fruit	Diuretic
Khar-e-khasak	<i>Tribulus terrestris</i> Linn.	Zygophyllaceae	Fruit	Litholytic
Kukraundah	<i>Blume abalsamifera</i> Linn. Dc.	Asteraceae	Leaves	Litholytic, Lithotriptic
Loban	<i>Styrax benzoin</i> Dryand.	Styracaceae	Gum	Diuretic
Luffah	<i>Luffa cutangula</i> Linn. Roxb.	Cucurbitaceae	Root	Anti-spasmodic
MashkatraMa shee'a	<i>Mentha pulegium</i> Linn.	Lamiaceae	Whole Plant	Diuretic, Lithotriptic
Mur	<i>Commiphora myrrha</i> (Nees) Engl.	Burseraceae	Gum	Litholytic
Muqil	<i>Commiphora mukul</i> (Stocks) Hook. Engl.	Burseraceae	Gum	Anti-inflammatory, Litholytic, Lithotriptic Thrombolytic
Nakhood-e-Syah	<i>Cicerarietinum</i> Linn.	Fabaceae	Fruit	Diuretic, Litholytic, Lithotriptic
Nagkesar	<i>Mesua ferrea</i>	Clusiaceae	Flower	Litholytic, Lithotriptic
Pakhan Bed	<i>Bergenia ligulata</i> (Wall.) Engl.	Saxifragaceae	Root	Diuretic
Post Beekh-e-Kibr	<i>Capparis spinosa</i> Linn.	Capparaceae	Peel of root	Litholytic, Lithotriptic
Poodinah	<i>Mentha spicata</i> Linn.	Lamiaceae	Whole Plant	Diuretic
Pursiyawa Shan	<i>Adiantumcapillus-veneris</i> Linn.	Pteridaceae	Whole Plant	Diuretic
Qurtum	<i>Carthamus tinctorius</i> Linn.	Asteraceae	Seed	Litholytic, Lithotriptic
Sa'ad Kofi	<i>Cyperus longus</i> Linn.	Cyperaceae	Root	Litholytic, Lithotriptic
Suddab	<i>Ruta graveolens</i> Linn.	Rutaceae	Leaves	Anti-inflammatory, Diuretic
Tukhm-e-Khurfa	<i>Portulaca oleracea</i> Linn.	Portulacaceae	Seed	Diuretic
Tukhm-e-Kasni	<i>Cichorium intybus</i> Linn.	Asteraceae	Seed	Anti-inflammatory, anti-bilious
Tukhm-e-Turab	<i>Raphanus sativus</i> Linn.	Brassicaceae	Seed	Diuretic, Litholytic, Lithotriptic
Tukhm-e-Karafs	<i>Apium graveolens</i> Linn.	Apiaceae	Seed	Litholytic, Lithotriptic
Tukhm-e-Khayar	<i>Cucumis sativus</i> Linn.	Cucurbitaceae	Seed	Diuretic, Lithotriptic
Tukhm-e-Gazar	<i>Daucus carota</i> Linn.	Apiaceae	Seed	Litholytic, Lithotriptic
Tukhm-e-Kharpazah	<i>Cucumi smelo</i> Linn.	Cucurbitaceae	Seed	Litholytic, Lithotriptic
Tukhm-e-Panwad	<i>Cassia tora</i> Linn.	Caesalpinaceae	Seed	Litholytic, Lithotriptic

Mineral Origin		
Unani Name	Medicinal Name	Pharmacological Action
Shibb-e-Yamani	<i>Alum</i>	Litholytic, Lithotriptic
Khakistar-e-Aabgeenah	<i>Burnt Crystal</i>	Lithotriptic, Diuretic
Hajr-ul-Yahood	<i>Lapis judaicus / Jews' Stone</i>	Diuretic
Jawakhar	<i>Potassium carbonate</i>	Litholytic, Lithotriptic
Sang-e-Sarmahi	<i>Fish stones</i>	Litholytic, Lithotriptic
ShorahQalmi	<i>Potassium nitrate</i>	Diuretic
Animal Origin		
Unani Name	Medicinal Name	Pharmacological Action
AqrabSokhtah	<i>Burnt Scorpion</i>	Litholytic
Asaafeer	<i>Sparrow</i>	Litholytic
Kharateen-e-Mas'hooq	<i>Earth worm</i>	Litholytic
Khakistar-e-Khargosh	<i>Burnt Rabbit</i>	Litholytic

