

# Herbal and Nutritional Treatment of Kidney Stones

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The development of urinary calculi or kidney stones is known as urolithiasis or nephrolithiasis. It is considered one of the most painful conditions known to man. In industrialized countries, approximately 10-12% of the population will develop kidney stones. Over the last few decades the incidence of kidney stones has increased and the age of onset for this condition has decreased. Diet and lifestyle may explain this phenomenon. Men (12%) are more likely than women (6%) to develop kidney stones and the first incidence of stones usually occurs between 20-40 years of age. The earlier the onset of the first episode, the more likely a person will be a multiple stone former. People of European descent are much more likely to develop stones than are Africans, African-Americans and Native Americans. In people who have already had a kidney stone, approximately 50% will develop another stone within 5 years. Increased body mass (obesity) is also a significant risk factor for developing renal stones.

There are 5 primary types of stones. The most common are calcium oxalate or calcium phosphate stones and they account for 80-85% of all stones. Diet (oxalate and phosphate consumption and excess sodium) may play a role in forming calcium stones, but lack of fluids and underlying metabolic problems such as hypercalciuria (excess urinary calcium), hyperoxaluria (excess urinary oxalate), and hypocitraturia (lack of urinary citrate) are most likely the primary causes.

Uric acid stones are usually formed in people with gout or gouty arthritis. They can also form in patients with chronic diarrhea caused by Crohn's Disease and ulcerative colitis. The loss of fluids and bicarbonate causes increased uric acid precipitation. Other causes include lead poisoning, long-term fasting, binge drinking, diabetes and insulin resistance. Uric acid stones can often be dissolved by alkalinizing the urine (citrate or sodium bicarbonate is used), along with increased water consumption. The drug Allopurinol is also used to reduce uric acid excretion via the kidneys.

Struvite stones are caused by chronic urinary tract infections which elevate urinary pH, which allows for bacteria growth. Certain bacteria known as urea-splitting bacteria (*Klebsiella*, *Pseudomonas* and *Proteus*) are the primary pathogens responsible for this type of urinary stone. Certain structural or functional abnormalities of the urinary tract can also promote the formation of struvite stones, including diverticuli, strictures of the bladder and neurogenic bladder. Women are more likely to develop this type of stone than men, and they can be very large.

Cystine stones are relatively uncommon, they are caused by a rare genetic abnormality known as cystinuria. This condition causes large amounts of the amino acid cystine to be excreted and the onset of this type of stone often occurs in childhood or the early teen years. This type of stone can sometimes be dissolved and future stones prevented by drinking copious amounts of water (minimum 4 liters per day, ideally 5-7 liters per day). Two medications, 2-alpha-mercaptopyrionyl-glycine (2-alpha MPG) and penicillamine are also used to help prevent cystine stone formation.

One other type of renal stone is caused by long-term



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treatment with certain medications. It is believed that 1-2% of kidney stones are drug-induced. A number of pharmaceutical medications including the antiretroviral medication Indinavir, triamterene (a diuretic), sulfadiazine (an antibiotic) (Daudon & Jungers, 2004), as well as ephedrine and guaifenesin (Bennett, et al, 2004) are known to cause kidney stones.

The symptoms of kidney stones can range from asymptomatic to mild urinary frequency and discomfort to severe colicky pain in the abdomen, groin, and lower back. When stones are passing through the ureter it can cause hematuria, severe pain, nausea, vomiting, diarrhea, sweating and tachycardia. In severe cases kidney stones can cause urinary obstruction, kidney infections, and scarring and damage to the kidneys.

Orthodox treatment of kidney stones is somewhat limited, relying on oral (Percocet, Vicodin, Percodan) or IM (Toradol, Demerol) analgesic medications to relieve discomfort as smaller stones pass. In an emergency with acute pain, immersion in a hot tub or hot bath or localized warming of the abdomen and lower back can significantly reduce pain and nausea (Kober, et al, 2003). Larger stones that cannot pass are either broken up with extracorporeal shockwave lithotripsy (ESWL) or are removed via ureteroscopy or using a surgical technique known as percutaneous nephrolithotomy. There are potential risks with all of these therapies and prevention of future stones is highly desirable.

