

# *Tinospora Cardifolia*-Medicinal Significance.

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**Abstract-** Giloy (*Tinospora cordifolia*) also called Giloe, Guduchi and Amrita. It is herbaceous plant belongs to Family Asclepiadaceae. All the parts of plants (stem, root, leaves) are used in medicine. But the stem is thought to have the most effective and remarkable benefit. A variety of active components derives from the plant like alkaloid, steroid, diterpenoid lactones, aliphatics, and glycosides have been isolated from the different parts of plant. Recent studies shows that the plant is of great interest to researchers across the globe due to its medicinal properties like anti-arthritic, antimalarial, anti-diabetic, anti-inflammatory, anti-allergic and can be used as an immunity booster. Variety of active components derived from this plant viz alkaloid, steroid, diterpenoid, lactones, aliphatic and glycosides have been isolated from different parts of the plant body including root, stem and leaves. As compared to other plant parts, the stem is thought to have the most effective and remarkable effect. The nutritional value of *Tinospora cordifolia* is 292.54 calories per 100 grams. *Tinospora cordifolia* fruits are rich in Iron, Copper, Zinc, Magnesium, Potassium, and Sodium. The leaves of *Tinospora cordifolia* are rich in protein 11.2% calcium and phosphorus. The compounds of *Tinospora cordifolia* and does not have any other adverse effects recognized till date. This plant *Tinospora cordifolia* can be used as therapeutic agent against the diseases either alone or in combination in standardized form. Despite the various properties of the plant with no or less side effects.

**Key words:** *Tinospora cordifolia*, Giloy, diterpenoid, steroid.

## INTRODUCTION:

Giloy (*Tinospora cordifolia*) also called Giloe, Guduchi and Amrita. It is herbaceous plant belongs to Family Asclepiadaceae. All the parts of plants (stem, root, leaves) are used in medicine. But the stem is thought to have the most effective and remarkable benefit. A variety of active components derives from the plant like alkaloid, steroid, diterpenoid lactones, aliphatics, and glycosides have been isolated from the different parts of plant. The Ayurvedic Pharmacopoeia of India has been approved the plant's stem for use in medicine as it is the most beneficial part of this plant. *Tinospora cordifolia* is useful in building up the immune system and the body defense against certain infections. *Tinospora cordifolia* is found in dense and dry forest all over India growing over small trees and bushes at high altitude. The plant has long, slender stem that grow up to 20 feet long. Leaves are heart in shape and green in color. Inflorescence is racemes or racemose panicles the male flowers are clustered and female flowers are solitary and grow in clusters. Flowers are greenish yellow in color. Recent studies shows that the plant is of great interest to researchers across the globe due to its medicinal properties like anti-arthritic, antimalarial, anti-diabetic, anti-inflammatory, anti-allergic and can be used as an immunity booster.

## MATERIALS AND METHODS:

The plant under current study is *Tinospora cordifolia* which is a well-known climbingshrub plant with soft and smooth hairless leaf. *Tinospora* belongs to the family Asclepiadaceae. *Tinospora cordifolia* is commonly called as Giloy, Guduchi or Amrita. This plant is native to India but also found in China and tropical areas of Australia and Africa. The plant is sowed in the month of April and May and flower blooms on the top of its spike and appears when the plant is without leaves. Fruits appear in the month of May which grow in the bunch of three.

