

Effectiveness of basil plant for urinary tract infection



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The care of Urinary Tract Infection (UTI) is a common costly problem in acute care and home care population. Many therapies have been made for the treatment. Despite this, the patient still suffer from pains when urinating and the financial burden.

In the locality, Urinary Tract Infection was commonly experienced among teenagers due to lifestyle and diet. Nurses in the community are the first line health care givers and are sanctioned by the Department of Health to render independent measures to alleviate health problem. The use of herbal plants such as basil does not entail the use of pharmaceutical drugs. Basil as an alternative oral medication has an anti-bacterial agent, which can help promote healing. And because of this, the complications that may arise are unlikely to happen.

Based on the observations with staff nurses, who have taken care of patients with Urinary Tract Infection, antibiotic were used to treat. The use of synthetic drugs in treating Urinary Tract Infection was proven effective. However, if the patient is financially incapable of buying the prescribed antibiotic therapy for the treatment, water therapy was simply used. If not treated, they respond to antibiotics being prescribed, there is a progression of renal infection and it has a greater chance to be colonized with microorganism. It may become chronic, and maybe resistant to many antibiotics.

The use of antibiotics as a treatment is very costly. Oral antibiotics may not be healing. Because of this, the researches with great interest would like to study the therapeutic effectiveness of Basil as an oral treatment and an

adjunct treatment of Urinary Tract Infection. The study of Basil herb used as a cure for UTI has been proposed to help the indigenous people of Mountain Province due to lack of facilities on selected locations. Basil is a plant that can be produced on simply planting it on your backyard garden.

Due to presence of agricultural locations, Basil plant can be planted on all locations on Mountain Province. Basil is a weather sensitive plant; Mountain province can provide both good soil and good weather for cultivation.

Basil grows to between 30-130 cm tall, with opposite, light green, silky leaves 3-11 cm long and 1-6 cm broad. The flowers are small, white in color and arranged in a terminal spike. Basil is very sensitive to cold, with best growth in hot, dry conditions. It behaves as an annual if there is any chance of a frost.

Basil is one of the oldest herbal medicines. In 1989, an editorial in the Journal of Royal Society of medicine expressed the opinion that “ the time has come to lift the blinds of their “ traditional remedy” and to give its due recognition.” A priority at the present time is to provide evidence of the effectiveness and safety such as using Basil as an alternative to conventional form of treatment for Urinary Tract Infection.

It is in this light that the researchers intend to determine the effectiveness of basil as an oral treatment on Urinary Tract Infection. On UTI In 1983, a study of the clinical features of nosocomial infections at Santo Tomas University Hospital (STUH) was done by Alora and Manaloto. A Committee on Hospital Infection Control (CHIC) was formed thereafter. It has been active in

nosocomial infection surveillance and in the education of personnel with the <https://assignbuster.com/effectiveness-of-basil-plant-for-urinary-tract-infection/>

hope of reducing the likelihood of patients developing nosocomial Infection. Two- year surveillance was performed at Santo Tomas University Hospital (STUH) from June 30, 1989 to update the local nosocomial infection statistics. A total of 58, 541 patients were admitted during this period and nosocomial infections were noted on 556 occasions from 470 patients.

The incidence of nosocomial infection at STUH is 9. 5/1000 patients and 1. 18 infections per patient with nosocomial infection. The major determinants identified predisposing a patient to nosocomial infection was advanced age, urethral catheter insertion, intubation, cerebrovascular diseases, diabetes mellitus and malignancies. The urinary tract was the leading site of nosocomial infections. Of the total infections noted, 44. 1% were in the urinary tract, 28. 4% in the respiratory tract, 15. 1% were surgical wounds, 8. 1% cutaneous infections, 1. 4% bacteremia, and 2. 9% in other sites. The frequency by which the pathogens were isolated in these sites paralleled the instrumentations done in these sites.

The gram-negative bacilli were the primary pathogens seen with *Pseudomonas* spp, *Proteus* spp, *Enterobacter* spp, *E. coli*, and *Klebsiella* spp accounting for 74% of the pathogens isolated. *Candida* spp was the only fungal pathogen seen. *Staphylococcus epidermidis* and *Staphylococcus aureus* were the predominant gram-positive isolates. Unusual pathogens like *Alkaligenes fecaelis* and *Acinetobacter* spp were also isolated. The nosocomial isolates at Santo Tomas University Hospital have changed in the last five years to a dominance of gram-negative bacilli. Sensitivity tests of isolated pathogens to representative antibiotics showed an alarming percentage of antibiotic-resistant strains.