## Prevention of Kidney Stones

### Liquids

The single most important thing kidney stones sufferers can do to prevent future stones is to increase water consumption enough so that the person excretes at least 2 quarts of urine per day (approximately 10 glasses of fluids per day). Water is more effective than many other fluids and it is generally recommended that no more than one or two 8 oz. servings of colas be consumed daily (cola beverages reduced urinary citrate levels and most contain phosphoric acid which promotes stone formation). Orange juice and pomegranate juice have also been shown to be effective in preventing stone formation. Fresh tomato juice (freshly juiced with no added salt)

was found to be a rich source of citrate and magnesium, while being low in sodium. It is believed freshly made tomato juice will also inhibit stone formation (Yilmaz, et al, 2008). Research also indicates lemon juice (about ½ cup per day) helps to prevent kidney stone formation (Touhami, et al, 2007; Aras, et al, 2008). Grapefruit and apple juices actually increased risk of stone formation (one 8 oz. glass per day increased stone formation by 39-44%). In human studies, three 8 oz. cans of soda per week increased stone formation by 15% (Science News, 1996). Cranberry juice and capsules increased oxalate levels in urine so should be avoided by people with calcium oxalate stones, but because it helps prevent UTI's it should be consumed by patients who form struvite stones.

There are mixed studies on the benefits or risks associated with drinking coffee, tea, caffeinated beverages and wine or beer. Some sources say beer should be avoided for people with uric acid stones (it is high in purines). Other sources say black tea (high in oxalates) and caffeinated beverages should be avoided. Contradicting this advice is a study in the American Journal of Epidemiology that found every 8 oz. of coffee consumed reduced the risk of stone formation by 10%, for tea 14%, for beer 21%, and for wine 39% (Curhan, et al, 1996). Excessive alcohol consumption, i.e., binge drinking is associated with increased risk of developing kidney stones.

### Diet

According to numerous studies, increasing daily fluid intake and reducing salt are probably the 2 most important preventative measures for stone producers (Un, MD, 2002). The role of animal protein and calcium in the diet and stone formation is not entirely clear. While lowering animal protein and salt decreased stone formation, changing the diet from animal to vegetable protein had no discernable preventative effect (Taylor, et al, 2004). There is evidence that very high protein diets, such as the Atkins diet, do increase risk of oxalate and uric acid stones and only diets almost devoid of animal protein had a significant impact on preventing stone reoccurrence.

In a 2002 study (Borghesi, et al, 2002), men with calcium oxalate stones who also had hypercalciuria (high levels of urinary calcium) who were put on a low

protein and low sodium diet had a major reduction in the formation of new stones, compared to men who had a low calcium diet. Reduction of sodium seems to play a much bigger role in preventing stones than the protein reduction. Dietary calcium has been shown to bind oxalates and low calcium diets do not prevent kidney stones. Supplemental calcium (more than 2000 mg per day) was found to increase the risk of stones by 20%, but less than 1200 mg per day is actually believed to have a protective effect (Williams, et al, 2001).

When someone finds they have kidney stones, the first thing they are told is to avoid dietary oxalates (see chart #1). The evidence for this is unclear and some studies suggest that when oxalates bind with calcium they actually help protect against stone formation. There is only really good evidence for avoiding oxalates in patients with chronic diarrhea causing malabsorption syndromes.

Increased dietary fiber especially grains and legumes rich in phytates seem to help prevent crystallization of oxalate and phosphate calcium salts. This offers a protective effect against calcium stone formation. In women, higher levels of dietary phytates helped prevent kidney stones (Curhan, et al, 2004). Evidence also suggests that Eicosapentaenoic Acid (EPA) found in salmon and other deep-sea fish, may help prevent stone formation. In a Japanese study 88 men and women were given 1800 mg of EPA per day. After 18 months, test subjects had reduced urinary calcium excretion as well as lowered triglycerides, total serum cholesterol and phospholipids (Yasui, et al, 2001 & 2008).

### Dietary supplements and kidney stones

**B-6** – a dose of 50-100 mg per day of B-6 helps prevent formation of calcium oxalate stones (Marz, 1999).

**Calcium** – see dietary prevention of kidney stones.

**Fish oils/EPA** – see dietary prevention of kidney stones.

**Flavonoids** – two common flavonoids, catechin and epicatechin, strongly decreased calcium deposition in rat kidneys. The authors of the study speculate that the antioxidant activity of these substances inhibited peroxidative damage to the renal tubular membrane

Chart #1

Foods & Herbs High in Oxalates (* very high)	Foods & Herbs with Moderate Oxalate Levels
Beets*	Celery
Beet greens*	Green Beans
Swiss chard*	Scallions
Lamb's quarters*	Oranges
Amaranth	Green Peppers
Cocoa powder	Chocolate
Purslane*	Pecans
Rhubarb*	Black tea
Spinach*	Peanuts
Yellow Dock*	Hazelnuts
Tahini	Cinnamon
Almonds	Turmeric
Dried figs	Apples
Poke greens*	Brussels Sprouts
Endive	Strawberries
Dandelion greens	Raspberries
Okra	Carrots
Sweet Potatoes	Potatoes
Kale	Parsnips
Peanuts	Wheat germ
Sorrel*	Cashew nuts (raw)
Buckwheat*	Okra
Sesame Seeds	Blueberries
Miso	Figs

surface (Grases, et al, 2008).

