

**A REVIEW ON TINOSPORA CORDIFOLIA (GILOY):
MULTIPURPOSE MEDICINAL PLANT****Manisha N. Sodha***

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Article Received on
28 February 2025,Revised on 20 March 2025,
Accepted on 10 April 2025

DOI: 10.20959/wjpr20258-36330

***Corresponding Author****Manisha N. Sodha**Lecturer, Tolani Institute of
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Kachchh, Gujarat. 370205.**ABSTRACT**

Tinospora cordifolia is very important medicinal plant, climbing shrub from an important of Ayurvedic system of medicine which belong to the family menispermaceae acting as one of the main source of new pharmaceutical and health care products. It is commonly referred to as Amrita, Guduchi, Giloy, and can be found in various regions of India. The healing properties and therapeutic benefits of the plant are well-known and have been utilized for centuries. The therapeutic applications of Giloy, along with its phytochemicals, are of great significance as valuable medicinal plants. In Ayurvedic literature Giloy is described as amrita because of its abundant medicinal benefits. It is also believed that it can extend the lifespan of humans by boosting their immunity and reducing the risk of developing chronic diseases. Because of its immunity boosting effect the Giloy is used for the

treatments of chronic fever, swine flu, malaria, diabetes, skin problem, urinary problem anaemia etc. As an immunity booster the Giloy also used in the treatment of corona virus infection Covid 19. The Giloy plant, which grows on the neem tree, is favoured more than other climbing plants. To fight against Covid, Giloy is consumed with Ashwagandha, Tulsi, Honey etc. The chemical composition of Giloy belongs to different classes such as alkaloids, steroids, glycoside and polysaccharide like compound having medicinal properties. Giloy, a natural remedy, may cause constipation and pose risks for individuals with autoimmune disorders.

KEYWORDS: Tinospora cordifolia, Plant extract, Immunomodulator, Medicinal Plant.

INTRODUCTION

Tinospora cordifolia, also known as Giloy, is a climbing plant belongs to family Menispermaceae that is commonly used in Ayurvedic medicine. It is also referred to as Guduchi, is a well-known plant with medicinal properties. Moonseeds, Amrita, Gurach, and *Tinospora* are all types of herbs that have been used in Ayurvedic medicine for their healing properties. It is recognized for its exceptional medicinal properties and the numerous benefits it offers. Additionally, the FDA has also approved this medication. The Giloy species is endemic to India and is commonly found throughout tropical and subtropical zones over 600 m altitude. In India it is distributed up to 1200 m in tropical region from Kumaon to Assam, in north extending through West Bengal, Bihar, in Deccan Kankar, Karnataka and Kerala. The Giloy species is also found in Myanmar, Malaysia, Vietnam, Bangladesh, North Africa, South Africa. Giloy is a tall climber that can grow on the tallest trees. The forest was adorned with numerous branches that stretched out in a long, winding manner. The: Roots are aerial threats that resemble square shapes and emerge from mature plants branches: The dried aerial roots have a light grey brown or pale brown colour appearance, lacking any scent and possessing a bitter taste. The stem of the plant is cylindrical and slightly twisted, resembling a dried stem. In the form of starch derived from the stem, known as 'Guduchi', it is commonly used in Ayurvedic medicine. The leaves of this plant measure around 10-15 centimetres in length. The leaves of the plant are long and green, but overgrown leaves are yellowish green in colour and having high amount of protein and calcium content and phosphorus.

Significant number of Ayurvedic institutions have recognized Giloy sticks as effective in boosting immunity against the Covid-19: One of the organizations in India that actively engages in the field of ayurveda is Patanjali ayurveda, have come out with a drug formula “Coronil” containing Giloy, Ashwagandha Tulsi and other herbs. The composition of ripe *tinospora cordifolia* fruit was analyzed by examining the composition of carbohydrate total soluble sugar, Amino acid, free amino acid, protein, starch, cellulose, lipids. Etc: Giloy is rich in fiber (15. 8%), proteins (4. 5-11. 5%), Carbohydrates (61. 66%), low-fat (3. 1%), nutritional value. 292. 54 calories per 100mg, beside its values the plant also offers a variety of other valuable minerals such as potassium (0. 845%), chromium (0. 006%) and iron (0. 28), calcium (0. 131%). A variety of chemical components such as alkaloids, diterpenoids, lactones, glycoside, and aliphatic compounds polysaccharides, steroids like *tinosporine*, *Tinosporide*, *tinosporaside cordifolia*, *cordifol heptacosanol*, and. *Tinosporidine*. All parts of plants are utilized in various ways. Ayurvedic medicine, derived from fresh plants, is

