

## GUDUCHI (*Tinospora Cordifolia*): The Amrita for Life

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### ABSTRACT

*Tinospora Cordifolia* is a climbing shrub belongs to family Menispermaceae. It is commonly known as Guduchi, Amrita, Gurach, Tinospora. Known by many names in Sanskrit such as gaduchi and Kundalini and scientifically called *Tinospora cordifolia*, it is a large, glabrous deciduous climbing shrub. Guluchi is considered as a most divine herb because of its various Ayurvedic uses. It is called as nectar/Amruta for its divine healing nature. Guluchi increases the immunity of the body. It fights against infecting organisms. It is reported to possess anti-inflammatory, anti-oxidant, anti-spasmodic, anti-allergic, anti-HIV and anticancer properties.

**KEYWORDS:** *Tinospora cordifolia*, Guduchi, Anti-diabetic, Anti-HIV

**How to cite this paper:** Harshada Shivarkar | Vishal Galave | Kishor Otari "GUDUCHI (*Tinospora Cordifolia*): The Amrita for Life" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-5 | Issue-2, February 2021, pp.500-502, URL: www.ijtsrd.com/papers/ijtsrd38432.pdf



IJTSRD38432

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### INTRODUCTION

Trees and plants are of paramount importance for human life, not only in the present times but also in the remote past as well(3). Guduchi is one of the noncontroversial and extensively used herbs in ayurvedic medicine. It belongs to family menispermaceae.(5). It is known as Giloy (in Hindi,) and Moonseed plant (in English). It contains flavonoids, glycosides, saponins and some amount of phytosterols(8). It is a large, glabrous deciduous climbing shrub. The stems are rather succulent with long filiform fleshy aerial roots form the branches. The bark is gray brown and watery. The leaves are membranous and cordate.(1) Leaves of the plant are rich in protein (11.2%) and are fairly rich in calcium and phosphorus(9). The flowers small and greenish yellow. This herb is found throughout tropical asia ascending to a height of 300mts.(1) It is known to possess anti-spasmodic, anti-inflammatory, antiallergic, anti-periodic, anti-arthritis, anti-leprotic, anti-diabetic, antioxidant, hepatoprotective and immunomodulatory.(8)

### VERNACULAR NAMES



Sanskrit: Guduchi, Amrita  
Bengali: Golanha  
English: Tinospora  
Gujarati: Gulvel  
Hindi: Gulancha  
Kannada: Amrutaballi, Madhuparni  
Malayalam: Amrytu, Chittamritam  
Oriya: Gulochi  
Tamil: Amudam, Chindil  
Telugu: Tippateege, Guricha  
Urdu: Gilo, Satgilo (6)

### TAXONOMIC DESCRIPTION

The plant *Tinospora cordifolia* comes under the class Magnoliopsida, order Ranunculales and belongs to the Menispermaceae family. The species is widely distributed in India, extending from the Himalayas down to the southern part of peninsular India. It is also found in neighbouring countries like Bangladesh, Pakistan, and Srilanka. The plant is also reported from South East Asian countries such as Malaysia, Indonesia, and Thailand etc. (3)

### HABITAT

*Tinospora cordifolia* prefers wide range of soil, acid to alkaline and it needs moderate level of soil moisture(3).The plants are found climbing up the trunks of many trees, on near wall of fences or pillars and on ground. They prefer deciduous and dry forests. It thrives well in tropical regions, often growing to great heights and growing over hedge(7).

## CHEMICAL CONSTITUENTS

*T. Cordifolia* contains high fibre (15.9%), sufficient protein (4.5%-11.2%), sufficient carbohydrate (61.66%) and low fat (3.1%). It has high potassium (0.845%), high chromium (0.006%), sufficient iron (0.28%) and sufficient calcium (0.131%) and important in various regulatory functions(5).

They belong to different classes such as alkaloids, diterpenoid lactones, steroids, glycosides aliphatic compounds, polysaccharides. Some constituents have been isolated from plant mainly they are tinosporone, tinosporic acid, cordifolisides A to E, syringen, berberine, Giloin, gilenin, crude giloininand, arabinogalactan polysaccharide, picrotene, bergenin, gilosterol, tinosporol, tinosporidine, sitosterol, cordifol, heptacosanol, octacosonal, tinosporoide, columbin, chasmanthin, palmarin, palmatosides C and F, amritosides, cordioside, tinosponone, ecdysterone, makisterone A, hydroxyecdysone, magnoflorine, tembetarine, syringine, glucan polysaccharide, syringine apiosylglycoside, isocolumbin, palmatine, tetrahydropalmatine, jatrorrhizine respectively (3).

## PHARMACOLOGICAL ACTIVITIES

### Anti-diabetic activity

Various phytoconstituents isolated from different parts of *T. Cordifolia* are responsible for cure of diabetes mellitus. These phytochemicals include alkaloids, tannins, cardiac glycosides, flavonoids, saponins and steroids . It has the magical potential of lowering the blood sugar level in human beings.

The isoquinoline alkaloid rich fraction from stem, includes palmatine, jatrorrhizine and magnoflorine which show insulin mimicking and insulin releasing effect both in vitro (using rat Pancreatic  $\beta$ -cell line, RINm5F) and in vivo (8).

### ANTI-HIV Potential

Root extracts of Giloy have shown significant effect in Modulating the immune system positively in HIV positive Patients. This immunomodulatory response of extracts of Giloy stem are due to its ability to reduce eosinophil count, Stimulation of B lymphocytes, macrophages, level of Haemoglobin and polymorphonuclear leucocytes (8).