**L-Arginine** – oral L-Arginine increases urinary citrate and decreases urinary calcium oxalate in animal studies (Pragasom, et al, 2005). It prevented renal epithelial damage and protein oxidation in the test animals.

**Magnesium** – men who consumed higher levels of dietary or supplemental magnesium had reduced risk of developing kidney stones (Taylor, et al, 2004). Magnesium decreases oxalate absorption and urinary excretion (DaSavaraj, et al, 2007; Marz, 1999). The usual dose of magnesium for stone prevention is 400-600 mg per day.

**Potassium citrate** – oral potassium citrate supplementation has been shown to help prevent kidney stone formation. Recent studies also found that epileptic

children put on a high fat ketogenic diet (it helps prevent seizures, but increases risk of kidney stones) could avoid developing stones if given this supplement when starting the diet (McNally, et al, 2009). Higher levels of potassium were also associated with decreased risk of kidney stones in men (Taylor, et al, 2004).

**Probiotics** – the use of lactic acid probiotics can reduce oxalate production via their ability to metabolize oxalates (Siva, et al, 2009).

***Berberis vulgaris*  
(barberry)**

**Vitamin C** – high levels of vitamin C (1,000 mg per day), was associated with a greater risk of developing kidney

stones than in men who took low levels of vitamin C (Taylor, et al, 2004).

**Vitamin D** – High doses of this important vitamin have been linked to increased formation of calcium kidney stones in people with hyper-parathyroidism.

**Vitamin E** – in animal studies vitamin E inhibited calcium oxalate crystal formation (Huang, et al, 2006). In human epidemiological studies low levels of vitamin E were associated with a higher risk of stone formation.

**Vitamin K** – people with higher amounts of vitamin K have a lower incidence of kidney stones. Vitamin K was found to inhibit calcium oxalate formation. A dose of 2 mg per day is desirable.

### Herbs for prevention of urolithiasis

**Barberry root bark (*Berberis vulgaris*)** - in animal studies Barberry was found to inhibit calcium oxalate crystallization and prevent kidney damage caused by oxidative stress. The water extract was the most effective preparation (Bashir, et al, 2010).

**Dose:** Tea: 1 tsp. dried root bark to 10 oz. water, decoct 10-15 minutes, steep ½ hour, take 4 oz BID/TID

**Black cumin seed (*Nigella sativa*)** – in animal studies the use of this herb significantly protected test animals against experimentally induced formation of calcium oxalate stones (Hadizadeh, et al, 2007).

**Dose:** Tea: ½ tsp. dried seed, 8 oz. hot water, steep covered 20 minutes, take 4 oz. BID/TID

**Chanca Piedra/Stonebreaker (*Phyllanthus niruri*)** – is native to the tropics and has a long history of use for helping to prevent and pass kidney stones. In several in vitro and animal studies, daily intake of this herb helped to prevent the formation of kidney stones (Freitas, et al, 2002). In a human study this herb was found to reduce urinary calcium levels in patients with hypercalciuria (Nishiuria, et al, 2004). It also slowed the growth of already existing stones (Barrlos, et al, 2006).

**Dose:** Tea: 1-2 tsp. dried herb, 8 oz. hot water, steep ½ hour. Take 2-3 cups per day.

Tincture (1:5): 3-6 ml (60-120 gtt.) TID



Medical Botany, William Woodville, courtesy of Roy Upton

Helen Lowe Metzman

**Evening primrose seed oil (*Oenothera biennis*)** - in a human study, daily ingestion of EPO (1000 mg per day) significantly increased citraturia (urinary citrate levels) while reducing urinary oxylate, calcium and the Tiselius risk index, which is a measurement of risk for forming kidney stones (Rodgers, et al, 2009).