considered more advantageous than desiccated plant. The stem extract of *Tinospora cordifolia* can be stored for 8 weeks in ideal storage conditions. The primary chemical component of Giloy plant is berberine, which is responsible for its medicinal properties used in the treatment of cancer. The yield of fresh stem bark like Giloin, gilonin, gilosterol, hypoglycemia agent, and phenolic compound Lignin have also been extracted from this plant.

THERAPEUTICS ATTRIBUTES

Tinospora cordifolia is extensively utilized in traditional Ayurvedic medicine across the India. It has demonstrated significant promise for the creation of pharmaceutical products using biological processes known as biopharmaceutical for the treatment of various diseases.

It also acts as Immunomodulator, Hepatosuppression,, anti-allergic, anti-inflammatory, anti pyretic, anti-HIV, anti-diabetic, anti-cancer, anti-toxic, anti- malarial. The Giloy plant possesses properties that are useful for creating beneficial medications. The leaves of Giloy plant extract have demonstrated anti-HIV properties. As a result, it can be concluded that the biological extract derived from this plant will have significant benefits that will be helpful in safeguarding and treating a wide range of viral illnesses. Guduchi is also used for soothing inflamed and irritated skin; damaged lining of the digestive tract, stomach and duodenum by stimulating the production of Mucin, a glycoprotein that forms a protective layer on the surface of cells and tissues. The starch derived from the Giloy stem or roots can be used for various purposes like to treat chronic diarrhoea and dysentery etc. The extract from the Giloy plant is known to be beneficial in safeguarding the body and treating various viral diseases that affect humans, also used in the treatment of chronic fever, diarrhoea, cancer, jaundice, and other serious illnesses.

BENEFITS OF GILOY

There are multiple active components found in the Giloy plant that have been identified and studied from different parts of plants such as leaves, stems, and roots. Various diseases are treated using different constitutions. It is a versatile plant and its various dosage forms are utilized for multiple purposes.

Immunomodulatory Effects

Consuming fresh Giloy juice aids in boosting the body's immune system. It improves the functions of macrophages (The cells responsible for engulfing and destroying foreign substances). Giloy is a plant that has many health benefits. Boosts the body's immunity and

stimulates the immune system. A wide range of compounds that are having cytotoxic effects are responsible for the Immunomodulator action are 11-hydroxy muskatone, N-methyl-2-pyrrolidone, N-Formylannanain cordifolioside, A Magnoflorine tinocordioside and syringing.

Anti-oxidants activities

The extract obtained from the stem of tinospora has been found to possess anti-oxidant properties by increasing the erythrocytes membrane lipids peroxide and catalyse activity. It also decreases the Activity of SOD.^[16] The extract derived from the leaves of tinospora cordifolia has been found to possess various beneficial properties. It is believed that it contains an alpha- glycosidase inhibitor which is found to be significant Anti-oxidants.

Anti-Arthritis activities

Giloy possesses properties that help reduce inflammation and alleviate arthritis symptoms. That aids in alleviating arthritis and its various symptoms in the joints. The power derived from Giloy stem can be extracted by boiling it with milk and Consumed. It can be combined with ginger to alleviate the symptoms of Rheumatoid arthritis. It alleviates swelling, joint discomfort, and stiffness. Inflammation linked to arthritis is reduced by decreasing synthesis of proinflammatory cytokines like 1L-1B, 1L-17 and tumour necrosis factor α .

