

Nature's Weapon against Urinary Tract Infections

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Abstract

Urinary tract infection (UTI) is a common disease. Continued allopathic treatment with various antibiotics may cause side effects. It is also known that the bacteria causing infection can develop resistance to the existing antibiotics that have been prescribed, if the medication is used for a long time. These issues have led to a continuous exploration of different modes of treatment and alternate therapies. Herbs have a long history and proven to be very effective in preventing and treating urinary tract infections. This review article is about some commonly accepted herbs like Vaccinium macrocarpon [Cranberry], Hydrastis Canadensis [Goldenseal], Agathosma betulina [Buchu], Arctostaphylos uva-ursi [Bearberry], Echinacea purpurea [Cone flower] and Equisetum arvense [Horse tail] that have been clinically proven for urinary tract infection cure as well as bladder infection treatment.

Key words:

Urinary tract infection, herbal therapy, cranberry, goldenseal, buchu, bearberry, cone flower, horse tail

How to Cite this Paper:

Geetha R.V, Anitha Roy And Lakshmi T, "Nature's Weapon Against Urinary Tract Infections", Int. J. Drug Dev. & Res., July-Sep 2011, 3(3): 85-100

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Article History:-----

Date of Submission: 22-06-2011

Date of Acceptance: 25-07-2011

Conflict of Interest: NIL

Source of Support: NONE

Introduction

A urinary tract infection (UTI) is an infection that begins in the urinary system. It is the second most common after respiratory infection. The urinary tract consists of the kidneys, ureters, bladder and the urethra. Urinary Tract Infections could be of the lower urinary tract encompassing the bladder and

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urethra or of the upper urinary tract infecting the ureters and kidneys. All areas of the urinary tract above the urethra in healthy humans are sterile, hence urine is normally sterile. Infection usually occur when bacteria enters the opening of the urethra and multiply. An infection limited to the urethra is called urethritis. If bacteria move to the bladder and multiply it causes bladder infection, cystitis. If the infection is not treated promptly, bacteria may then travel further up the ureters to multiply and infect the kidneys causing pyelonephritis. UTIs may also occur by the hematogenous or blood borne route. This usually occurs due to bacteremia. Any systemic infection can lead to the seeding of the organism in the kidney. But hematogenous spread accounts for less than 5% of UTIs.

What causes UTI? ⁶⁻⁸

The most common causes of UTIs (about 80%) are *Escherichia coli*, bacterial strain that usually inhabit the colon. However, many other bacteria can also cause an infection for example, *Klebsiella*, *Pseudomonas*, *Enterobacter*, *Proteus*, *Staphylococcus*, *Mycoplasma*, *Chlamydia*, *Serratia* and *Neisseria* spp but are far less frequent causes than *E. coli*. In addition, fungi (*Candida* and *Cryptococcus* spp) and some parasites (*Trichomonas*, *Schistosoma*) also may cause UTIs; *Schistosoma* causes other problems, with bladder infections as only a part of its complicated infectious process.

What are UTI risk factors? ⁹⁻¹¹

There are many risk factors for UTIs. In general, any interruption or impedance of the usual flow of urine (about 50 cc per hour in normal adults) is a risk factor. Kidney stones, urethral strictures, enlarged prostate, or any anatomical abnormalities in the urinary tract increases infection risk. This is due in part to the flushing or wash-out effect of flowing urine; in effect the pathogens have to "go against flow" because the majority of pathogens enter through the urethra and have to go retrograde (against a barrier, urine flow) to reach the bladder,

ureters, and eventually the kidneys. Women are far more susceptible than men to UTIs because their urethra is short and its exit (or entry for pathogens) is close to the anus and vagina, which can be sources for pathogens. Other risk factors for UTI include sexual activity, mode of birth control, menopause, diabetes and catheter use.

