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Tinospora cordifolia (Giloy) - Therapeutic Uses and Importance: A review

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ABSTRACT

Natural products having medicinal value are gaining more importance in clinical research now days due to their better pharmacological response and no side effects as compared to allopathic drugs. *Tinospora cordifolia* common name is "Guduchi" or "Giloy" is known for its application in the treatment of various diseases in the traditional ayurvedic literature. Active components obtained from the plant and their biological function in disease control has led to active interest in the plant. This review contains venicular name of plant, various components, their uses in targeting diseases .Giloy is an very important plant for treatment of various diseases.

Key words: Ayurveda, diseases, giloy, natural product, plant, tinospora.

1. INTRODUCTION

The common name of *Tinospora cordifolia* is "Guduchi" in Sanskrit belonging to family Menispermaceae is a genetically diverse, large, deciduous climbing shrub with greenish yellow typical flowers, found at higher altitude.[1-3] In racemes panicles, the male flowers are clustered and female are solitary. The flowering season expands over summers and winters.[4] A variety of active components derived from the plant like alkaloids, steroids, diterpenoid lactones, aliphatics, and glycosides have been isolated from the different parts of the plant, like root, stem, leaves and whole plant. Now days, the plant has more importance for research to preparing several dosage forms. because of its medicinal properties like anti-diabetic, anti-periodic, anti-spasmodic, anti-inflammatory, anti-arthritic, anti-oxidant, anti-allergic, anti-stress, anti-leprotic, anti-malarial, hepatoprotective, immune-modulatory and anti-neoplastic activities.

Tinospora cordifolia comprises several diverse chemical components that might affect the body. Some of these chemical substances have antioxidant effects while others might increase the activity of the body's immune system. Some substances might have activity against cancer cells in test animals. Maximum research has been done in test tubes or in animals. In this review we focus about medicinal uses of Giloy plant.[5]

Various parts of Giloy plant can be used (Fig. 1).

Fig. 1: (A) Leaves of Gloy (B) Stem of Gloy

2. ACTIVE CONSTITUENTS OF GILOY [6-7]

There are various active constituents of giloy plant obtained from various parts of plant like leaves, stems, roots etc (Table 2).

3. THERAPEUTIC USES [8-15]

Tinospora cordifolia have different constituents and used to treat various diseases. It is a multipurpose plant and its different dosage forms are used for various purpose.

3.1 Immunity Enhancer

Giloy is used to improve or boost immunity". It contains number of antioxidants which fight free-radicals, keep your cells healthy and get rid of diseases. Giloy helps to remove toxins and purifies blood, fights against bacteria.

3.2 In Chronic Fever

Giloy helps to recover fevers. Giloy is anti-pyretic drug, it can reduce signs and symptoms of several life threatening conditions like Dengue, Swine Flu and Malaria as well". It helps to improve blood platelets in fever.

3.3 In Digestion

Giloy is very beneficial in improving digestion and treating bowel related issues. Giloy powder with some amla can use regularly to maximum results, or with jaggery for treating constipation.

3.4 Treats Diabetes

Giloy is also a hypoglycaemic agent which help to treat diabetes particularly Type 2 diabetes. It also helps to lower blood sugar. It has been reported to mediate its anti-diabetic potential through mitigating oxidative stress (OS), promoting insulin secretion and also by inhibiting gluconeogenesis and glycogenolysis, thereby regulating blood glucose. The major phytoconstituents of *Tinospora cordifolia* are alkaloids, tannins, cardiac glycosides, flavonoids, saponins, and steroids as have been reported to play an anti-diabetic role.

3.5 Treats Arthritis

Giloy contains anti-inflammatory and anti-arthritic properties that help treat arthritis and its several symptoms. For joint pain, the powder from giloy stem. It can be used along with ginger to treat rheumatoid arthritis. *Tinospora cordifolia* have been reported to affect the proliferation, differentiation and mineralization of bone like matrix on osteoblast model systems *in vitro* and hence finds potential application as an anti-osteoporotic agent.

3.6 Reduces Asthmatic Symptoms

Asthma causes chest tightness, shortness of breath, coughing, wheezing, etc. Giloy have an anti-inflammatory action and helps to reduce respiratory problems like frequent cough, cold, tonsils**.**

3.7 Improves Vision and reduces Signs of Aging

In several parts of India, Giloy plant is helps to boost up vision clarity. For this, boil giloy powder in water, let it cool down and apply over the eyelids. This plant contains anti-aging properties that help reduce dark spots, pimples, fine lines and wrinkles. It provides flawless, glowing skin of an individual.

3.8 Anti-HIV effects

TCE has been shown to demonstrate a decrease in the recurrent resistance of HIV virus thus improving the therapeutic outcome. Anti -HIV effects of TCE was revealed by reduction in eosinophil count, stimulation of B lymphocytes, macrophages and polymorphonuclear leucocytes and haemoglobin percentage thus, revealing its promising role of application in management of the disease.

4. CONCLUSION

A plant with a multiple role is a resource for all forms of life. The plant extracts have active compounds in the form of alkaloids, glycosides, lactones and steroids. All these active compounds have immune-modulatory and physiological roles of

different types, thereby demonstrating the diverse versatility of the plant. Studies need to be conducted with aspects how the active compounds actually interact with the living systems and affects the structure-function relationships. Crystal structures of the membrane bound receptors and the activation of the downstream signalling cascades and the changes in the immediate environment of the site of action can lead us into identification of novel perspectives into our understanding of nature.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interests regarding the publication of this paper.

Table No. 1. Plant names in Indian languages

S. No.	Language	Name
	Sanskrit	Amrita
1.	Hindi	Giloy
2.	English	Tinospora
3.	Bengali	Golancha
4.	Gujarati	Gulvel
5.	Urdu	Gilo
6.	Punjabi	Gllow
7.	Telugu	Tippa-teega
8.	Odia	Guluchi
9.	Malayalam	Amruthu

Table No. 2. Active constituents of Giloy with Biological response

S. No.	Active Component Type	Compounds	Source	Biological Response
1.	Alkaloids	Berberine, Choline, Palmatine Tembetarine, Magnoflorine, Tinosporin, Isocolumbin	Stem Root	Anticancer, Antiviral infections, Neurological Disorder and Anti-diabetic
2.	Glycosides	Tinocordiside,Cordioside	Stem	Treat Neurological Disorder like Parkinsons
3.	Diterpenoid	Furanolactone	Whole plant	Vasorelaxants, Antiinfammatory, Antimicrobial Antihypertensive, Antiviral
4.	Steroids	Beta-Sitosterol	Stem aerial parts	Induce Osteoporosis in early inflammatory arthritis
5.	Aliphatic compound	Octacosanol	Whole plant	Anti-nociceptive and anti-inflammatory
6.	Others	Giloin, Tinosporic acid	Root	Used to treat anxiety, Protease inhibitors for HIV

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