Anti-diabetic actions

The stem of this (Giloy) plant is commonly employed to treat Diabetes type 2. It is known for its ability to lower blood sugar levels, making it a popular choice for managing diabetes. Giloy is a plant that has many health benefits. Additionally, enhance the long-term insulin sensitivity of the cells helps to effectively manage diabetes.

Anti-cancer activities

Tinospora cordifolia (Giloy) exhibits properties that can combat cancer. This activity is primarily observed in the animal models. The root extract of Giloy has been demonstrated to possess radio-protective properties due to its specific chemical composition. Significantly elevates in body weight, tissue weight, and tubular diameter. The main function of tinospora cordifolia is to strengthen the host immune system by boosting the levels of immunoglobulin and blood leukocytes by promoting stem cell growth and multiplication The Giloy extract was found to have anti-inflammatory properties and it decreases the size of solid tumours by 58. 8%. 60%. The same effect is produced by Cyclophosphamide, a well-known chemotherapeutic agent.

Anti-toxic

Tinospora cordifolia (Giloy) exhibits anti-toxic properties due to its capability of reducing the concentration of thiobarbituric Acid reactive substance (TBAR) and increasing the level of Glutathione ascorbic acid. Alkaloids such as palmetin, isocolumbin tetrahydroxy and magnoflorine found in *tinospora cordifolia* have been shown to have protective effects against the aflatoxin-induced kidney damage. The antioxidants found in the extract of Giloy are present in aqueous form prevents the any liver damage caused by nitrates.

Anti-HIV activities

Giloy may also provide benefits for individuals with HIV and other related conditions.

Giloy has been traditionally used as an immune booster. Researchers were interested in studying the impact of stimulant on individuals with HIV positive. HIV is a virus that attacks the immune system and can lead to AIDS. The consumption of Giloy root extract has demonstrated notable effect of modulating the immune system positively in HIV patients.

Recent studies have provided valuable insights that approximately 60% of HIV patients experience certain effects, who underwent Giloy treatment experienced a reduction in diseases and their associated symptoms and 20 percent of the individuals received the Placebo effect. This research indicates that Giloy may have certain effects that enhance the immune system of a patient with HIV. Root extract from *tinospora cordifolia* has demonstrated an anti-HIV effect by decreasing the eosinophil count and increasing the β – cells Lymphocytes, macrophages, and haemoglobin levels. The ethyl acetate extract exhibited a significant level of potency at a concentration of 20 Mg/ml, 85% of the HIV 1 RT inhibition activity was observed.

Anti-bacterial

Tinospora cordifolia exhibits antibacterial properties, primarily due to its alcoholic Extract. The activity of ethanol has a notable impact on inhibiting the growth of certain microbes.

The components that possess antimicrobial properties are the chemical substances like furenolactone, tinosporon, jateorin, and Columbine. The *tinospora cordifolia* methanolic extract was used in the study. Plant was discovered to possess antimicrobial properties against *bacillus subtilis* (MTCC8), *E. coli* (MTTCC1), *S. aureus* (MTCC98) and *S typhi* (MTCC737) and is sensitive to different microorganism from a different species. Giloy extract is Utilized as a natural source of antimicrobial properties. The presence of chemical compounds such as

alkaloids, berberine and glucoside giloyin can be detected in the plant. These chemical compounds are responsible for Anti-Bacterial properties of Giloy.

Cardio protective effects: The alcoholic extract of *tinospora cordifolia* (Giloy) is utilized in the production of Cardio protective activity. The impact of *tinospora cordifolia* in cardiac protection is significant. The effectiveness of cardio protective measures is directly proportional to the dosage administered, with higher doses it results in greater protection by decrease in plasma calcium and sodium levels, along with an increase in potassium levels, was observed in the patient when compared to Verapamil. As a result, the *tinospora cordifolia* is utilized for the treatment for atrial and ventricular fibrillation, flutters, and other cardiac arrhythmias like Ventricular tachyarrhythmia's The primary constituents that are beneficial for the heart and are commonly found in *Tinospora cordifolia* are furan lactone, tinosporin, and other compounds like Tinosporide, jateorine, columbine, and clerodane derivative.