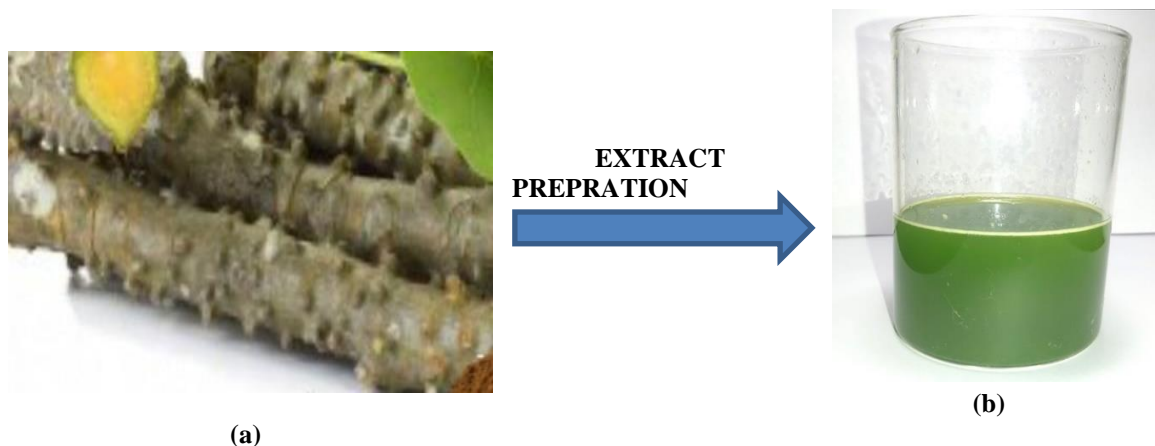


Fig 1 *Tinospora cordifolia*

**Procedure for extract preparation from stem:**

Take a healthy fresh part of *Tinospora cordifolia*. Wash the part of stem with the running water and then the peel it off. Cut the stem into small pieces of size 1cm × 1cm. Crush these pieces with the mortar and pestle and then put it in a grinder add some water and grind it well. Filter the extract with the help of muslin cloth. Now the extract of *Tinospora cordifolia* is ready to be served as per the dosage.

Another method which is also used for extract preparation includes the use of table salt and amla. In this method fresh fruits of *Tinospora* are collected and then add a pinch of table salt and boiled for 2 minutes. Now the edible part of *fruit* is extracted and the seeds are discarded. Put it in the grinder add some water and grind it well. After grinding filter, it with the help of clean muslin cloth and the filtrate is the extract of the plant.



**Fig 2 (a) Stem of *Tinospora cordifolia*. (b) Extract of *Tinospora cordifolia***

#### REVIEW OF LITERATURE:

Anuja Bodhare in the year 2022 worked on uses/benefits and side-effects-of *Tinospora cordifolia*. Avnish K. et.al in the year 2010 studied the validation of the Ayurvedic pharmacology through experimental and clinical studies of *Tinospora cordifolia*. Pandey M, et.al in the year 2022 evaluated the nutritional composition and antioxidant activity of herbal leaves of *Tinospora cordifolia*. Saxena C, Rawat G.in 2022 worked on the Therapeutic Uses and Importance of *Tinospora cordifolia*. In the year 2003 Singh J, et.al worked on traditional uses of *Tinospora cordifolia* and gave many uses of *Tinospora* used for the welfare of humans. In the year 2010 Avnish K. et.al worked on *Tinospora\_Cardifolia* and determined its use in ayurveda. In the year 2012 Soham Saha and Shyamasree Ghosh worked on roles of *Tinospora cordifolia*.

#### RESULT AND DISCUSSION:

*Tinospora* belongs to the family Asclepiadaceae. *Tinospora cordifolia* is commonly called as Giloy. This plant is native to India but also found in China and tropical areas of Australia and Africa. The plant is sowed in the month of April and May and flower blooms on the top of its spike and appears when the plant is without leaves. Fruits appear in the month of May which grow in the bunch of three.

Variety of active components derived from this plant viz alkaloid, steroid, diterpenoid, lactones, aliphatic and glycosides have been isolated from different parts of the plant body including root, stem and leaves. As compared to other plant parts, the stem is thought to have the most effective and remarkable effect. Some general nutritional substances found in *Tinospora cordifolia* include the following constituents.

