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Tinospora cordifolia: A fountain of life force

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Abstract

Medicinal Plants are known for their bioactive compound which is responsible for various beneficial characters. Tinospora Cordifolia is one the important as well as very popular medicinal plant spread across the tropics; it is an esteemed medicinal plant whose uses and application with reference to human benefit have been praised to indescribable heights in various Ayurvedic and Vedic scriptures.

Keywords: Tinospora cordifolia, Giloy, Gulancha, Guluchi, heart-leaved

Introduction

Tinospora Cordifolia belonging to the family Menispermaceae. It is commonly known as “Amritha” or “Guduchi” or “Giloy” a climbing shrub found throughout India. The roots and stem contain several secondary metabolites having curative properties. The species is endemic to India and is common throughout tropical and subtropical zones at an altitude of 600m. The plant distributed throughout the tropical region of India up to 1,200m above sea level from Kumaon to Assam in north extending throughout West Bengal, Bihar, Deccan, Kankan, Karnataka & Kerala. It is typically grown in deciduous & dry forests at elevation up to 1000feet ^[1].

Phytochemical Composition

The different classes of compounds which are found in this plant are classed in groups like alkaloids, steroids, terpenoids, polysaccharides, glycosides and different aromatic and aliphatic compounds that are present in their phytoactive form that are responsible for the wide range of medicinal therapeutic properties. The presence of these compounds is found in various plant parts but highly concentrated in the stem, leaves and root part of the plant ^[2]. The main compound of this plant is berberine and furanolactone and furthermore compounds like tinosporone, tinosporic acid, cordifololides A to E, giloin, gilenin, crude giloininand, arabinogalacten, polysaccharides, picrotene, bergenin, gilosterol, tinosporol, tinosporidine, sistosterol, cordifol, heptacosanol, octacosonal, tinosporide, ecdysterone, makisterone A, hydroxyecdysone, magnoflorine, tembetarine, syringine, glucan, polysaccharides, sryingine apiosylglycoside, isoclumbin, plamatine, tetrahydropalmatine, jatrorrhizine are few of the compound s that have been lolated from the plant. The presence of three compounds like cyclo euphordenol, Cyclohexyl-11-heneicosanone and 2-Hydroxy-4-methoxy-benzaldehyde has been isolated from the plant and has been seen to be present in various other plants. The presence of proteins and miscellaneous compounds has been attributed to the medicinal properties of the plant ^[3, 4].

The above mentioned compounds are few of the many compounds present in the plant that contribute to the medicinal and therapeutic properties of T. cordifolia plant. The plant contain a high amount of fiber totaling to an total estimate of 15.9% and the protein content to about 4.5-11.2%, the total carbohydrates estimate to about 61.7 and a low fat amount estimating to about 3.2% and the mineral content totaling to about 0.845% of potassium, 0.006% chromium, 0.28% of iron and 0.131% of calcium. All these compounds are involved directly or indirectly in the pathways or regulatory, metabolic and cellular nature.

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Pharmacological Activity

The plant bears various antioxidants, antidiabetic, antiallergic, anticancerous and many more properties that make them a topic of great importance & interest.

Anti Diabetic Activity

The compounds such as alkaloids, cardiac glycosides, saponins, flavonoids, tannins and steroids isolated from guduchi possess anti-diabetic property. Hence, it makes possible to have wide application in clinical as well as experimental study. Alkaloids from guduchi stated to possess the effect like insulin hormone & shows insulin mediated actions. The root extract of guduchi shows antihyperglycemic effect in alloxan induced diabetic model by decreasing its excess glucose level in urine as well as in blood to a range of normal [5].

Antioxidant Activity

It has been observed that *Tinospora Cordifolia* exhibited excellent antioxidant activity in methanol, ethanol and water extracts. The observed high antioxidant activities of the extracts indicate the potential of the stem as a source of natural antioxidants or nutraceuticals to reduce oxidative stress with consequent health benefits.

Anti Allergic Activity

Tinospora Cordifolia has been studied for its antiallergic effect. It was found that *T.cordifolia* provided significant relief from sneezing nasal discharge, nasal obstruction, and nasal pruritis compared with placebo with consistent improvement on examination of nasal smears and nasal mucosa.

Anticancer Activity

The active principle from *T. cordifolia* enhances host immune system by increasing immunoglobulins & blood leucocyte levels and by the stimulation of stem cell proliferation. It has the ability to reduce solid tumours

volume by 58.8% which is comparable to cyclophosphamide, a known chemotherapeutic agent.[6]

Homoeopathic View

It has a curative influence over seminal debility, fevers, especially intermittent fevers, jaundice, splenic affections, leprosy, leucorrhoea, rheumatism, skin diseases, secondary syphilis, genito-urinary troubles such as gonorrhea, dysuria, etc. [7]

A tonic, patient is extremely weak, owing to repeated attacks of fever and exhausting seminal emissions. An excellent remedy for intermittent fever, jaundice, torpidity of the liver, bilious vomiting and leprosy [8].

Conclusion

Even though there are many herbal plants in this world guduchi is considered to be having greater medicinal value. *T. cordifolia* can be potential dietary component which helps in prevention of different diseases. The utility of guduchi leaves in diet is advisable and highly beneficial. Need to do more research by which the large quantity of active ingredients should be identified to treat several dreadful diseases.

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