Anti-aging and vision

Tinospora cordifolia, also known as Giloy, is a powerful natural remedy for combating the signs of aging. Using it regularly can aid in minimizing the appearance of fine lines, wrinkles, and age spots. Rich in flavonoids, it combats cell damage and promotes overall health.

It also nourishes the skin and promotes healthy hair growth. Boosts collagen production to diminish the visible effects of ageing. As people age, they must learn to accept and embrace the physical, mental and emotional changes that come with it. Giloy plant aids in enhancing the clarity. Boil the Giloy powder allow it to cool and apply on the eyelids.

Side effects and toxicity: The highly advantageous Giloy does not have any severe side effects. It is employed to address a wide range of health issues from the least dangerous to the most life-threatening.

Causes bowel obstruction

Despite its numerous benefits, Giloy is particularly effective in treating Digestive health issues it can cause irritation in the stomach and lead to discomfort and causes gastrointestinal obstruction as well. It is important to address the issue. It can be consumed in various forms, such as juices, capsules, or powdered form. One of the severe side effects of Giloy is constipation.

Reduces blood glucose levels

If an individual has diabetes and is using Giloy as a substitute, it is important to consult with a healthcare professional. It is important to regularly monitor your blood sugar levels while taking prescribed diabetic medication. The blood sugar level fluctuates frequently. These would be a requirement to modify or alter the medications prescribed for diabetes to avoid the negative consequence of low blood sugar, it is important to take the necessary precautions.

Pregnancy and lactation

It's not that Giloy is known to cause any severe side effects during pregnancy and breastfeeding; there is limited information available about it. A great deal of caution is exercised when administering and prescribing the medication and treatment during this stage. Further research is required to gather information about its specific details. So it is always advisable to avoid it and find an alternative solution. Stay on the safe side.

Medication interaction

When combined with other medications, the use of Giloy can have additional effects. It is well-known that Giloy interacts with diabetic and immunosuppressant medications.

Ex.: When Giloy is used in diabetic patients, it may potentially lead to adverse effects causing blood sugar levels dangerously low.

Surgery

It is recommended to discontinue the use of Giloy approximately 2-3 weeks prior to your surgery scheduled date, because it is known to cause the fluctuation in blood sugar levels.

It might disrupt the blood sugar levels during and after surgery that is crucial for the patient's well-being.

Autoimmune diseases

Autoimmune diseases are conditions where the immune system mistakenly attacks the body's own tissues and organs. Giloy possesses Immunomodulator properties that enhance the immune system. In the event of autoimmune disease, it may escalate to a level of activate the immune system. Therefore, it is advisable to avoid using Giloy for individuals who experience symptoms of autoimmune disorders. Those individuals who have an autoimmune disorder like lupus, Multiple sclerosis and rheumatoid arthritis might exhibit a rise in the occurrence of the symptom by using Giloy.

CULTIVATION

The Giloy climber herbs can be successfully cultivated in spacious gardens or greenhouses where the soil composition is diverse, consisting of sandy and clay loam soils. The soil should have good drainage and be adequately moist and rich in organic matter. Giloy grown on Neem tree is preferred, in addition to its medicinal properties. Advantages are it thrives in different weather conditions. The Crop cultivation takes place without the use of irrigation, relying solely on rainfall for its growth. The plant is very tall. The plant is sturdy and can thrive in various climates, although it prefers a specific temperature range hot weather. Stem cuttings are the most effective method for planting. For cultivating agricultural product. Planting is typically carried out during the rainy season, which typically occurs from July to August. The stem cutting Sown directly in the field without the use of any chemical pesticides. Mostly they are planted close to trees that are essential for the environment, such as Neem. Cuttings are gathered from older stems that have nodes; these Cuttings should be sown within 24 hours of being taken out of the original plant. Meanwhile stem cuttings should be kept hydrated by dipping in water. The plant can also be propagated using seeds. Planting this way, it takes almost double the time to grow and produce a crop compared to the previous method and yield the same amount of medication. A basal dose of FYM (farmyard) is recommended for optimal results. The recommended application rate for manure is 10 tons per hectare, with a half dose of nitrogen (75 kg). The application is done during the process of preparing the land. Around 2000-2500 stem cutting sections with nodes are necessary for 1 hectare of land. The stem cuttings that had nodes are planted directly in the field. The recommended spacing for the plants is 3 meters X 3 meters is suggested for optimal results.