**Dose:** Tea: 2 tsp. dried leaf, 8 oz. hot water, steep 45 minutes, take 8 oz. BID  
Tincture (1:5): 1.5-3 ml TID

**Fagolitas** – is a Spanish herbal formula containing fluid extracts of Uva Ursi, Corn Silk, Ricinus zanzibarensis, tincture of Saw Palmetto, mother tincture of Buchu, glycerin and Anise essence. Animals given this formula had significantly reduced papillary and intratubular calcification in the kidneys (Grases, et al, 2008)].

**Fenugreek seed (*Trigonella foenum-graecum*)** – the seeds of this herb are commonly used in northern Africa to prevent and treat kidney stones. In an animal study it was found that Fenugreek seed significantly reduced calcification in the kidney and helped prevent kidney stones (Lasonbi, et al, 2007).

**Dose:** Tea: 1-2 tsp. dried seed, 10 oz. water, decoct for 15-20 minutes, steep 30 minutes, take 4-6 oz. TID  
Tincture (1:5): 2-4 ml (40-80 gtt.) TID

**Gokshura fruit/root (*Tribulus terrestris*)** – this herb is an Ayurvedic rasayana, nephroprotective agent, and is commonly used in India and China to treat urinary tract disease. In animal studies it prevented the formation of kidney stones and may have even helped to reverse early stage urolithiasis (Williamson, 2002). In vitro research supports the animal data and further suggest that Tribulus also protects against calcium oxylate-induced renal injury (Aggarwal, et al, 2010).

**Dose:** Powder: ½ - 1 tsp. TID

**Hibiscus flowers (*Hibiscus sabdariffa*)** – in animal studies, Hibiscus was able to increase urinary oxylate excretion and it significantly reduced oxylate deposition in the test animals kidneys (Wooltisin, et al, 2011). In a human study of people who had previously had kidney stones, Hibiscus tea (2 cups per day) increased oxylate and uric acid excretion and enhanced urinary citrate

levels (Prasongwatana, et al, 2008).

Tea: 1-2 tsp. dried flowers, 8 oz. hot water, steep for 20 minutes, take 8 oz. BID/TID  
Tincture (1:2 or 1:5): 2-4 ml TID

**Jin Qian Cao herb (*Desmodium styracifolium*)** – this Chinese herb inhibits urinary calcium excretion and increases urinary citrate, significantly reducing formation of renal stones (Hirayama, et al, 1993).

**Dose:** Tea: 2-3 tsp. dried herb, 8 oz. hot water, steep 40 minutes. Take 2-3 cups per day.

**Rose hips (*Rosa canina*)** – in an animal study, test animals were given an infusion of Rose hips, Rose hips and magnesium, or magnesium alone. Both the herb and the mineral promoted an increase in urinary citrate and reduced urinary calcium excretion (Grases, et al, 1992).

**Dose:** Tea: ½-1 tsp. c/s Rose hips, 8 oz. hot water, steep ½ hour. Take 4 oz. TID.

**Rupture wort herb (*Herniaria hirsuta*)** – in animal studies this herb inhibited deposition of CAOx crystals in the test animals' kidneys (Atmani, et al, 2004).

**Dose:** Tea: 1 tsp. dried herb, 8 oz. water, decoct 5-10 minutes, take 1-2 cups per day

**Shatavari root (*Asparagus racemosus*)** – this important Ayurvedic Rasayana (rejuvenative remedy) was found to inhibit formation of calcium oxalate stones in test animals (Christina, et al, 2005).

**Dose:** Tea: 1 tsp. dried, powdered root, 8 oz. water, decoct 10 minutes, steep 40 minutes, take 2 cups/day.  
Tincture (1:5): 2-4 ml (40-80 gtt.) TID

**Varuna bark (*Crataeva nurvala*)** – daily intake of this Ayurvedic herb reduced urinary calcium excretion and kidney stone formation (Prasad and Bharuth, 2007).

**Dose:** Tea: 2 tsp. dried bark, 12 oz. water, decoct 15 minutes, steep ½ hour. Take 8 oz. 2-3 times per day  
Tincture (1:5): 4-5 ml (80-100 gtt.) TID

**Water plantain root (*Alisma orientalis*)** – the Chinese herb Ze Xie/Water Plantain root has a long history of



use in TCM for treating dysuria, edema, and cystitis. In animal studies it was also able to inhibit experimentally induced calcium urolithiasis (Cao, et al, 2003).

