

Pharmacognosy and Allied science Dept.

Effect of basil in prevention the formation of cholesterol in blood stream



هدى علي حسن هدى عبد الزهرة
اشراف د يوسف ، د. جبران ، د. يسار



Introduction

Basil (*Ocimum basilicum*) leaves are used fresh and dried as flavorings or spices in sauces, salad

Basil is also an important ornamental plant, with a variety of leaf and inflorescence shapes, sizes and colors

Basil oil (also called Holy basil oil) works gradually, but effectively, in lowering cholesterol in the body. Derived from the herb, *Ocimum basilicum*, basil has antioxidant, anti-inflammatory, antibacterial and cholesterol-lowering actions



Basil define

Basil is an annual, or sometimes perennial, herb used for its leaves

plants can reach between 30 cm (0.98 ft) and 150 cm (4.9 ft) Its leaves are richly green and ovate, but otherwise come in a wide variety of sizes and shapes
Basil grows a thick, central taproot.

Its flowers are small and white



History

Basil has been around for over 4,000 years. Throughout history, basil was believed to have almost magical powers. It was used as an antidote for snake bites

the ancient Egyptians used this herb for embalming.

Today, basil is frequently referred to as the 'King of Herbs'. It was also once known as the 'herb of poverty' because it was believed to provide protection to the poor.

In India, this herb was considered a powerful protector. They planted it around their temples and placed it with the dead to protect them in the afterlife.



Scientific classification

Kingdom Plantae – Plants

Subkingdom Tracheobionta – Vascular plants

Superdivision Spermatophyta – Seed plants

Division Magnoliophyta – Flowering plants

Class Magnoliopsida –
Dicotyledons

Subclass Asteridae

Order Lamiales

Family Lamiaceae – Mint family

Genus *Ocimum* L. – basil P



Contains 6 Species and 4 accepted taxa overall

Species *Ocimum basilicum* L. – sweet basil P

Species *Ocimum campechianum* Mill. – least basil P

Species *Ocimum canum* Sims – hoary basil P

Species *Ocimum gratissimum* L. – African basP

Species *Ocimum kilimandscharicum* Guerke – hoary basil P

Species *Ocimum tenuiflorum* L. – holy basil P



Basil leave description

Basil leaves are glossy and oval-shaped, with smooth or slightly toothed edges that typically cup slightly; the leaves are arranged oppositely along the square stems. The small flowers are borne in terminal clusters and range in color from white to magenta. The plant is grows best in warm climates



Basil seed

When soaked in water, the seeds of several basil varieties become gelatinous, and are used in Asian drinks and desserts



Bioactive constituents of Basil

Phytochemical compounds present in the leaf are eugenol (a volatile oil), ursolic acid (triterpenoid) and rosmarinic acid (phenylpropanoid). Other bioactive compounds are caryophyllene and oleanolic acid. Holy basil seed contains oils of linoleic acid and linolenic acid



Basil growth

Basil is sensitive to cold, with best growth in hot, dry conditions. It behaves as an annual if there is any chance of a frost. However, due to its popularity, basil is cultivated in many countries around the world. Production areas include countries in the Mediterranean area, those in the temperate zone, and others in subtropical climates.



Harvesting

When grown for fresh or dried leaves, sweet basil is best harvested just prior to the start of flowering. Leaves and shoots may be harvested when 15-20 cm long, 80-110 days after transplanting. In temperate areas 1-2 cuts may be taken, in warmer areas 3-5 cuts per year are possible. Plants should be cut 10-15 cm above the ground, leaving 2-4 pairs of leaves to ensure good regrowth and allow subsequent harvests to be taken at 15-20 days. For essential oil production, sweet basil is harvested in full bloom

Basil - Nutritional Facts per 100 g

Nutrients mg Percentage

Folates	68 µg	17%
Niacin	0.902 mg	6%
Pantothenic acid	0.209 mg	4%
Pyridoxine	0.155 mg	12%
Riboflavin	0.076 mg	6%
Thiamin	0.034 mg	2.5%
Vitamin A	5275 IU	175%
Vitamin C	18 mg	30%
Vitamin E	0.80 mg	5%
Vitamin K	414.8 µg	345%
Sodium	4 mg	0%
Potassium	295 mg	6%
Calcium	177 mg	18%
Copper	385 mg	43%
Iron	3.17 mg	40%
Magnesium	64 mg	16%
Manganese	1.15 mg	57%
Zinc	0.81 mg	7%





Effect of basil in lower cholesterol

Basil oil (also called Holy basil oil) works gradually, but effectively, in lowering cholesterol in the body. Derived from the herb, *Ocimum basilicum*, basil has antioxidant, anti-inflammatory, antibacterial and cholesterol-lowering actions. A study published in the journal, *Phytotherapy Research*, tested basil extract on rats with induced high cholesterol. The study found that basil significantly reduced LDL. Furthermore, the reduction of LDL was accompanied by an increase in HDL (“good”) cholesterol



How does Basil lower your cholesterol level

Ocimum sanctum can lower lipid levels, but their mechanism of action is still unclear. Various studies show there is no potential inhibition of HMG-CoA reductase has observed . Lipid lowering effect may be due to some constituent in oil which either increases catabolism or interferes with absorption of cholesterol,

Basil essential oil contains eugenol, a phenolic compound that may be responsible for its action to lower high serum lipid profile

Basil reduce the risk of cardio vascular disease



How does Basil lower heart diseases & strokes risk

Eugenol in holy basil has possessed antioxidant activity. Oxidation of low-density lipoprotein is an important risk factor for the development of atherosclerosis. Eugenol acts as an antioxidant to inhibit LDL oxidation and so decrease atherogenic index (AI) levels as well as cardiac lipid peroxidation and significantly enhanced the activity of the cardiac antioxidant enzymes. Basil can be successful in preventing atherosclerosis and heart diseases.