Unani Pharmacopeal Compound Drugs; Qurs Kaknaj (Tablet), Qurs Kushtah Hajr-ul-Yahood (Tablet), Kushtah Hajr-ul-Yahood (Powder), Majun Hajr-ul-Yahood (Paste), Majun Aqrab (Paste), Majun Sang-e-Sarmahi (Paste), Sharbat Alu Balu (Syrup), Sharbat Buzoori Motadil (Syrup) and Jawarish Zaruooni (Paste) are used as curative and Jawarish Jaleenoos (Paste) is used as prophylaxis orally in hisat-e-kulyah (nephrolithiasis).^[28-32] Their constituents are as follows;

Table 2.1: Ingredients of Unani Pharmacopeal Compound Drugs ^[28-29]

Qurs Kaknaj		
Name of Unani Drugs	Scientific Name	Parts Used
Aslussoos	<i>Glycyrrhiza glabra</i> Linn.	Rhizomes
Behdana	<i>Cydonia oblonga</i> Mill.	Seeds
Tukhm Khubbazi	<i>Malva sylvestris</i> Linn.	Seeds
Tukhm Khurfa	<i>Portulaca oleracea</i> Linn.	Seeds
Tukhm Khashkhash	<i>Papaver somniferum</i> Linn.	Seeds
Tukhm Khatmi	<i>Althaea officinalis</i> Linn.	Seeds
Habb-e-Kaknaj	<i>Physalis alkekengi</i> Linn.	Seeds
Kateera	<i>Cochlospermum religiosum</i> Linn.	Gums
Gond Safaid	<i>Acacia Arabica</i> Lam.	Gums
Maghz-e-Kharbooza	<i>Cucumis melo</i> Linn.	Kernels
Maghz-e-Kaddu	<i>Cucurbita moschata</i> Duch.	Kernels
Nishasta Gandum	<i>Triticum aestivum</i> Linn.	Seeds
Kushta Hajrul Yahood		
Hajrul Yahood	<i>Lapislazuli</i>	Crystal
Shora Qalmi	<i>Potassium nitrate</i>	Crystal
Aab-e-Turab	<i>Rafanus sativus</i> Linn.	Root's juices

Table 2.2: Ingredients of Unani Pharmacopeal Compound Drugs.^[28-29]

Majun Hajr-ul-Yahood		
Name of Unani Drugs	Scientific Name	Parts Used
Maghz-e-Tukhm-e-Kharbooza	<i>Curcumis melo</i> Linn.	Seed's kernels
Habb-e-Kaknaj	<i>Physalis alkekengi</i> Linn.	Seeds
Maghz-e-Tukhm-e-Kaddu	<i>Cucurbita moschata</i> Duch.	Seed's kernels
Maghz-e-Tukhm-e-Khayarain	<i>Curcumis sativus</i> Linn.	Seed's kernels
Hajrul Yahood	<i>Lapislazuli</i>	Crystal
Majun Aqrab		
Beikh-e-Kaknaj	<i>Physalis alkekengi</i> Linn.	Roots
Juntyana Roomi	<i>Gentiana lutea</i> Linn.	Roots
Jundbedastar / Khazmeyaan	<i>Castorium / Beaver</i>	Exudate from castor sacs
Aqrab Sokhtah	<i>Burnt Scorpion</i>	Whole Parts
Filfil Safed	<i>Piper nigrum</i> Linn	Fruits
Filfil Siyah	<i>Piper nigrum</i> Linn.	Fruits
Zanjabeel	<i>Zingiber officinalis</i> Roscoe	Rhizomes
Shahad-e-Khalis	Pure Honey	Honey
Majun Sang-e-Sarmahi		
Sang-e-Sarmahi	Fish stones	Whole Part
Hajrul Yahood	<i>Lapislazuli</i>	Crystal
Maghz-e-Tukhm-e-Kharbooza	<i>Cucumis melo</i> Linn.	Seed's kernels
Maghz-e-Alu Balu	<i>Prunus cerasus</i> Linn.	Fruits
Habb-ul-Qilt	<i>Dolichosbiflorus</i> Linn.	Fruits
Badyan	<i>Foeniculumvulgare</i> Mill.	Seeds
Tukhm-e-Kasoos	<i>Cuscuta reflexa</i> Roxb.	Seeds
Shahad	Honey	Honey

Table 2.3: Ingredients of Unani Pharmacopeal Compound Drugs^[28-29]