Symptoms of UTI ¹²

- Frequent urge to urinate
- Incontinence
- Painful, burning feeling in the area of the bladder or urethra during urination
- Fatigue, lethargy
- Women feel an uncomfortable pressure above the pubic bone.
- Some men experience a fullness in the rectum.
- Despite the urge to urinate, only a small amount of urine is passed
- Milky, cloudy or reddish urine
- Foul-smelling urine
- A fever, which may mean that the infection has reached the kidneys
- Pain in the back or side below the ribs
- Nausea and/or vomiting

Herbal therapy in Urinary tract infection^{13,14}.

Herbs are generally a safe way to strengthen and tone the body's systems. Herbal treatments for UTIs have been used for centuries. Herbal remedies may relieve urinary tract infections by combating the bacteria, decreasing irritation and healing urinary tract tissues. Some herbs also help prevent future occurrences. Urinary tract infection is commonly treated with prescription antibiotics. However, it is increasingly recognized that using antibiotics frequently may contribute to recurring UTIs and increased dependency on antibiotic use may further weaken the immune system. Natural remedies can provide an effective alternative to prescription medications and their side effects. This review article

is about some commonly accepted herbs like *Vaccinium macrocarpon* [Cranberry], *Hydrastis Canadensis* [Goldenseal], *Agathosma betulina* [Buchu], *Arctostaphylos uva-ursi* [Bearberry], *Echinacea purpurea* [Cone flower] and *Equisetum arvense* [Horse tail] that have been clinically proven for urinary tract infection cure as well as bladder infection treatment.

VACCINIUM MACROCARPON [Family: Ericaceae]

Common Names—cranberry, American cranberry, bog cranberry

Vaccinium macrocarpon or the cranberry is native to North America. They are a group of evergreen dwarf shrubs found in acidic bogs throughout the cooler regions of the Northern Hemisphere. Cranberries are low, creeping shrubs or vines up to 2 metres long and 5 to 20 centimetres in height; they have slender, wiry stems that are not thickly woody and have small evergreen leaves. The flowers are dark pink, with very distinct reflexed petals, leaving the style and stamens fully exposed and pointing forward. The fruit is a berry that is larger than the leaves of the plant; it is initially white, but turns a deep red when fully ripe. It is edible, with an acidic taste that can overwhelm its sweetness.¹⁵⁻¹⁸ Cranberry fruit has a long history of herbal and medicinal use documented as far back as the 17th century. The most notable use for cranberry is in treating infections of the urinary tract, including the kidneys and bladder.



Fig.1 Cranberry fruit

Cranberry Phytonutrients¹⁹⁻²¹ Cranberries have a very rich chemical composition, they include the following: Phenolic Acids: hydroxybenzoic acids including vanillic acids; hydroxycinnamic acids including caffeic, coumaric, cinnamic, and ferulic acids Proanthocyanidins : epicatechins Anthocyanins : cyanidins, malvidins, and peonidins Flavonoids: quercetin, myricetin, kaempferol Triterpenoids : ursolic acid The vast majority of phytonutrients mentioned above have been studied for their antioxidant²¹, anti-cancer¹⁹⁻²², anti-inflammatory²³, anti bacterial²⁴, anti viral²⁵, anti-coagulant and anti ulcer properties. The main compounds within cranberries that provide it with medicinal properties are proanthocyanidins, which are a powerful form of antioxidants. Cranberries also contain a large amount of vitamin C, which is another form of antioxidant. When the active compounds of cranberry are introduced within the body, they immediately begin to seek out free radicals and fight them off. Other uses of cranberry include the reduction of heart disease through lowering LDL cholesterol as well as preventing the buildup of plaque within the arteries²⁶.

Protection against (UTI).

The major clinical use of cranberry is to prevent recurrent urinary tract infections. Taking cranberry juice or pills by mouth may help prevent infections and may particularly work against the bacteria *Escherichia coli*. Many years, researchers believed that the ability of cranberries was partly related to its strong acidity. Recent research has shown that it's not the acidity of the cranberries, but the unusual nature of their proanthocyanidins (PACs) that is related to prevention of UTIs.