The various combinations of Giloy used in the treatment of Corona viruses

Corona viruses are a family of viruses that can cause respiratory infections in humans and animals. They have a distinctive crown-like shape and are surrounded by a lipid membrane. Some corona viruses, such as SARS-CoV-2, can cause severe diseases, such as COVID-19.

Giloy climbing shrubs is renowned for its exceptional medicinal properties. Medicinal properties such as anti-diabetic, anti-malarial, and anti-inflammatory effects have been attributed to this plant. Chronic fever, blood purifying, anti-oxidants, and immunity booster are the key benefits of this natural remedy. As giloy is a climbing shrub it is grown alongside other crops like Neem, ashwagandha, tulsi etc. As time went on, the shrub became more

adept at absorbing nutrients and other chemicals Composition and this enhances the efficacy and therapeutic benefits of Giloy.

Neem with Giloy

The Giloy climbers, which thrive on neem trees, are favoured over other varieties. Compared to other medicinal plants, this particular species has unique properties that make it highly effective in treating various ailments. Neem Giloy is largely known for its medicinal properties. Recommended for the treatment of diseases caused by a compromised immune system. Its Anti-inflammatory, antipyretic, and blood purification effects has demonstrated its effectiveness in treating Cancer.

Ashwagandha with Giloy

Ashwagandha is a medicinal herb that, when combined with Giloy, it aids in the successful treatment of severe viral infections like corona virus,. Swine flu, etc. (Giloy sticks are beneficial in treating Corona virus by stopping its spread and growth of infection. The Potent Plant-Based phytochemicals acts as a barrier by preventing the entry of the covid-19 virus into the host's body. This is a straightforward herb that has been scientifically proven and has been used for a long time.

Tulsi with Giloy

When combined with natural Tulsi, Giloy aids in achieving a state of equilibrium of Pitta, strengthen lungs, cure respiratory infections, and treat Skin disorders in the body. It boosts the immune system and effectively treats jaundice, seasonal viral infections, and other related conditions like Digestive issues, constipation, urinary system disorders etc.

Home remedy preparation of Giloy juice

- ♣ Take the fresh stem of Giloy more than or equal to 1 feet.
- ♣ Cut into small pieces into 3 to 4 equal parts.
- ♣ Crush the pieces and add into water approximately 1 liter.
- ♣ You may add Tulsi leaves, Ashwagandha etc.
- ♣ Boil the mixture on low flame till 250 ml water remains out of 1 liter.
- ♣ Let the mixture get cool (i. e. not to hot not to cool).
- ♣ Filter the mixture and drink in morning empty stomach for the better action.
- ♣ The juice can be drink 3 times a day.

CONCLUSION

The main purpose of this review was to document the Numerous medicinal properties and the chemical composition of the plant, The nutritional composition, advantages of Giloy, potential side effects, and other relevant information about this herb. The study of the toxic effects of *Tinospora cordifolia*. *Tinospora cordifolia*, also known as Giloy, is a plant that has been used for centuries in traditional medicine. Powder, juice, and supplement forms are available for this product. It can be used in any form. Advantages such as immune system enhancement, reduction in chronic fever, and anti-inflammatory properties. Asthma, arthritis, aging, liver protection, anti-inflammatory, Antioxidant: Etc. It utilized the cultivation of the plant. Tissue culture is the alternative method for the rapid propagation of plants. Propagation example Giloy climbs on neem tree. Neem Giloy is commonly recommended for the treatment of illnesses. It is used as homemade herbal remedy. Giloy sticks are being used for various purposes. According to a significant number of Ayurvedic institutions, this product is highly recommended. It is advisable for individuals to seek medical advice from their doctor before using Giloy if they have any pre-existing medical conditions. If you have any health issues or are pregnant or breastfeeding, please consult the doctor before using the Giloy.

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