Sharbat Alu Balu		
Name of Unani Drugs	Scientific Name	Parts Used
Alu Balu	<i>Prunus cerasus</i> Linn.	Fruits
Qand Safed	Sugar	Crystals
Sharbat Buzoori Motadil		
Tukhm-e-Kasni	<i>Cichorium intybus</i> Linn.	Seeds
Tukhm-e-Kheyar	<i>Cucumis sativus</i> Linn.	Seeds
Tukhm-e-Kheyarzah	<i>Cucumis sativus</i> Linn.	Seeds
Tukhm-e-Kharbooza	<i>Curcumis melo</i> Linn.	Seeds
Bekh-e-Badyan	<i>Foeniculum vulgare</i> Mill.	Roots
Bekh-e-Kasni	<i>Cichorium intybus</i> Linn.	Roots
Qand-e-Safed	Sugar	Crystals

Table 2.4: Ingredients of Unani Pharmacopeal Compound Drug.^[28-29]

Jawarish Zaruooni Sada		
Name of Unani Drugs	Scientific Name	Parts Used
Tukhm-e-Gazar	<i>Daucus carota</i> Linn.	Seeds
Tukhm-e-Karafs	<i>Apium graveolens</i> Linn.	Seeds
Tukhm-e-Ispast	<i>Trifolium alexandrinum</i> Linn.	Seeds

Maghz-e-Tukhm-e-Khayarain	<i>Cucumis sativus</i> Linn.	Seeds
Maghz-e-Tukhm-e-Kharbooza	<i>Cucumis melo</i> Linn.	Seeds
Post beikh-e-Karafs	<i>Apium graveolens</i> Linn.	Root's peel
Nankhwah	<i>Ptychotis ajowan</i> DC.	Seeds
Badyan	<i>Foeniculum vulgare</i> Mill.	Seeds
Qaranfal	<i>Eugenia caryophyllata</i> Thunb.	Flower Bud
Filfil Siyah	<i>Piper nigrum</i> Linn.	Fruits
Aqarqarha	<i>Anacyelus pyrethrum</i> Linn.	Roots
Darchini	<i>Cinnamomum zeyanicum</i> Blume	Barks
Zafran	<i>Crocus sativus</i> Linn.	Stigma
Mastagi	<i>Pistacia lentiscus</i> Linn.	Resins
Uood Kham	<i>Aquilaria agallocha</i> Roxb.	Wood
Bisbasah	<i>Myristica fragrans</i> Hott.	Fruit's Peel (Dried)
Shahad Khalis	Pure Honey	Honey

Table 2.5: Ingredients of Unani Pharmacopeal Compound Drug.^[28-29]

Jawarish Zaruooni Ambari Ba Nuskha Kalan		
Name of Unani Drugs	Scientific Name	Parts Used
Salab Misri	<i>Orchis latifolia</i> Linn.	Roots
Magze-e-Sar-e-Kunjshak	Sparrow	Brain
Kharateen Musaffa	Purified Earthworm	Whol Part
Khar-e-Khasak	<i>Tribulus terrestris</i> Linn.	Fruits
Khurma	<i>Phoenix dactylifera</i> Linn.	Fruits
Chiraitah Shirin	<i>Swertia angustifolia</i> Buch.-Ham. ex D. Don	Whole Plant
Tukhm-e-Karafs	<i>Apium graveolens</i> Linn.	Seeds
Tukhm-e-Gazar	<i>Daucus carota</i> Linn.	Seeds
Tukhm-e-Shaljam	<i>Brassica rapa</i> Subsp.	Seeds
Tukhm-e-Shibbat	<i>Anethum sowa</i> Kutz.	Seeds
Tukhm-e-Khayarain	<i>Cucumis sativus</i> Linn.	Seeds
Tukhm-e-Kharbooza	<i>Cucumis melo</i> Linn.	Seeds
Habb-ul-Qilqil	<i>Cardiospermum</i> Linn.	Seeds
Habb-uz-zelam	<i>Cyperus esculentus</i> Linn.	Seeds
Nankhwah	<i>Ptychotis ajowan</i> DC.	Seeds
Badyan	<i>Foeniculum vulgare</i> Mill.	Seeds
Maghz-e-Chilggozah	<i>Pinus gerardiana</i> Wall. ex D. Don	Fruits
Maghz-e-Narjeel	<i>Cocosnucifera</i> Linn..	Kernels
Beikh-e-Karafs	<i>Apium graveolens</i> Linn.	Roots
Ambar ash'hab	Ambergris	Whole part
Mushk khalis	Musk	Glandular Substance
Qaranfal	<i>Eugenia caryophyllata</i> Thunb.	Flower Bud
Javitri	<i>Myristica fragrans</i> Houtt.	Fruit's Peel (Dried)
Ja'yefal	<i>Myristica fragrans</i> Henlt.	Fruits
Filfil Siyah	<i>Piper nigrum</i> Linn.	Fruits
Aqarqarha	<i>Anacyclus pyrethrum</i> Linn.	Roots
Kababah khandan	<i>Zanthoxylum alatum</i> Roxb.	Fruits
Zanjabeel	<i>Zingiber officinalis</i> Roscoe	Rhizomes
Gul-e-Surkh	<i>Rosa Damascus</i> Mill.	Flowers
Saleekhah	<i>Cinnamomum aromaticum</i> (bark)	Bark