The PACs in cranberry have a special structure (called A-type linkages) that makes it more difficult for certain types of bacteria to latch on to our urinary tract linings. Include in these types of bacteria are pathogenic strains of *E. coli* - one of the most common microorganisms involved in UTIs. By making it more difficult to cling onto the urinary

tract linings, cranberry's PACs help prevent the expansion of bacterial populations that can result in outright infection. In vitro studies have observed potent inhibition of bacterial adherence of *Escherichia coli* and other gram-negative uropathogens. Cranberry has been found to specifically inhibit hemagglutination of *E. coli* by expression of types 1 and P adhesin through the component compounds fructose and proanthocyanidins²⁷⁻²⁹.

In a double-blind trial, elderly women who drank 10 ounces (300 ml) of cranberry juice per day had a decrease in the amount of bacteria in their urine.³⁰ In another study, elderly residents of a nursing home consumed either four ounces (120 ml) of cranberry juice or six capsules containing concentrated cranberry daily for 13 months. During that time, the number of UTIs decreased by 25%.³¹ A small preliminary trial found that supplementation with encapsulated cranberry concentrate (400 mg twice per day for three months) significantly reduced the recurrence of UTIs in women (aged 18–45) with a history of recurrent infections.³² A review of 10 studies investigated the benefits of cranberry juice or tablets compared to a placebo control in patients susceptible to urinary tract infections. Among 1,049 participants, the researchers found the cranberry products reduced the incidence of urinary tract infections by 35%, a statistically significant amount, over a 12-month period. The effect was most notable in those with recurrent infections.³³

HYDRASTIS CANADENSIS

[Family: *Ranunculaceae*]

Common names - Golden seal, yellow paint root, orange root, ground raspberry, eye root.

Golden seal is a small perennial herb. The woody, yellowish rhizome gives rise to a single hairy, stem and top with two 5-9 lobed leaves which terminate in a single greenish-white flower. It grows to a height of about 30 centimeters. The knotty, yellowish-brown rhizome is roughly 5 centimeters long and 1 centimeter thick with an abundance of rootlets. It has

a strong odor and bitter taste. Golden seal does produce a fruit; similar to the raspberry in appearance, but it is not edible.³⁴⁻³⁶



Fig. 2 Golden seal plant and root

Contains active principles like isoquinoline alkaloids consisting mainly of hydrastine (1.5–4%) and berberine (0.5–6%), with lesser amounts of canadine (tetrahydroberberine), canadine 1- α -hydrastine, 5-hydroxytetrahydroberberine, and other related alkaloids. The roots also contain C-methyl flavonoids (methylfluteolin methyl ethers) and feruloyl quinic acid glucoside esters. Other constituents include meconin, chlorogenic acid, lipids with 75% unsaturated and 25% saturated fatty acids, β -sitosterol glucoside, resin, starch, sugar, and a small amount of volatile oil.^{37,38}

Goldenseal is so valued because it improves health in many ways: It is a strong antimicrobial, a mild anti-inflammatory and a digestive tonic³⁹. Its astringent properties make it useful for treating conditions of the throat, stomach and vagina when these tissues are inflamed, swollen, or infected. Goldenseal eye washes are useful for simple conjunctivitis. As an anti-inflammatory and antimicrobial astringent, goldenseal is particularly effective on the digestive system - from the oral mucosa to the intestinal tract.^{40,41} It is used at the first signs of respiratory disorders, colds or flu. It may be taken to reduce fever and relieve congestion and excess mucous. It is helpful for canker sores in the mouth and as a mouth rinse for infected gums.⁴² External applications have

been used in the treatment of skin diseases such as psoriasis, athlete's foot, herpes and ringworm.