Constituents	Concentration
Carbohydrate	61.66%
Fiber.	15.9%
Protein	7.8 %
Fat	3.1%
Iron	0.28%
Calcium	0.131%
Potassium	0.845%
Chromium	0.006%

**Table 1** Nutritional Components of *Tinospora cordifolia*

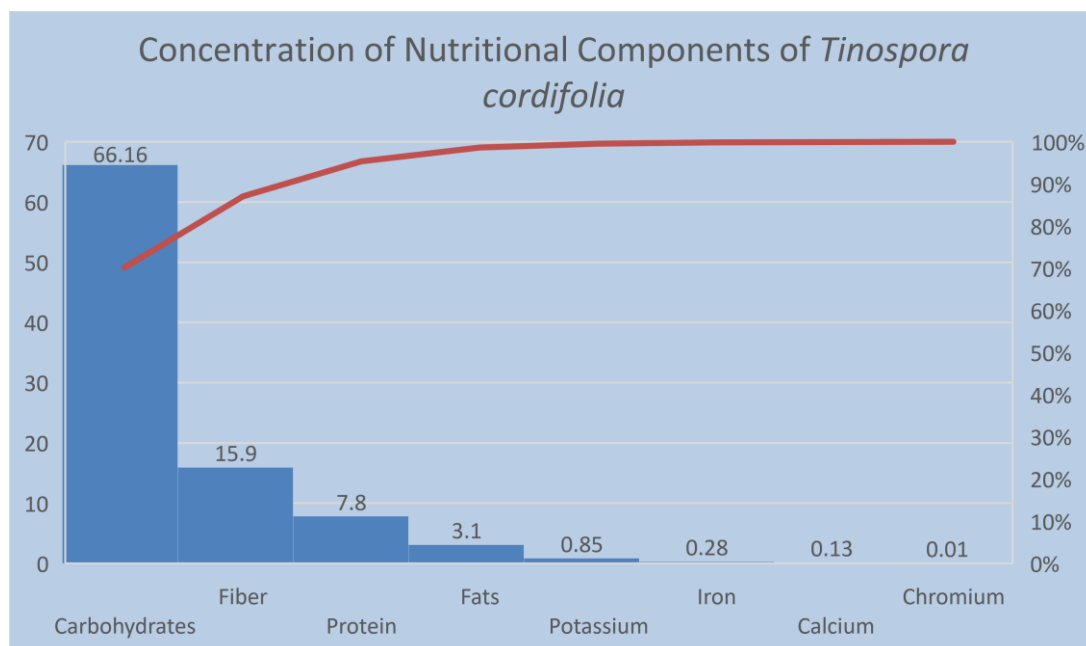
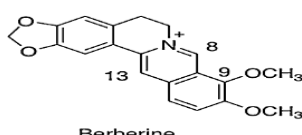
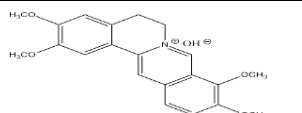
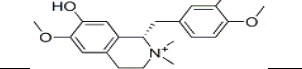

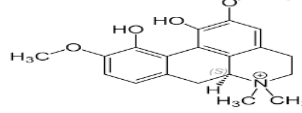
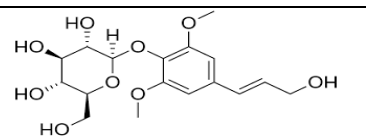
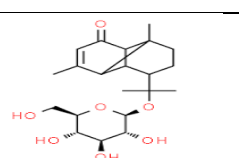
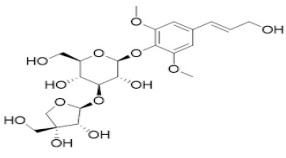
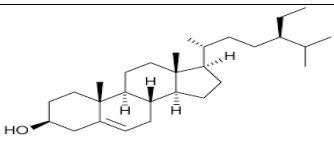
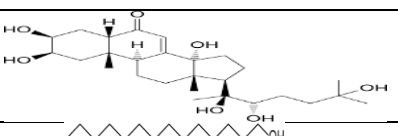
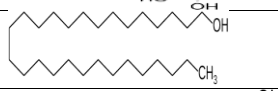