Filfil Daraz	<i>Capsicum annum</i> Linn.	Fruits
Tukhm-e-Ispat	<i>Trifolium alexandrinum</i> Linn.	Seeds
Tukhm-e-Jarjeer	<i>Eruca sativa</i> Mill.	Seeds
Tukhm-e-Piyaz	<i>Allium cepa</i> Linn.	Seeds
Tukhm-e-Gandana	<i>Allium ampeloprasum</i> Linn.	Seeds
Habb-ur-Rashad	<i>Lepidium sativum</i> Linn.	Seeds
Tukhm-e-Anjarah	<i>Astragalus sarcocolla</i> Dymock	Seeds
Zafran	<i>Crocus sativus</i> Linn.	Stigma
Kundur	<i>Boswellia</i> Roxb.	Gums
Mastagi	<i>Pistacia lentiscus</i> Linn.	Resins
Uood	<i>Aquilaria agallocha</i> Roxb.	Wood
Bahman Safed	<i>Centaurea behen</i> Linn.	Roots
Bahman Surkh	<i>Salvia haematodes</i> Wall.	Roots
Bozeedan	<i>Pyrethrum indicum</i> Linn.	Roots
Shaqaqul	<i>Pastinaca secacul</i> Linn.	Roots
Inder Jau Shirin	<i>Wrightia tinctoria</i> Roxb.	Seeds
Qand safed	Sugar	Crystals

Table 2.6: Ingredients of Unani Pharmacopeal Compound Drug.^[28-29]

Jawarish Jaleenoos		
Name of Unani Drugs	Scientific Name	Parts Used
Sunbul-ut-Teeb	<i>Valeriana officinalis</i> Linn.	Whole plant
Heel-e-khurd	<i>Elettaria cardamomum</i> Linn.	Fruits
Khurfah	<i>Portulaca oleracea</i> Linn.	Seeds
Saleekha	<i>Cinnamomum aromaticum</i> (bark)	Bark
Darchini	<i>Cinnamomum zeyanicum</i> Blume	Barks
Khulanjan	<i>Apinia galangel</i> Willd.	Stems
Qaranfal	<i>Eugenia caryophyllata</i> Thunb.	Flower Bud
Sa'd Koofi	<i>Cyperus longus</i> Linn.	Roots
Zanjabeel	<i>Zingiber officinalis</i> Roscoe	Rhizomes
Filfil Siyah	<i>Piper nigrum</i> Linn.	Fruits
Filfil Daraz	<i>Capsicum annum</i> Linn.	Fruits
Qust Shirin	<i>Saussurea lappa</i> C.B.clark	Roots
Uood-e-Balsan	<i>Commiphora opoballamum</i> Linn.	Woods
Asaroon	<i>Asarum europaeum</i> Linn.	Roots
Habb-ul-Aas	<i>Myrtus communis</i> Linn.	Fruits
Chiraitah Shirin	<i>Swertia angustifolia</i> Buch-Ham.	Whole Plant
Zafran	<i>Crocus sativus</i> Linn.	Stigma
Mastagi	<i>Pistacia lentiscus</i> Linn.	Resins
Qand-e-Safed	Sugar	Crystal

Table 2.7: Ingredients of Unani Pharmacopeal Compound Drug.^[28-29]

Iksir-e-Gurdah		
Name of Unani Drugs	Scientific Name	Parts Used
Shorah Qalmi	<i>Potassium nitrate</i>	Crystals
Jawa Khar	<i>Potassium carbonate</i>	Crystals
Naushadar	<i>Ammonium chloride</i>	Crystals

Namak Siyah	Black Salt/Sodium sulphate mixed with sodium chloride	Crystals
Namak Lahauri	Rock salt / Indian rock salt	Crystals
Namak-e-Turab	<i>Raphanus sativus</i> Linn.	Crystals
Namak-e-Charchatah	<i>Achyranthus aspera</i> Linn.	Crystals
Tinkar / Booraq	Borax	Crystals
Hilteet	<i>Ferula foenida</i> Regal.	Exudates
Filfil Siyah	<i>Piper nigrum</i> Linn.	Fruits
Sirkah	Vinegar {acetic acid (CH ₃ COOH)+water}	Fermented Liquids

Scientific Studies

Few scientific studies are illustrated below regarding anti-urolithiatic unani drugs.