Protection against UTI

Golden seal is an effective and one of the most recommended natural treatments for UTI. The main healing compound of goldenseal as urinary tract infection remedy is the berberine. Berberine is a plant alkaloid with a long history of medicinal use. The extracts and decoctions of berberine demonstrate significant antimicrobial activity against a variety of organisms, including bacteria, viruses, fungi, protozoans, helminths and Chlamydia.⁴⁴⁻⁴⁷ Berberine demonstrates direct antibacterial effect against several bacteria, including both sensitive and resistant *E.coli in vitro* ^{48,49}. In urinary tract infections, the anti-infective activity of berberine is believed to be at least in part due to its ability to prevent adhesion to uroepithelial cells.⁵⁰ In one *ex vivo/in vitro* study, a urinary pathogenic strain of *E. coli* was isolated from infected patients and cultured. Grown in culture for 18 hours, an electron micrograph showed *E. coli* heavily covered with fimbrial filaments. When *E. coli* was cultured for 18 hours in the presence of 200 mcg/ml berberine sulfate, fimbrial synthesis was completely inhibited⁵¹. The typical dosage of goldenseal is 465 milligrams two or three times a day, or ¼ teaspoon of a liquid root extract once a day. Goldenseal is also available as a tincture or in powdered form. You can use either of these forms to make a tea, which can be taken orally or stored for topical use as an antiseptic.

AGATHOSMA BETULINA [Family: *Rutaceae*]

Common names include Buchu, Boegoe, Bucco, Bookoo and Diosma.

Commonly found in wet low elevations in the western portion of South Africa. Buchu is a shrub that grows to nearly 2 meters tall, and has a red-brown to violet-brown bark. The leaves are of a pale green colour, leathery and glossy, with a blunt, strongly-curved tip and finely-toothed margin, with round oil glands scattered through the leaf that give them a oily, wet appearance. The leaves have a strongly aromatic taste

and a peppermint-like odour. Flowers are white or pale pink, quite small, and have a distinctive star shape⁵³⁻⁵⁷.



Fig.3 Buchu Plant

Agathosma betulina contains flavonoids (mainly diosmin), mucilage and resins. The main compounds of interest, however, are the essential oil components. These include limonene, isomenthone, diosphenol (buchu camphor) and terpinen-4-ol. Sulphur-containing compounds, including 8-mercapto-p-methan-3-one, are responsible for the characteristic blackcurrent flavour⁵⁸⁻⁶⁰. The leaves of *Agathosma betulina* have traditionally been used as an herbal remedy for ailments of the gastrointestinal and urinary tracts, as it has diuretic and antiseptic properties due to various phenolic compounds. Useful in all diseases of the urinary organs attended with increased uric acid; in irritation of the bladder and urethra attending gravel, in catarrh of the urinary bladder, and incontinence connected with diseased prostate. It has also been recommended in dyspepsia, dropsy, cutaneous infections and chronic rheumatism.^{61,62}

Protection against UTI

Buchu is a curious herb. The leaf of this herb is widely used in western herbal medicine and its primary use is in the treatment of chronic diseases of the genitourinary tract like chronic inflammation of the mucous membranes of the bladder and urethra, conditions where there is urinary discharges and unusually acidic urine, and incontinence linked to

prostate disease. Buchu leaf is a diuretic and urinary tract antiseptic, the latter activity is considered to be due to its essential oil content.^{64,65} The underside of Buchu leaves have oil glands containing an essential oil which consists mainly of the monoterpene, diosphenol that smells like black currants and has the unglamorous attribute of being able to clear up urinary tract infections. It was first used by the tribes in South Africa as a general tonic and specifically for urinary tract infections. To this day, it is one of herbalists favorite when urinary tract infections are causing a problem.