**Dose:** 2 tsp. dried root, 10 oz. water, decoct 20 minutes, steep ½ hour, take 4 oz. TID

**Wu Ling San** – this TCM formula is comprised of Water Plantain root (*Alisma orientalis*), Polyporus umbellatus, *Atractylodes macrocephala*, Fu Ling (*Wolfiporia cocos*), and Cinnamon bark. In animal studies it effectively reduced calcium oxalate deposition in rat kidneys (Tsai, et al, 2008).

**Dose:** Powder: 6-9 grams BID  
Tablets: 4-5 tablets BID

### Herbs for treating kidney stones

Many herbs in TCM, Ayurveda, Native American medicine, Eclectic/Physiomedical medicine and

European traditions have a long history of being used to help deal with kidney stones and urinary calculi. Some are reputed to “dissolve” stones (this is unlikely), some help relax the ureters helping stones to pass and others are useful for relieving pain and spasm caused by passing stones. Some herbs seem to possess all of these activities while others are used in formulas to achieve these effects.

**Couch grass rhizome (*Elymus repens*)** – is a soothing diuretic that can be useful as part of a formula to make passing stones easier. It also promotes uric acid excretion, so can help prevent uric acid stones.

**Dose:** Tea: 2-3 tsp. dried rhizome, 12 oz. water, decoct 30 minutes, steep 1/2 hour, take 1 cup 3x/day  
Tincture: (1:4 or 1:5, 1:2.5): 3-5 ml (60-100 gtt) TID/QID

**Golden rod herb (*Solidago spp.*)** – herbalists in the UK often use *Solidago* with Pellitory-of-the-Wall or Parsley



*Aesculus hippocastanum*  
(horse chestnut)

Piert for helping to pass kidney stones. British herbalist Christopher Hedley, AHG, says that he has seen this simple formula “cause stones to vanish”. The patients never noticed the stone passing and upon a follow up ultrasound they had disappeared.

**Dose:** Tea : 1-2 tsp. dried herb, 8 oz. hot water, steep covered, 20-30 minutes, take 2 cups/day  
Tincture (1:5): 2-3 ml (40-60 gtt.) TID/QID

**Gravel root (*Eupatorium purpureum*)** – also known as Queen of the Meadow, has a long history of use for helping to make passing stones easier. It also helps relieve kidney and genito-urinary tract pain. This herb has been found to contain unsaturated pyrrolizidine alkaloids which are potentially hepatotoxic. It is unclear whether the levels found in this root are problematic. Since no one seems to have a definitive answer, I would advise short-term usage for Gravel root.

**Dose:** Tea: 1 tsp. dried root, 8 oz. water, decoct 15 minutes, steep 45 minutes, take 2 cups/day  
Tincture: 1.5-2 ml (30-40 gtt.) TID

**Horse Chestnut seed (*Aesculus hippocastanum*)** – the specific indications for Aesculus are for throbbing pain with edema and inflammation. It is most often used for hemorrhoids, varicose veins and trauma injuries. The analgesic and antiinflammatory effects also help with the tensive pain caused by kidney stones and reduce swelling of the ureter, thus allowing stones to pass more easily.

**Dose:** Tincture (1:2): .25-.75 ml (5-15 gtt.) TID  
Capsules: A standardized product (16-20% Escin) has been used in several studies with a dose of 300 mg. of the extract every 12 hours.

**Horsetail herb (*Equisetum arvense*)** – this herb is rich in silicic acid and helps strengthen bones, teeth, hair, skin and nails. It also helps speed healing of minor kidney damage and hematuria caused by passing stones. In the UK, Horsetail has the reputation of promoting expulsion urinary calculi.

**Dose:** Tea: 1 tsp. dried herb, 8 oz. water, decoct 15 minutes, steep 1 hour, take 4 oz. 3x/day  
Tincture (1:5): 1-2 ml (20-40 gtt.) TID

**Hydrangea root bark (*Hydrangea arborescens*)** – this Native American shrub is one of the most effective

urinary tract analgesics. It is indicated for genito-urinary tract pain and spasm and I use it with Khella, Lobelia, Kava, Horse Chestnut, and Yucca root for acute pain caused by kidney stones.

**Dose:** Tea: ½ - 1 tsp. dried bark, 8 oz. cool water, steep 1 hour. Take 4 oz. TID  
Tincture (1:5): 2-3 ml TID

**Jin Qian Cao herbs (*Desmodium styracifolium*)** – there are three herbs known as Jin Qian Cao. Of the three, Desmodium and Glechoma longituba are believed to be more effective for helping to pass kidney stones. Lysmachia (also known as Jin Qian Cao) is believed by some practitioners to be more useful for treating gallstones, but it is also commonly used in formulas for helping to pass kidney stones.

