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RESEARCH ARTICLE

MEDICINAL PLANT: GILOY

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ABSTRACT

Tinospora cordifolia, which is known by Giloy, is a herbaceous vine, commonly found in India. It is widely used in traditional Ayurvedic medicine. This review reveals the phytochemistry and cultivation practices of Giloy, along with the economic importance of the plant.

Key Words:

Medicinal plant, Giloy,
Phytochemistry,
Cultivation practice.

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INTRODUCTION

Tinospora cordifolia (Thunb.) Miens has long been a part of Ayurvedic medicine in India. This perennial, herbaceous vine belongs to the family Menispermaceae with many common names viz., Giloy, Guduchi, Gurcha, Amrita or heart-leaved moonseed. The species is common throughout tropical and subtropical zones at an altitude of 600 m. It is found in India, Bangladesh, Sri Lanka, Myanmar, China, Thailand, Philippines, Indonesia, Malaysia, Borneo, Vietnam, North Africa, and South Africa. Giloy is a large climbing shrub with elongated twining branches spreading extensively. A special feature is the presence of wiry aerial roots arising from the branches. Stems are rather succulent, creamy white to grey, deeply cleft, papery bark and rosette-like pores (lenticels). Leaves are simple, alternate, cordate-ovate, and very thin with long leaf stalks bulged at the base and apex. Inflorescence, called racemes is both axillary and terminal; flowers tiny, greenish yellow, unisexual dioecious. Fruits are of three shortly stalked subglobose drupes, scarlet coloured when ripe. The plant flowers during the summer and fruits during the winter. The plant is genetically diverse, containing different active components, including steroids, aliphatics, alkaloids, glycosides, and diterpenoid lactones. These active compounds are distributed over all parts of the plant, such as the root and stem.

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The herb has a long history of being used in traditional system of medicines and by ayurveda practitioners in India to treat numerous disorders or diseases. Due to its recently reported medicinal properties, *Tinospora* has gained interest among researchers.

MEDICINAL PROPERTIES

T. cordifolia is widely used in traditional Ayurvedic medicine in India. It has shown great potential for the development of biopharmaceutical products for the treatment of various diseases (Kirti *et al.*, 2004). Giloy is a tonic and has alterative, diuretic, and aphrodisiac properties. It is a febrifuge used in malarial and chronic fever. It is also a liver tonic. Studies have reported diverse medicinal properties of the plant, including antispasmodic, antidiabetic, anti-arthritic, antiperiodic, anti-inflammatory, antioxidant, antistress, anti-allergic, antimalarial, hepatoprotective, antileprotic, antineoplastic, and immunomodulatory activities (Neeraja and Margaret, 2013).

Phytochemistry

Almost all the parts of the plant are used in ayurvedic formulation. Fresh plant is more efficacious than dried plant. The plant mainly contains alkaloids, glycosides, steroids, sesquiterpenoid, aliphatic compound, essential oils, mixture of fatty acids and polysaccharides. The alkaloids include berberine, bitter gilonin, non-glycoside gilonin and gilosterol. The main alkaloid and secondary metabolites of giloy are tinosporine, tinosporide, tinosporaside, cordifolide, cordifol,

heptacosanol and tinosporidine, which are effective in removing body toxins and improving immune system (Singh *et al.*, 2003). Phytochemical investigation of the methanol extract of *Tinospora cordifolia* aerial parts led to the isolation of four new and seven known compounds. The two new aporphine alkaloids, N-formylasimilobine 2-O-β-D-glucopyranosyl-(1→2)-β-D-glucopyranoside (tinoscorside A) and N-acetylasimilobine 2-O-β-D-glucopyranosyl-(1→2)-β-D-glucopyranoside (tinoscorside B), a new clerodane diterpene, tinoscorside C, and a new phenylpropanoid, sinapyl 4-O-β-D-apiofuranosyl-(1→6)-O-β-D-glucopyranoside (tinoscorside D) (Upadhyay *et al.*, 2011). Besides its therapeutic properties, the plant also provides multiple essential minerals, such as iron, copper, manganese, calcium, zinc, and phosphorus. *T. cordifolia* contains with high fibre (15.8%), protein (4.5%-11.2%), carbohydrate (61.66%), and low fat (3.1%). *T. cordifolia* nutritive value is 292.54 calories per 100 grams. It has high potassium (0.845%), high chromium (0.006%), sufficient iron (0.28%) and sufficient calcium (0.131%). The leaves extract has shown anti-HIV1 activity. Thus, it can be said that biological extract from this plant will certainly be helpful in protecting and treating various viral diseases in humans. A dry bark of *T. cordifolia* has anti-spasmodic, antipyretic, anti-allergic, anti-inflammatory and anti-leprotic properties. The plant is likely to be safe for oral use over a short time. *T. cordifolia* stem extract, can be safely used for 8 weeks.