Unlike some herbal remedies, Buchu is a pleasure to use. The oils that give buchu its very pleasing black currant taste are responsible for its ability to kill bacteria in the urinary tract. The oils are absorbed by the stomach and excreted by the kidneys into the bladder. As the oils pass through the bladder and urethra, they kill bacteria as they go. Science has revealed that Buchu is a urinary tract disinfectant of the truest sort.^{66,67}

ARCTOSTAPHYLOS UVA-URSI [Family : *Ericaceae*]

Common names - Bearberry, kinnikinnick, and arbutus. Arcto is Greek for "bear," and staphylos is Greek for "a bunch of grapes"; indeed the pink-red berries of uva ursi are a favorite food of bears. Bearberry is an evergreen perennial shrub that flourishes in the rich soil of North America, Europe and Asia. It has woody stems that are often 1.5–1.8 metres (5–6 feet) long. Roots develop from the stem, and the plant spreads, forming a broad, massive ground cover. The foliage turns bronzy in winter. The leaf margins are rolled and fringed with hairs. The flowers which open early in the spring may be white, pink or pink-tipped in colour; the flowers are in the shape of a narrow-mouthed bell and are borne in small clusters at the ends of the twigs. The berries are red. The dried leaves are the only part of the plant used in medicine. The British Pharmacopoeia directs that the leaves should be obtained only from indigenous plants.⁶⁸⁻⁷¹



Fig.4 Bearberry Plant

The primary chemical constituents of this herb include glycosides (arbutin, methylarbutin, ericolin), allantoin, flavonoids (quercetin, myricacitrin), tannins, hydroquinone, ellagic acid, gallic acid, malic acid and ursolic acid. It also contains vitamin A, iron, manganese, selenium and silicon.^{72,73} Another recently discovered property of uva ursi is the inhibition of tyrosinase by a 50% alcoholic extract. This effect impairs melanin synthesis, which leads the authors to suggest it could be used as a whitening agent for the skin.^{74,75} The leaves of the bearberry have both external and internal uses. Used internally to reduce the accumulation of uric acid and relieve pain of bladder stones and cystitis. Externally, it has been used as an astringent wash for cuts and scrapes.

Protection against UTI

The primary compound in uva ursi is arbutin, the hydroquinone derivative. The stomach absorbs it and changes it into a substance with disinfectant, antimicrobial and astringent properties. Arbutin fights infection, soothes irritation and reduce inflammation during urination.⁷⁶ The tea or tincture can be used in treating bed wetting as well. Bearberry has been reported to be effective against *E. coli*. The antimicrobial effect appears to be in part due to the capacity of aqueous uva ursi extracts to change microbial cell surface characteristics. In a study of 40 *E. coli* strains isolated from urine of patients with pyelonephritis, uva ursi significantly increased the hydrophobicity of the microbial cell surface,

decreasing the ability of bacteria to adhere to the host.⁷⁷ Uva ursi also appears to have diuretic and anti-inflammatory effects. An animal study found uva ursi significantly increased urine output without affecting sodium or potassium excretion.⁷⁸ In another animal model, uva ursi extracts and arbutin isolate demonstrated inhibition of inflammation, both alone and as an additive effect with prednisolone.⁷⁹ In a clinical double-blind study of 57 women tested the herb's effectiveness for prevention of UTIs. Half were given uva ursi, while the other half took a placebo for one year. At the end of the year, five of the placebo group and none in the uva ursi group had gotten bladder infections. This herb is best used, however, at the first sign of a UTI and throughout the course of the infection rather than for long-term prevention.⁸⁰ Dosage is 250 to 500 mg of extract (standardized to contain 20% arbutin) three times daily. Uva ursi works most efficiently in alkaline urine, so it is best not used with supplements that might acidify the urine, such as cranberries or vitamin C. This herb is contraindicated during pregnancy, as it may stimulate uterine contractions. Overdoses may cause nausea, vomiting, ringing of the ears and convulsions.

ECHINACEA PURPUREA [Family: *Asteraceae*]

Common names: Purple cone flower, Sampson, Snake root, Red sun flower.

