

Gotu Kola

(*Centella asiatica*)

TRADE NAMES

Gotu Kola (available from numerous manufacturers and as a combination product). Gotu Kola Herb, Wild Countryside Gotu Kola, Natural Herbal Gotu Kola. Alcohol Free Gotu Kola Herb

DESCRIPTION

Medicinal Parts: The medicinal parts are the dried above-ground parts, the fresh and dried leaves and stem.

Flower and Fruit: The pedicles are 1.2 to 4 cm long. The sepals of the epicalyx are oval to circular, with a membranous border. They are about 2.5 to 3 mm long and 1.5 to 2.5 mm wide. The umbels have 2 or 3 sessile or short-pediced florets. The petals are white, to purple or pink. The calyx is not generally dentate. The fruit is oval to globular in shape, and has a diameter of 2 to 5 mm. The mericarps are clearly flattened at the sides and usually have 7 to 9 ribs and are raised rugose.

Leaves, Stem and Root: *Centella asiatica* is a tender umbel plant, which has numerous creeping stems. The stems have roots at the nodes, which are smooth. The circular-reniform leaves are 2 to 6 cm long and 1.5 to 5 wide, with a crenate margin and 5 to 9 ribs. The petioles are 3 to 30 cm long.

Characteristics: Gotu Kola is almost tasteless and odorless.

Habitat: The plant is indigenous to southeast Asia. India. Sri Lanka. China, the western South Sea Islands. Madagascar. South Africa, southeast U.S., Mexico, Venezuela. Columbia, and eastern South America.

Production: Hydrocolyle herb is the aerial part of *Centella asiatica*. The plant is gathered throughout the year and dried in the sun.

Other names: Indian Pennywort, Marsh Penny. Indian Hydrocolyle. White Rot. Thick-leaved Pennywort, Hydrocolyle

ACTIONS AND PHARMACOLOGY

COMPOUNDS

Triterpene acids: including asiatic acid, madecassic acid (6-hydroxy asiatic acid), terminolic acid

Triterpene ester from asiatic acid: asiaticoside A, asiaticoside B

Asiaticoside

EFFECTS

The main constituents of the drug are triterpene acids and their sugar residues (asiaticoside and madecassicoside).

Anti-Inflammatory Effects

Anti-inflammatory effects exerted by extracts of *Centella asiatica* were demonstrated by a reduction of acute radiation reaction in rats (Chen, 1999).

Anti-Neoplastic Effects

Cytotoxic and antitumor effects of *Centella asiatica* involve direct action on DNA synthesis. The development of Malignant and ascites tumors was decreased by the herb (Babu, 1995).

Ulcer-protective Effects

Asiaticoside (suspended in propylene glycol) administered orally to rats, significantly reduced the formation of stress-induced ulcers (Ravokatra, 1993). An extract of the herb also significantly inhibited gastric ulceration induced by cold and restraint stress in animal models. The dose dependent reduction of gastric ulceration was associated with a dose dependent increase of the GABA level in the brain (Chatterjee, 1992).

Vascular/Venous Tone Effects

Ethanol extracts of *Centella asiatica*, *in vitro*, had a remarkable enhancement of fibroblast cell attachment and tissue plasminogen activator (Kim, 1993). Varicose veins are associated with increased uronic acid and lysosomal enzymes involved with mucopolysaccharide (beta-glycuronidase, beta-N-acetylglucosaminidase) metabolism. Total triterpene fraction of *Centella asiatica* (TTFCA) decreases uronic acid, beta-glycuronidase, beta-N-acetylglucosaminidase, and arylsulfatase in the connective tissue and vascular wall (Arpaia, 1990).

Wound Healing Effects

Asiaticoside facilitates wound healing through an increase in peptidic hydroxyproline content, tensile strength, collagen synthesis, angiogenesis and epithelialization, as shown in animal models (Bonte, 1994; Maquart, 1990; Shukla, 1999). Asiatic acid and madecassic acid have also demonstrated an increase in peptidic hydroxyproline showing an increased remodeling of the collagen matrix (collagen synthesis) in wounds (Bonte, 1994; Maquart, 1999). Asiaticoside also induces enzymatic and non-enzymatic antioxidants, namely superoxide dismutase, catalase, glutathione peroxidase, vitamin E, and ascorbic acid in newly formed tissue (initial stage of wound healing) (Shukla, 1999).