### Immunomodulatory activity

A large variety of compounds which are responsible for immunomodulatory and cytotoxic effects are 11-hydroxymuskatone, N-methyle-2-Pyrrolidone, Nformylannonain, cordifoliside A, magnoflorine, tinocordioside and syringin. These natural compounds have been reported to improve the phagocytic activity of macrophages, enhancement in nitric acid production by stimulation of splenocyte (5).

### Against Aids

Giloy may also be beneficial for people with HIV and other autoimmune disorders. Giloy's traditional use as an immune stimulant led researchers to study its effects on patients with HIV. In a study published in the "Indian Journal of Pharmacology," 60 percent of HIV patients who received giloy treatment reported a decrease in disease related symptoms, as opposed to only 20 percent who received placebo treatment. This study suggests that giloy may improve the immune systems of patients with HIV and other immune disorders, while also alleviating common side effects of these conditions. (1)

## Mental Disorder

The whole plant and the juice of the leaves are traditionally used in various mental disorders. This is regarded as one of the best psychotropic drugs in India. (1)

## Against Dengue

The capsule developed from giloy is useful in the treatment of Dengue. It is very much useful in ayurvedic treatment. (1)

## MEDICINAL USES

Stem: It is bitter stomachic, stimulate bile secretion, cause constipation, tonic, allays thirst, fever, burning sensation, vomiting, diuretic, enriches the blood, cure jaundice, useful in skin diseases. The juice is useful in diabetes, vaginal and urethral discharges, low fevers, enlarged spleen and act as a powerful diuretic.

The crude extract of dry stem of *Tinospora cordifolia* enhanced immune responses (4) Root: The roots are considered as powerful emetic and are used for visceral obstruction.

Guduchi satvva: The starch obtained from the roots and stems of the plant is similar to Arrow-root in appearance and effect. It answers not only as a remedial medicinal agent in chronic diarrhoea and chronic dysentery, but it is also a valuable nutrient, when there is intestinal irritability and inability to digest any kind of food(5)..

## Key Home Remedies Using Guduchi

Fresh Guduchi juice is an excellent herb to lessen fever and mouth dryness. About 10 ml of fresh Guduchi juice mixed with 10 ml of honey is good in the morning on an empty stomach to curtail a productive cough. Also, Guduchi juice mixed with ginger juice consumed in the morning on an empty stomach assists in rheumatoid arthritis known as amavatha. The mixture of giloy leaves Juice with jaggery alleviates constipation. Juice extracted from Guduchi leaves mixed with pure ghee lowers joint with pains resulted from a different kind of arthritis when taken on an empty stomach(2)

## THERAPEUTIC USES

All parts of guduchi plant are used for various medicinal purposes. The plant oil is effective in reducing pain and edema and in gout and skin diseases. The herb accords longevity, enhances memory, improves health, and bestows youth, betters complexion, voice, energy and luster of the skin. It is helpful in treating digestive ailments such as hyperacidity, colitis, worm infestations, loss of appetite, abdominal pain, excessive thirst, and vomiting and even liver disorders like hepatitis. Fresh juice of guduchi, when mixed with rock candy, speeds up the recovery in hepatitis patients. It helps in remedying ailments like raktapitta, anemia, cardiac debility, diabetes, sexual debility and splenic disorders. The starch of the plant serves as a household remedy for chronic fever, relieves burning sensation and increases energy and appetite. (1) Fresh juice with turmeric powder cures all types of hepatitis within a short period. In filariasis the paste of Guduchi, Kutaki, Sunthi, Devdaru and Vidanga works well when applied externally. In tubercular fever, its decoction is given with Ativisa. The juices of Guduchi, Amalaki and Haridra act synergistically in urinary problems. In Hepatitis, the fresh juice of Guduchi given with rock candy, hastens the recovery. The decoction of Guduchi and Sunthi is a very effective combination for the treatment

of gout and rheumatic disorders. It's medicinal ghee with Kantkari is beneficial in cough. Guduchi juice works well with cow's milk or lodhra in leucorrhoea and with cumin seeds in burning sensation due to Pitta. In menorrhagia caused by Vata, juice of Guduchi is highly beneficial. Its decoction with Nimba and Vasa effectively relieves the itching and oozing. The starch (Sattva) of Guduchi is used for chronic fever, to alleviate it as well as to reduce the burning sensation and to increase the appetite and energy. In indigestion it is given with jaggery and decoction of Guduchi and Triphala added with Pippali powder and honey alleviates all kinds of eye diseases. (5)

#### Preventive and Curative Potential of Guduchi as Food

Nutritional aspects of Guduchi are of a great importance in health and disease. The practice of using the leaves as a food article promotes health, serving both preventive and curative purposes. High carbohydrate and protein contents present in Guduchi helps in providing the essential energy component yielding 292.54 Cal/100g trace element presence in guduchi makes it a potential chromium and potassium supplement. The common intake of guduchi leaves as an anti-diabetic by people in diet is benefiting them by the action of the chromium component. Chromium supplementation also helps in relieving ataxia and peripheral nerve conduction defects. Potassium supplementation can reduce cardiac arrhythmias and also prevent the occurrence of the same, thus supporting the cardiac functioning. Ayurveda mentions the utility of guduchi in Hrududourbalya- as it enhances cardiac wellness. Guduchi also provides sufficient iron and calcium in accordance with the daily requirement thus preventing conditions such as Iron deficiency anaemia, dizziness, weakness, fatigue, dyspnoea and neuropsychiatric manifestations of chronic hypocalcaemia. (6)

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