CULTIVATION PRACTICES

Giloy can be successfully grown in large variety of soils, ranging from sandy to clay loam. However, the soil should be well drained with sufficient moisture and rich with organic matter for its growth. It grows under varying climatic conditions. The crop is grown under rain-fed conditions. The plant is very rigid and it can be grown in almost all climates but prefers warm climate. Stem cuttings are the best planting material for raising commercial crop. Planting is usually done during rainy season (July to August). The stem cuttings are sown directly in the field. Cuttings are obtained from older stems with nodes. Cuttings should be sown within 24 hours of their removal from the mother plant. Meanwhile, they should be half-dipped in water vertically. About 2500 cuttings are required for plantation in 1 hectare of land. The plant can also be raised using seeds. Seeds take almost more than double the time to mature and yield the same quantity of drug. A basal dose of FYM (farmyard manure) @ 10 tonnes per hectare and half dose of nitrogen (75 kg) are applied at the time of land preparation. The stem cuttings with nodes are sown directly in the field. An optimum spacing of 3 m × 3 m is recommended for better yield.

The plant requires support to grow, which can be provided by raising wooden stakes or trellis. About two to three weedings and hoeings are required for good growth of twiner. No serious insect pest infestation or disease has been reported in this crop. The stem is harvested during autumn when it develops to a diameter of more than 2.5 cm. Basal part is left for further growth. The stem should be cut into small pieces and dried in shade. Stem bark peels off even by touch, thus stem should be cut very cautiously as peeled stem decays very soon. The plant yields about (10-15 q/ha) 1500 kg of fresh woody stem, reduced to 300 kg of dry weight per hectare in about two years.

Conclusion

Tinospora is available in powder, juice, and supplements form, any of which may be used for consumption. *Tinospora cordifolia* could be further exploited in the future as a source of useful phytochemical compounds for the pharmaceutical industry (Chaudhari and Shaikh, 2013). This plant species has huge therapeutic potential; it has been over exploited by human activities. So there is an urgent need to conserve it. Plant tissue culture techniques are the alternative method to rapid propagation of this plant for its conservation and for the enhancement of secondary products.

REFERENCES

- Chaudhari, S., Shaikh, N. 2013. Gaduchi- the best ayurvedic herb. *J. Pharm. Innov.*, 2(4):97-102.
- Kirti, S., Mishra, NP., Singh, J., Khanuja, SPS. 2004. *Tinospora cordifolia* (Guduchi), a reservoir plant for therapeutic applications: A Review. *Indian J Tradit Know.*, 3(3):257-270.
- Neeraja, PV., Margaret, E. 2013. Amruthavalli (*Tinospora cordifolia*) multipurpose rejuvenator. *Int. J Pharm Chem Biol. Sci.*, 3(2):233-241.
- Singh, SS., Pandey, SC., Srivastava, S., Gupta, VS., Patro, B. 2003. Chemistry and medicinal properties of *Tinospora cordifolia*. *Indian J. Pharmacol.*, 35:83.
- Upadhyay, PR., Sharma, V., Anita, KV. 2011. Assessment of the multifaceted immunomodulatory potential of the aqueous extract of *Tinospora cordifolia*. *Res J Chem Sci.*, 1:71-79.