Echinacea is a genus of herbaceous flowering plants in the daisy family, *Asteraceae*. They are endemic to eastern and central North America, where they are found growing in moist to dry prairies and open wooded areas. They have large, showy heads of composite flowers, purple in colour blooming from early to late summer. It has a faint aromatic smell, with a sweetish taste, leaving a tingling sensation in the mouth. Some species are used in herbal medicines and some are cultivated in gardens for their showy flowers.⁸¹⁻⁸³



Fig.5 Purple cone flower

Primary chemical constituents of Echinacea are known to include mucopolysaccharides, echinacoside, echinaceine, isobutylmines, linoleic and palmitic acids, essential oils, glycosides, inulin, polyacetylenes, sesquiterpenes, betaine, and phenolics. Echinacea also contains small amounts of iron, iodine, copper, potassium, sulphur, vitamin A, vitamin E and vitamin C.⁸⁴⁻⁸⁶ Several species of the echinacea plant are used to make medicine from its leaves, flower, and root. Echinacea is widely used to fight infections, especially common cold and other upper respiratory infections.⁸⁷ Some people take echinacea at the first sign of a cold, hoping they will be able to keep the cold from developing.⁸⁸⁻⁹¹ Other people take echinacea after cold symptoms have started, hoping they can make symptoms less severe. Research to date shows that echinacea can help treat a cold, but it won't prevent one. Echinacea is also used against many other infections including the flu, urinary tract infections, vaginal yeast infections, genital herpes, bloodstream infections (septicemia), gum disease, tonsillitis, streptococcus infections, syphilis, typhoid, malaria and diphtheria. Echinacea is one of the most popular herbs and has been extensively studied for its effects on the immune system.⁹² It has been used as an immune stimulant for a variety of afflictions including colds and flu. Echinacea is widely promoted for its ability to "boost" the immune system. A number of in vitro and animal studies have shown that echinacea appears to increase immunologic activity by increasing levels of

interferon and may increase phagocytosis, cellular respiratory activity, and lymphocyte activation through release of tumor necrosis factor, interleukin-1 and interferon β_2 .⁹³

Protection against UTI

Echinacea strengthens the immune system and acts as an anti-inflammatory providing immediate relief to the burning sensation that often accompanies a UTI.^{94,95} According to Medline Plus, echinacea signals the immune system to attack the infection and flush the bacteria out of the body by speeding up the urine flow. The key to using echinacea effectively is to take it immediately following the onset of symptoms. This herb can be found in tea form, capsule or tincture. Echinacea should be used with caution because it may have contraindications or side effects.

EQUISETUM ARVENSE [FAMILY: EQUISETACEAE]

Common names: Field Horsetail or Common Horsetail, or Bottle brush. *Equisetum arvense* is a perennial herb growing in moist loamy or sandy soil found in much of the North American continent, as well as in similar climates in Europe and Asia. The morphology of the horsetail herb is very strange and the plant has creeping or string like rootstock which gives it its name. The roots at the nodes are turned into numerous hollow stems of two kinds. Horsetail begins growth in two stages, initial growth of the plant is through a fertile and flesh colored stem, this stem can grow to a height of four to seven inches and comes out a cone like spike - this spike contains spores of the plant. The initial stem does not last long and withers away. The second stem is a green and sterile structure reaching a length of eighteen inches in height and crowned by whorls of small branches this is the final shape that the plant will take for its life span.⁹⁶⁻⁹⁹