Fig 3 Graph for Nutritional Components of *Tinospora cordifolia*

Table:2

Chemical Compounds	Concentration	Biological activity
Alkaloid	Berberine 	Anti-cancer property Anti-oxidant activity
	Palmatine 	
	Tembetarine 	
	Isocolumbin 	
	Magnoflorine 	
Glycosides	syringin 	Respiratory track infection Skin cancer Anti-Hyperglycemic
	tinocordiside 	

	Cordifolioside		
Steroids	Beta setosterol		Anti-neoplastic property Anti-oxidant activity Anti-stress activity
	Ecdysterone		
Aliphatic compounds	octacosenol		
	Heptacosenol		

Chemical Compounds found in *Tinospora cordifolia*.

The nutritional value of *Tinospora cordifolia* is 292.54 calories per 100 grams. *Tinospora cordifolia* fruits are rich in Iron, Copper, Zinc, Magnesium, Potassium, and Sodium. The leaves of *Tinospora cordifolia* are rich in protein 11.2% calcium and phosphorus. *Tinospora cordifolia* can be used as a supplement in pill or capsule form (Singh J, Sinha K, Sharma A). The plant extract is also available in the dried powder as well as tincture or juice which is made from roots and stem. This powder can be consumed by adding sufficient amount of water. It can also be used in the scabies rash in the lotion, cream or ointment form.

The plant has been widely used in the ayurveda for past several decades. All the parts of the Giloy are used in medicine. The extract preparation of *Tinospora cordifolia* is must before it is used in medicine combinations. The extracts of the plant can be prepared by the following procedure. The common ingredients used for extract preparation include stem of *Tinospora cordifolia*, water. Some if the chemical constituents and their structures along with biological activities are depleted in table 2.

Research shows that this plant reduces blood sugar by making cells less insulin resistant so can be helpful for those suffering with diabetes. An alkaloid compound *Berberine* present in *T cordifolia* that has functional similarity with *Metformin* (Diabetic Drug). Berberine not only reduce blood sugar but also controls LDL (Bad) cholesterol. Studies shows that *T. cordifolia* protect cells from oxidative damage, hence have antioxidant effects (Avnish K. Upadhyay). A study performed on people suffering from Hay fever allergies in which 83% of people said they experienced complete relief from sneezing after consuming *T. cordifolia*.

## CONCLUSION:

*Tinospora cordifolia* is a versatile plant which have the variety of active medicinal chemical compounds like alkaloids, terpenoids, Ligans, steroids. These chemical compounds have been acknowledged for their effectiveness in treatment of certain diseases like cancer, malaria, diabetes, HIV, allergies and inflammations (Avnish K. Upadhyay). The compounds of *Tinospora cordifolia* and does not have any other adverse effects recognized till date (Singh J, Sinha K). This plant *Tinospora cordifolia* can be used as therapeutic agent against the diseases either alone or in combination in standardized form. Despite the various properties of the plant with no or less side effects.

## REFERENCE:

1. Avnish K. Upadhyay, Kaushal Kumar, Arvind Kumar, Hari S. Mishra (2010) *Tinosporacordifolia* (Willd.) Hook. f. and Thoms. (*Guduchi*) – validation of the Ayurvedic pharmacology through experimental and clinical studies *Int J Ayurveda Res.* **1**(2): 112–121. doi: 10.4103/0974-7788.64405.
2. Pandey M, Paul V, Singh P, Ali Z. (2022) Evaluation of nutritional composition and antioxidant activity of herbal leaves. *World J Pharm Pharm Sci* [Internet]. 2016 Jun 14;5(8):1396-402.
3. Saxena C, Rawat G.(2022) *Tinospora cordifolia* (Giloy)-Therapeutic Uses and Importance: A review. *Curr Res Pharm Sci* **25**;9(3):42-5.
4. Singh J, Sinha K, Sharma A, Mishra NP, Khanuja SP. (2003) Traditional uses of *Tinospora cordifolia* (Guduchi) *J Med Aromat Plant Sci.* ;25:748–51.