How take the basil to lower blood cholesterol

To achieve the cholesterol-lowering effect, buy oils that are available only in capsule form and labeled as “standardized extracts.” Standardized extracts are diluted and safer for consumption. Follow the dosage instructions listed on the manufacture’s label




Recommended Basil daily dosage

The appropriate dose of basil depends on several factors such as the user's age, health, and several other conditions. At this time there is not enough scientific information to determine an appropriate range of doses for basil. Keep in mind that natural products are not always necessarily safe and dosages can be important. Be sure to follow relevant directions on product labels and consult your pharmacist or physician or other healthcare professional before using



Basil can use as preventive therapy for cardiovascular disease

For the preventive purpose, dried Tulsi leaves of 300mg to 600mg daily, and 600mg to 1800mg can take as divided dosage for two/three times a day. Even some recommend a dose of two grams/twice/day of freshly dried herb taken for several months. Recommended dosage of Holy basil extracts is 250 to 450mg a day. Child dosage is normally a quarter to half that of the adult



**** ** Do not use undiluted essential oils as they are highly concentrated. Failure to dilute an essential oil can result in a chemical-like burn on the skin and should not be swallowed unless directed by a health care professional**

**** ** Nutritional value of basil includes vitamins (A & C), minerals (calcium, iron & zinc) and chlorophyll**



Treatments Using Basil

Fevers :

Basil leaves are used for quenching fevers, especially those related to malaria and other infectious,. Boiling leaves with some cardamom in about two quarts of water, then mixed with sugar and milk, brings down temperature.

Coughs :

Basil is an important ingredient in cough syrups and expectorants. It can also relieve mucus in asthma and bronchitis. Chewing on basil leaves can relieve colds and flu symptoms.

Sore Throat :

Water boiled with basil leaves can be taken as a tonic or used as a gargle when you have a sore throat



Respiratory Disorders:

Boiling basil leaves with honey and ginger is useful for treating asthma, bronchitis, cough, cold, and influenza.

Kidney Stones :

Basil can be used to strengthen your kidneys. In cases of stones in your kidney, the juice of basil leaves mixed with honey and taken daily for 6 months will expel them through the urinary tract

Children's Illnesses:

Pediatric complaints like colds, coughs, fever, diarrhea, and vomiting have been known to respond to treatment with the juice of basil leaves. Also if the rash associated with chicken pox is delayed can use basil



Stress:

Basil leaves can be used as an anti-stress agent. Chewing 12 basil leaves twice a day can prevent stress. It will purify the blood and help prevent many other common ailments.

Mouth Infections :

Chewing a few leaves twice daily can cure infections and ulcerations of the mouth.

Insect Bites:

Basil can be used preventatively and as a curative. A teaspoonful of the basil leaf juice taken every few hours is preventative. Rubbing the bites with juice can relieve the itching and swelling.



Tooth Problems:

Dry basil leaves in the sun and grind into powder for a tooth cleansing powder. You can also mix with mustard oil to make herbal toothpaste.

Headaches:

Basil is a good headache remedy. Boil leaves in half a quart of water, cooking until half the liquid remains. Take a couple of teaspoons an hour with water to relieve your pain and swelling.



Side Effects & Safety

Basil is **LIKELY SAFE** when taken by mouth in food amounts

Basil is **POSSIBLY SAFE** for adults when taken by mouth as a medicine, short-term. In some people basil can cause low blood sugar

The above-ground parts of basil and basil oil are **POSSIBLY UNSAFE** when taken by mouth as a medicine, long-term. These contain estragole, a chemical that might increase the risk of getting liver cancer



Special Precautions & Warnings

Pregnancy and breast-feeding:

Basil is **LIKELY SAFE** for pregnant and breast-feeding women in food amounts. But larger medicinal amounts are **POSSIBLY UNSAFE**. Basil contains a chemical, estragole, which has caused liver cancer in laboratory mice.

Children:

Basil is **LIKELY SAFE** for children in food amounts. But larger medicinal amounts are **POSSIBLY UNSAFE**.



Low blood pressure:

Basil extracts might lower blood pressure. In theory, taking basil extracts might make blood pressure become too low in people with low blood pressure.

Surgery:

Basil oils and extracts might slow blood clotting. In theory, basil oils or extracts might increase the risk for bleeding during surgical procedures. Stop using basil at least 2 weeks before a scheduled surgery.



Drug drug interaction

Holy basil might slow blood clotting, taking it along with medications that also slow clotting might increase the chances of bleeding.

Some medications that slow blood clotting includes aspirin, clopidogrel (Plavix), dalteparin (Fragmin), enoxaparin (Lovenox), heparin, ticlopidine (Ticlid), warfarin (Coumadin), and others.

Pentobarbital cause's drowsiness, taking holy basil seed oil with pentobarbital might cause too much drowsiness

Conclusion

Hypercholesterolemia plays an important role in atherosclerosis and related cardiovascular diseases (CVD). Increased plasma levels of total cholesterol (TC), low-density lipoprotein cholesterol (LDL) and very low-density lipoprotein cholesterol (VLDL) as well as lowered levels of high-density lipoprotein cholesterol (HDL) have been identified as major risk factors in the development of hypercholesterolemia.

Sweet basil is widely used in medicine in many countries because it has antioxidant
, Basil leaf extract was highly effective in inhibiting carcinogen-induced tumor

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The End

A large, stylized quill pen graphic. The quill is black with brown shading on the feathered part, pointing towards the right. It is positioned to the right of the text 'The End'. There are several small black dots scattered around the base of the quill.