CLINICAL TRIALS

Chronic Venous Insufficiency

A randomized, double-blind, placebo-controlled study evaluated the efficacy of a titrated extract of *Centella asiatica* in treating chronic venous insufficiency. Ninety-four patients with chronic venous insufficiency were included in the

study. The asiaticoid mixture, administered as 60 mg daily and 120 mg daily for 2 months, led to significant improvement in subjective (heaviness in the legs, pain in standing up, edema) and objective (plethysmographic measurements of vein tone) parameters compared to placebo (Pointel, 1987).

Venous Hypertension

The effect of an extract of *Centella asiatica* with capillary filtration and ankle edema was evaluated in patients with venous hypertension. Sixty-two patients were included in the study and administered either placebo or the extract as 60 mg or 30 mg three times daily. Capillary filtration rate and ankle edema both significantly improved in a dose-dependent manner in the extract-treatment groups. The subjective symptoms (swelling, sensation, restless lower extremity, pain and cramps, and tiredness) were significantly improved in the extract-treatment groups, with no change in the placebo-treatment group (Belcaro, 1990).

INDICATIONS AND USAGE

Unproven Uses: The drug is used internally for rheumatism and skin diseases. Externally, the drug is used for poorly healing wounds, leprosy sores, and post-operative scarring. In Asia, the drug is used to enhance urination, for physical and mental exhaustion, diarrhea, eye diseases, inflammations, asthma, and high blood pressure.

Indian Medicine: The drug is used for skin diseases, syphilis, rheumatism, and leprosy. Goto kola is also used for the treatment of mental illness, epilepsy, hysteria, and for dehydration.

Chinese Medicine: The herb is used for dysentery and summer diarrhea, vomiting, jaundice, urinary calculi, epistaxis and scabies.

Homeopathic Uses: Goto Kola is used for skin diseases associated with itching and swelling and inflammation of the uterus.

PRECAUTIONS AND ADVERSE REACTIONS

Allergic Contact Dermatitis: Although there have been case reports of allergic contact dermatitis due to *Centella asiatica*, the plant's sensitizing capacity is considered low (Bilbao, 1995; Danese, 1994; Gonzalo, 1996; Hausen, 1993).

DOSAGE

Mode of Administration: Gotu Kola is available in liquid or solid pharmaceutical forms, for oral intake. Gotu Kola is also available parenterally for homeopathic use.

Capsules — 400 mg, 435 mg, 439 mg, 440 mg, 450 mg, 500

^{mg}
How Supplied:

Liquid — 1:1; 250 mg/ml

Daily Dosage: 0.6 gm of dried leaves or infusion taken 3 times daily; normal single dose is 0.33 to 0.68 gm.

Varicose Veins — *Centella asiatica* extract administered as 60 mg daily has shown improvement (Arpaia, 1990).

Venous Hypertension — Total triterpenic fraction of *Centella asiatica* (TTFCA) tablets have demonstrated improvement of venous hypertension at doses of 30 mg given three times daily or 60 mg given three times daily (Belcaro, 1990).

Chronic Venous Insufficiency — Titrated extract of *Centella asiatica* (TECA) administered as 120 mg daily and 60 mg daily have demonstrated efficacy in chronic venous insufficiency (Pointel, 1987).

Homeopathic Dosage: 5 to 10 drops, 1 tablet, 5 to 10 globules or 1 ml injection solution sc twice weekly; ointment 1 to 2 times daily (HAB1).

Storage: Store in a cool, dry place and in well-sealed containers.

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Goutweed

Aegopodium podagraria

DESCRIPTION

Flower time! *Fruit:* The flowers range from 50 to 100 cm. They have large white or reddish double umbels that are usually androgynous. The flowers have no involucre and no calyx. The petals are white or pink, about 1.5 mm long, obcordate and cuneate at the base. The fruit is oblong and brownish with pale veins. The fruit is slightly pressed in at the sides, unwinged. unstriped. with a 3 mm-long mericarp.

Leaves, Stem and Root: The stem is erect, angular, grooved, hollow, glabrous and branched. The lower leaves are double trifoliate, and the upper leaves trifoliate. The leaflets are ovate and crenate-serrate.

Characteristics: Propagates via underground runners.

Habitat: Indigenous to Europe (not Spain). West Asia.

Production: Goutweed is the aerial part of *Aegopodium podagraria*.

Other Names: Goutwon, Ground Elder, Gout Herb, Herb Gerard(e), Jack-Jump-About, Goatweed, Ashweed. Achweed. English Masterwort, Pigweed, Eliroot, Bishop's Elder, Weyl Ash, \\\hi;e Ash. Bishopsweed, Bishopswon.