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Basil (*Ocimum Basilicum* L.), of family Lamiaceae (mints) is a tender low-growing herb that originates in the Mediterranean Sea and Middle East. It is a popular culinary herb and its essential oils have been used extensively for many years in food products, perfumes and dental and oral products.

Depending on the species and cultivar, the leaves may taste somewhat like anise, with a strong pungent, often sweet smell. There are many varieties of *Ocimum basilicum*, as well as several related species hybrids also called Basil.

The type used in Italian food is typically called "sweet basil". As opposed to Thai Basil, lemon basil and holy basil which are used in Asia. The sweet basil plant is erect, branched, slightly hairy and very aromatic. It reaches about 1 meter in height. It grows in open waste lands. The leaves are ovate to oblong-ovate, entire or somewhat toothed. The flowers are purplish or pink in racemes up to 15 cm long, the strong and pleasant odor is a typical characteristic of the plant.

The Holy Basil plant popularly known in India as "Krishna Tulsi" is worshiped every morning by most Hindus. This annual, much-branched herb grows to a height of 30 to 90cm and the stem and leaves are purplish in color, unlike *Ocimum basilicum* which is green in color. The aromatic leaves are oblong, obtuse, entire or serrate and hairy. The small bilabiate flowers remain on the plant for a short while and give rise to several seeds. If the seeds are put into water, they swell up with a gelatinous coat making them look like frog eggs. The plant possesses insecticidal and antibacterial properties and is also a mosquito repellent. (JC Kurian-2010)II. Different benefits derived from Basil

Basil Seeds: When soaked in H₂O, the seeds of several basil varieties become gelatinous and are used in Asian drinks and desserts such as falooda or sherbet. Such seeds are known variously as sabza, tukmaria, tukhamaria, falooda, selasih. They are used for their medicinal properties in Ayurveda, the traditional medicinal system of India and Siddha medicine, a traditional Tamil System of medicine. They are also used as popular drinks in Southeast Asia.

Basil Leaves Basil leaves is widely used in the food industry for its smell and flavor. It has also its certain medicinal properties to cure certain diseases and ailments. It is used as an essential oil in aromatherapy. It is also used as stomachic, antihelmentic, expectorant, antipyretic, anesthetic, stimulant, diuretic, demulcent.

The ideal weather for basil is spring. Basil cannot survive in cold climate hence spring is an ideal condition for its cultivation. If basil is grown in raised beds they yield good harvest because raised beds promote good drainage and warm quickly in the spring. Basil can be grown both from the seed and the transplants. The space between the rows should be kept between 2-3 feet and 6-12 inches within the row. The use of mulch for fresh cut basil will be good because it conserves moisture, reduces weed growth, and keeps the basil leaves clean.

Harvesting of basil depends on its end use. If basil is used for its dried leaves then its cut out before the flowers have disappeared. To obtain oil, it is harvested only after the appearance of the flower. If basil is required in the fresh and dried market, then it is harvested for its leaves. The cutting should

be done at least 10-15cm above the ground to ensure a continuous supply of fresh leaves.

Color and aroma of the basil are most important quality of the basil. In order to retain maximum color leaves are dried at low temperatures (<35°C). All extraneous materials are removed by washing and cleaning with weeds.

Historically, the healing properties of basil have been a much talked about subject.

Many years ago, some physicians claimed that scorpions would breed in your brain if you even smelled basil, whereas others could not praise basil highly enough for its healing properties in drawing poison from the body and giving courage and strength. Even today, basil is renowned for its mood-enchanting properties

Chemical Properties Of Basil

Aroma Constituents: The major aroma components are 1. 8 cineol, linalool, citral, eugenol, methyl chavicol (estragole), and methyl cinnamate.

Flavour Constituents: The chemical constituents that affect the flavor of basil are monoterpenes (ocimene, geraniol, camphor), sesquiterpenes (bisabolene, caryophyllene) and phenylpropanoids (methyl eugenol)

Basil and Health Protection Flavonoid that is one of the important nutrient component found in basil provide protection at the cellular level. Orientin and vecenin are two watersoluble Flavonoids give positive effects on human white blood cells. Volatile oils which contain estragole, linalool, cineole,

sabinene, myrene, and limonene protect against unwanted growth of bacteria.