Johansson et al (1982) reported that Hazrool Yahoood Bhasma (kushtah) is a rich source of Magnesium hydroxide [Mg(OH)₂] which react with Calcium Oxalate Calculus and forms Magnesium oxalate soluble complex.^[33] This process helps disintegration of large calculi into the smaller particles.

Rao et al reported (1982) that Yahoood Hajrul Bhasam (kushtah) increases the level of inhibitor, decreases the level of promoters and growth of calcium oxalate crystals.^[34]

Chaudhary et al (2013) reported that Khar-e-Khasak, Berg-e-Suddab with Sharbat-e-Alu-Balu is safe and effective in the treatment of Hisat-ul-Kuliyah as it significantly decreases the size of stone, number of stones and urinary crystal excretion.^[35]

Ara et al (2015) showed that Majoon Aqrab and Sharbat Alu Balu are safe and effective in not only reducing the size of stones but is also effective in eliminating the stones. About 60% patients treated with Majoon Aqrab and Sharbat Alu Balu, passed stones within the treatment period (3 months) and became symptom free.^[36]

Aziz et al (2011) revealed that Sharbat Buzuri Moatadil has a significant citriuric effect. It is an anti-urolithiatic agent and can prevent the recurrence stone formation by forming soluble calcium compound with citric acid. It also has alkalizing effect.^[37]

It is reported that the whole fruit extract of *C. sativus* hastened the process of dissolving the stones in curative regimen and reduced stone formation when used as prophylactic treatment. Elevated levels of oxalate in urine and even its retention in kidney may be one of the causative factors for the peroxidative degeneration of renal epithelial. However, the preventive and curative treatment with ethanolic whole fruit extract of *C. sativus* prevents oxalate induced lipidperoxidation and causes regeneration of renal epithelium.^[38]

In a study by Vargas et al (1999), the aqueous extract of the bark of *Raphanus sativus* was tested for its antiurolithiatic and diuretic activities. Urolithiasis was experimentally induced by the implantation of zinc disc in the urinary bladder of rats. Significant decrease in the weight of stones was observed after the treatment in the animals that received aqueous extract in comparison with control groups. This extract showed an increase in the 24 h urine volume as compared to the control. They supposed that the antiurolithiatic effect of *Raphanus* is perhaps because of its diuretic effect.^[39] We believe some of the antiurolithiatic effects of *Raphanus* are due to its possible effect on urinary pH.^[39]

It was observed that fourteen patients with renal calculi and 16 patients with ureteric calculi have been treated with the herbomineral combination containing *Bergenia ligulata* and *Tribulus terrestris*. 28.57% of patients with renal calculi and 75% patients with ureteric calculi passed their calculi completely and in other patients there was a marked or partial expulsion of calculi along with changes in the shapes and sizes of calculi.^[40]

Experimental studies carried out on *Crataeva nurvala*, *Tribulus terrestris* and *Dolichos biflorus* showed them to be effective in preventing the deposition of stone material on glass beads in the urinary bladder of rats.^[41] All the three plants were shown to dissolve phosphate type of calculi in an in vitro model, whereas oxalate, uric acid and cystine stones were not dissolved by *C. nurvala* and *D. biflorus* extracts. *T. terrestris* dissolved uric acid and cystine stones to some extent. Clinical studies carried out on *C. nurvala* showed that it changes the urinary chemistry of patients and thus it reduces the Lithogenic potential.^[42]

The seeds of *Dolichos biflorus* and rhizomes of *Bergenia ligulata* were tested for their in vitro antilithiatic and anticalcification activity by the homogenous precipitation method. The extracts were compared with an aqueous extract of cystone (a marketed preparation) for their activities. Also a combination of the extracts of the two plants was tested. Extracts of *Dolichos biflorus* showed activity almost equivalent to cystone while *Bergenia ligulata* showed less activity and the combination was not as active as the individual extracts.^[43]

The aqueous extract of *Raphanus sativus* showed antilithiatic activity on implants of calcium oxalate crystals or zinc discs in the urinary bladder of rats. The effect however is unrelated to increased diuresis or to a change of the muscarinic receptor affinity of the bladder smooth musculature to cholinergic ligands.^[44]

CONCLUSION

As evident from the above review, Unani drugs play an important role in urolithiasis by crushing the stone, excreting out the crystals and preventing from recurrence of stone in urinary system as therapeutic as well as prophylaxis. There is an extensive need to develop trust and faith towards the safer Unani system of medicine by establishing its validity in treatment for kidney stone diseases.

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