**Dose:** Tea: 2-3 tsp. dried herb, 8 oz. hot water, steep 40 minutes. Take 2-4 cups per day.

**Kava root (*Piper methysticum*)** – was introduced to western medical practice by the British explorer Captain Cook. In the U.S., the Eclectic physicians primarily used it for urinary tract pain. It helps relax the ureters, allowing stones to pass more easily and diminishes colicky, spasmodic pain.

**Dose:** Tea (Decoction): 1-2 tsp. dried root, 8 oz. water, decoct 15 minutes, steep 1 hour, then blend.  
Take 4 oz. QID  
Tincture (1:4, 1:5): 2-4 ml (40-80 gtt.) TID/QID  
Capsules: Standardized (60 mg. Kava lactones) - 2-4/day

**Khella seed (*Ammi visnaga*)** – this northern Africa plant is an effective antispasmodic, useful for relieving spasm and pain in the urinary tract, gall bladder, respiratory tract and cardiovascular system. Khella is very useful as part of a protocol for helping to pass urinary calculi.

**Dose:** Tea: 1 tsp. dried seeds, 8 oz. hot water, steep covered 30 minutes, take 4 oz. TID  
Tincture (1:5): 1-2 ml TID

**Lobelia seed/fresh herb (*Lobelia inflata*)** – is primarily known as a respiratory remedy used for asthma and spasmodic coughs. It is also an effective antispasmodic

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for the cardiovascular, genito-urinary and musculoskeletal systems. The tincture of lobelia seed or the tincture of the green flowering herb is highly useful for relieving acute pain caused by stones passing through the ureters. It should be used in formulas combined with Khella, Hydrangea, or Horse Chestnut.

**Dose:** Tincture: fresh herb (1:2) - .50-1 ml (10-20 gtt) TID/QID  
seed (1:5) - .25-.75 ml (5-15 gtt) TID/QID

**Marshmallow root (*Althea officinalis*)** – is the most soothing and mucilaginous herbal diuretic. Consuming large quantities of the tea can help ease passage of urinary stones and relieve inflammation and tissue damage.

**Dose:** Tea: 1-2 tsp. dried herb, 8 oz. hot water, steep covered 20 minutes, take 4-8 oz. TID

**Pellitory of the Wall herb (*Parietaria diffusa*)** – is used in the UK as a diuretic, kidney trophorestorative and to help pass urinary calculi and stones. It is often combined with Goldenrod, Parsley or Parsley Piert to help prevent stones or assist in their passage.

**Dose:** Tea: 1-2 tsp. dried herb, 8 oz. hot water, steep 30 minutes, take 4 oz. TID  
Tincture (1:5): 1.5-2 ml (30-40 gtt.) QID

**Punarnava herb (*Boerhaavia diffusa*)** – this common Indian weed is used as a kidney restorative and to help expel kidney stones. In an in vitro study it was able to inhibit formation of struvite stones; whether it can do this in vivo is unknown (Chauhan, et al, 2009).

**Dose:** Powder: ½ - 1 tsp. TID

**Varuna bark (*Crateva nurvala*)** – this Ayurvedic herb is used to help prevent kidney stones (see page 5) and is also used with banana stem (*Musa paradisiaca*) for successfully treating kidney stones. In a recent human study (Patankar, et al, 2008). the authors state that this formula “helped to dissolve renal calculi, facilitated their passage and reduced pain.”

**Dose:** Tea: 2 tsp. dried bark, 12 oz. water, decoct 15 minutes, steep ½ hour.  
Take 8 oz. 2-3 times per day  
Tincture (1:5): 4-5 ml (80-100 gtt.) TID

**Wild Carrot seed (*Daucus carota*)** – British herbalist Anne McIntyre FNIMH uses Wild Carrot seed along with Parsley Piert (*Alchemilla arvensis*) for helping to expel kidney stones.

**Dose:** Tincture (1:5): 5 mls. TID -2.5 mls. (50 gtt) of each

**Yucca root (*Yucca spp.*)** – Alabama herbalist Phyllis Light, RH (AHG) uses Yucca root to help ease passage of kidney stones and relieve urinary tract pain.

**Dose:** Tea: 1 tsp. dried root, 10 oz. water, decoct 15 minutes, steep 20 minutes, take 4 oz. TID  
Tincture: 1-2 ml (20-40 gtt.) TID

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