The eugenol component acts as an anti-inflammatory. Basil is also a good source of magnesium due to which it prompts muscles and blood vessels to relax, this helps in promoting cardiovascular health Basil has sedative and calming qualities. A basil sandwich, for example, will help to alleviate anxiety. Basil healing properties will help relieve the pain of tired and aching feet- soak 2 cups of fresh basil leaves in 2 liters of H₂O. Allow to cool and immerse feet for a good long soak, you can also crush the leaves and massage into your heels. Use basil as gargle for clearing mouth infections- pop a handful of basil in 250ml of boiling H₂O and allow to stand for 5 mins.

Benefits of Basil Leaves and Oil The fixed oil of *Ocimum Sanctum* L. (Labiatae) was found to possess significant antiulcer activity against aspirin-, indomethacin-, alcohol-, histamine-, reserpine-, serotonin- and stress-induced ulceration in experimental animal models. Significant inhibition was also observed in gastric secretion and aspirin-induced gastric ulceration in pylorus rats. Sanctum fixed oil may be considered to be a drug of natural origin which possesses both anti-inflammatory and antiulcer activity.

Basil essential oils and their principal constituents were found to exhibit antimicrobial against a wide range of Gram-negative and Gram-positive bacteria, yeast, fungi, and mold. It may also help relieve intestinal gas. The major active ingredients of basil essential oils are terpenoids, such as eugenol, thymol, and estragole. These ingredients contribute the potential health benefits of basil.

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Its seeds are thought to benefit people with constipation or diarrhea. Researchers believe that its seeds may prevent sugar absorption by providing dietary fiber and relieve constipation by acting as bulk-forming laxative.

Basil leaf extract was very effective in elevating antioxidant enzyme response by increasing significantly the hepatic glutathione reductase, superoxide dismutase, and catalase activities. Chemo-preventive response was evident from the reduced tumor burden, as well as from the reduced percentage of tumor bearing animals.

Experimental studies on albino rats that leaf extract of *Ocimum Sanctum* and *Ocimum album* (holy basil) has hypoglycemic effect. While human study also showed a significant decrease in fasting and post-prandial blood glucose level during treatment with holy basil leaves compared to during treatment with placebo leaves. Thus, basil may benefit people who suffered type 2 diabetes.

In study of rats, oral administration of aqueous extracts of *Ocimum basilicum* L. inhibited platelet aggregation induced by thrombin and ADP in a dose-dependent fashion.

Researchers from India noted that solvent extracts of holy basil were effective in preventing tonic convulsions induced by transcorneal electroshock. (<http://www.zhion.com/herb/Basil.html>)

Health benefits of Basil herb

Basil leaves contain many notable plant derived chemical compounds that are known to have disease preventing and health promoting properties.

Basil herb contains many polyphenolic flavonoids like orientin and vicenin. These compounds were tested in vitro laboratory studies for possible antioxidant protection against radiation-induced lipid per-oxidation in mouse liver. Basil leaves contains many health benefiting essential oils such as eugenol, citronellol, linalool, citral, limonene and terpineol. These compounds are known to have anti-inflammatory and anti-bacterial properties.

The herbs parts are very low in calories and contain no cholesterol, but are very rich source of many essential nutrients, minerals and vitamins that are essential for optimum health.

Basil herb contains exceptionally high levels of beta-carotene, vitamin A, cryptoxanthin, lutein and zeaxanthin. These compounds help act as protective scavengers against oxygen-derived free radicals and reactive oxygen species (ROS) that play a role in aging and various disease process.

Zeaxanthin, a yellow flavonoid carotenoid compound, selectively absorbed into the retinal macula lutea where it is found to filter harmful UV rays by reaching retina. Herbs, fruits and vegetables rich in zeaxanthin help to protect from age related macular disease (AMRD) especially in the elderly.

Vitamin A is known to have antioxidant properties and is essential for vision. It is also required for maintaining healthy mucus membranes and skin.

Consumption of natural foods rich in vitamin-A known to help body protect from lung and oral cavity cancers.

Vitamin K in basil is essential for many coagulant factors in the blood and plays a vital role in the bone strengthening function by helping mineralisation process in the bones.

Basil herb contains a good amount of minerals like potassium, manganese, copper, and magnesium. Potassium is an important component of cell and body fluids which helps control heart rate and blood pressure. Manganese is used by the body as a co-factor for the antioxidant enzyme superoxide dismutase.

Basil leaves are an excellent source of iron, contains 3.17 mg/100 g of fresh leaves (about 26% of RDA). Iron, being a component of hemoglobin inside the red blood cells, determines the oxygen carrying capacity of the blood. (www.nutrition-and-you.com/basil-herb.html)

From the above readings, the researchers were guided in terms of the direction of their study.