Fig. 6 Horsetail Plant

Active Compounds of the plant include minerals like silicic acids and silicates, potassium, sulphur, manganese, magnesium; flavonoids: quercetin glycosides; phenolic acids, alkaloids, equisetonin, phytosterols: cholesterol, isofucosterol, campesterol; tannins.^{100,101} Horsetail has traditionally been used as a diuretic which helps the body to get rid of excess fluid by increasing urine output.¹⁰² It is a strong astringent and therefore is used to heal wounds, bleeding gums, sore throat, mouth sores and applied as poultice to sprains or bruises. Important compound found in horsetail plant called silica is proven to promote new hair growth by strengthening hair follicles and increasing blood circulation in the scalp area. Osteoporosis is one among many diseases that horsetail extract benefits.¹⁰³ Horsetail herb extract helps body retain calcium more efficiently due to a silica compound and can even help repair bones and cartilage. This is certainly essential for managing joint degeneration conditions or hard to heal bone fractures. Horsetail is known for its anti-inflammatory¹⁰⁴ anti nociceptive¹⁰⁴, antioxidant¹⁰⁵ anti proliferative¹⁰⁵, antimicrobial^{106,107,108}, hepatoprotective¹⁰⁹, anti diabetic¹¹⁰, and coagulant, diuretic and astringent activity.

Protection against UTI

The Horsetail plant is one of the best herbal remedies for UTI. Horsetail has astringent, diuretic and tissue healing properties that allow it to

effectively fight a urinary tract infection. The diuretic property is believed to be due to equisetin and flavone glycosides. Horsetail has been used for ages by the ancient Romans, Greeks, and native North Americans for curing kidney stones and bladder problems.¹¹¹ It was also used for treating prostatitis, urinary incontinence and gonorrhoea in the early 19th century. According to a study, having horsetail tea three times a day has helped people suffering from uric acid kidney stones and urinary tract infection (UTI).¹¹² Because of horsetail's diuretic activity, the patients' urine discharge increased, enabling them to flush out the kidney stones, also relieving them of the UTI symptoms. In humans, a 1996 study with 25

healthy volunteers given a daily dose of horsetail Infusion (10.7 mg/kg of body weight) showed mild diuretic activity with no adverse reactions¹¹³.

CONCLUSION

Herbal therapy is one of the most common ways people are utilizing for taking care of their urinary tract infections, whenever it is safe. Each of the herbs discussed above can benefit the urinary tract health drastically. Some will increase the production of urine, others will fight against the bacteria and will soothe the discomfort caused by them. The active component and its mode of action in prevention against UTI for each herb has been summarized in table 1.

Binomial Name	Common name	Active component	Mode of action
Vaccinium macrocarpon	Cranberry	Proanthocyanidins	Prevents attachment of bacteria to uroepithelial cells
Hydrastis canadensis	Golden seal	Berberine	Antibacterial, immune booster
Agathosma betulina	Buchu	Diosphenol	Anti bacterial, diuretic
Acrostaphylus uva arsi	Bearberry	Arbutin	Anti bacterial, diuretic
Echineceae purpura	Coneflower	Polysaccharides-heteroxylan and Arabinogalactan	Immune booster
Equisetum arvense	Horsetail	Equisetonin	Diuretic

Table 1: Plants with their Active Components and Mode of Action

The issue with urinary tract infections is that they tend to be chronic in nature. One urinary tract infection clears just in time for another infection to begin. The first infection weakens the urinary tract and makes it easier for bacteria to move in and cause

the second urinary tract infection. The third makes it even easier for the fourth and so on. Recurrent UTIs can be managed with combined herbal therapy, ie using an immune stimulant herb like Echinacea followed by a bacteria killing herb like

Buchu or uva ursi. A fired up immune system is much better able to police the urinary tract from bacteria and kill them if they run into any. So the first thing to do is to get the immune system marching double time in a war against bacteria. The second thing to do is to regularly use a herb having anti bacterial activity. Echinacea combined with goldenseal actually super charge the immune system to fight off the urinary tract infection. On the other hand taking uva ursi together with cranberry is not recommended because the combination will weaken the effect of both.

While choosing an herbal remedy, it is better to use only those of high quality and authentic formula extracts to avoid synthetic content to bind or fill. Most herbs can be taken as tea, in capsule form, or as a tincture diluted in water. When taken with care and with one's doctor's approval, herbs can be a gentle and effective alternative to conventional treatment.

ACKNOWLEDGEMENT :

The authors are grateful to the authors/editors of all those articles, journals and books from where the matter for this article has been reviewed and discussed.

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