

Miracle Plant *Tinospora cordifolia*: A Review

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Abstract

Tinospora cordifolia is commonly known as Giloy or Amrita. It is a perennial climber plant, which belongs to family Menispermaceae. It is very important plant used in ayurvedic medicines. This miracle plant contains many alkaloids, glycosides, steroids, essential oils, fatty acids, polysaccharides and micronutrients. The plant has anti-viral, anti-microbial, anti-allergic, anti-pyretic, anti-inflammatory, anti-oxidant anti-cancer, anti-diabetic, anti-periodic, anti-arthritis, anti-stress, anti-leprotic, anti-malarial, anti-spasmodic, analgesic, anti-pyretic and anti-inflammatory properties. Due to its anti-viral, anti-microbial and immunomodulatory properties it is widely used during the COVID-19 pandemic for prevention and treatment.

Keywords: *Tinospora cordifolia*, anti-viral, anti-microbial, immunomodulatory

Introduction

Tinospora cordifolia which is commonly known as Giloy or Amrita is used for revitalization and it is a very important plant in Ayurveda. It is a perennial, deciduous, dioecious climbing shrub of family Menispermaceae. Systematic position of *Tinospora cordifolia* according to Bentham and Hooker is as follows

Kingdom – Plantae
Class- Dicotyledons
Subclass- Polypetalae
Series – Thalamiflorae
Order- Ranunculales
Family- Menispermaceae
Genus- *Tinospora*
Species- *cordifolia*

Vernacular/Local names of *Tinospora Cordifolia*

Tinospora cordifolia belongs to family Menispermaceae. Local or vernacular names

Sanskrit- Guduchi, Madhuparni, Amrita, Chinnaruha, Vatsdaani, Tantrika, Jivantika, Kundalini and Chakralakshanika

Hindi -Giloya, Guduchi, Gurcha

Bengali- Gulancha

English- Gulancha, Indian *Tinospora*, Moon creeper, Heart leaved moonseed

Gujarati- Galo, Galac

Kannada- Amrita balli, Madhupa

Malyalam- Chittamrutu

Marathi- Shindilakodi, Amritavalli

Oriya- Guluchi

Punjabi - Gilo

Tamil- Shindilakodi, Silam, Kunali

Telugu- Tippatiga

Urdu- Gilo

Bengali- Gulancha (Ali, 2007, Sharma et al, 2010, Bharathi, 2018; Saeed et al, 2020)

Plant Description

Plant description of *Tinospora cordifolia* is based on description given by Choudhary et al., 2013 and Indian biodiversity. org.

Tinospora cordifolia is a large deciduous, climbing shrub with several twinning branches.

Root- Aerial, filiform (thread like) (Spandana et al, 2013). Colour of dried aerial roots is light grey-brown or creamish white, bitter in taste and odourless (Bharathi et al, 2018).

Stem-Cylindrical, elongated, branched, fresh stem has a green succulent bark covered by a thin brown bark and have lenticels. When dry, the stem shrinks and bark separated from the wood.

Leaves- Simple, phyllotaxy alternate, exstipulate, petiole long and base pulvinate, leaves cordate, 7-9 nerved, apex acute.

Inflorescence- Axillary or terminally raceme.

Flower-Unisexual

Aim of the Study

Tinospora cordifolia is a miracle herb and it is widely used during COVID-19. It has several medicinal properties and known as Amrita. Therefore, author has decided to review on *Tinospora*.

Male flowers

Small, yellow or green in colour, occur in clusters.

Calyx- No. of sepals 6, in two whorls, outer three are very small green in colour, inner three are larger membranous, broadly elliptical, concave, yellow, margins reflexed.

Corolla- No. of petals 6. In two whorls, smaller than sepals, obovate, membranous.

Androecium- No of stamens 6, polyandrous.

Gynoecium-Pistillode

Female flowers are Solitary

Calyx- No. of sepals 6, in two whorls, all are green, margins not reflexed

Corolla- No. of petals 6. In two whorls, smaller than sepals, obovate, membranous

Androecium- 6 staminodes.

Gynoecium-No. of carpels 1-3, on short gynophores, dorsally convexed and scarlet, style short.

Fruits - Drupe, aggregate in clusters of one to three, red in colour when ripe, ovoid or globose, shining.

It is widely used in treatment of various diseases. Mostly it is used in fever, vomiting, diabetes, jaundice, anemia, polyuria and skin diseases. During COVID-19 pandemic it is widely used for the prevention and treatment. It has anti-viral, anti-allergic, anti-pyretic, anti-inflammatory, anti-oxidant, anti-ulcer, anti-cancer (Khan et al, 2016), anti-diabetic, anti-periodic, anti-arthritis, anti-stress, anti-leprotic, anti-malarial, properties (Saha and Ghosh, 2012; Bharathi et al, 2018; Arora et al 2013; Choudhary et al., 2013; Joshi and Kaur, 2016), anti-spasmodic, analgesic, anti-pyretic and anti-inflammatory (Arora et al, 2013). Sharma and Sharma (2015) said that vaccination of *Tinospora cordifolia* enhances the immunity in children. Studies of More and Pai (2011) proved that herbal preparations of *Tinospora cordifolia* used as immunomodulator for macrophages, which are known to represent the first line of defense against invading microorganisms. Dissanayake and his coworkers (2020) confirmed the presence of immunomodulatory protein in stem powder of *Tinospora cordifolia*. Immune stimulatory activities were also reported by Alsuhaibani and Khan (2017). Sannegowda and his coworkers (2015) mentioned that *Tinospora cordifolia* inhibits autoimmune arthritis by regulating key immune mediators of inflammation and bone damage. Aher

and Wahi (2010) reported that alcoholic extracts obtained from dried ripe fruits of *Tinosporacordifolia* possess good immunomodulatory activity.

Anti-microbial properties of *Tinospora cordifolia* were reported by Mishra et al, 2013; Kumar et al, 2017; Sharma et al, 2019; Alsuhaibani and Khan, 2017; Kalikar et al, 2008. Antiviral aspect of *Tinospora cordifolia* on oral herpes reported by Pruthivish and Gopinatha (2018).

It contains many alkaloids like aporphine, clerodane diterpenes, berberine, palmatine, tembertarine, tinosporin, magniflorine, choline. It has Glycoside like tinocordiside, tinocordifolioside. It also contains steroids, essential oils, fatty acids and polysaccharides (Khan et al, 2016). It is also containing protein and micronutrients. Micronutrients found in *Tinospora* are iron, zinc, copper, calcium, phosphorus and manganese (Saeed et al, 2020).

Conclusion

It is noticeable from the above review the *Tinospora cordifolia* possesses important position in the ayurvedic and traditional medicine system. It is one of the popular medicines during COVID-19, due to its anti-viral, anti-microbial, anti-inflammatory and immunomodulator properties.

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