

Tinospora cordifolia (Willd.) Miers ex HK. f. & Th.

Syn. *Menispermum cordifolium* Willd.

Menispermaceae

Ayurvedic name	Amrita, Guduchi
Unani name	Giloe
Hindi name	Giloe, Gurcha
Trade name	Giloe
Parts used	Stem, root, whole plant



Tinospora cordifolia –
a close view

Therapeutic uses

Giloe 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. The plant is used in general debility, loss of appetite, fevers, urinary disorders, diabetes, rheumatism, and dyspepsia. Fresh plant is more efficacious than dried plant.

Morphological characteristics

Gurcha is a gregarious glabrous, twiner. Older stems are up to 2 cm in diameter and have corky bark. Aerial roots arise from nodal scars of branches. Stem and branches are specked with white vertical lenticels. Bark is grey-brown or creamy white, warty, papery thin, and peels off easily. Leaves are 5–15 cm, ovate, and acute. They are membranous when young but become more or less leathery with age.

Floral characteristics

Flowers are yellow, unisexual, minute, and less than 2 mm in size. Male flowers are grouped in axillary racemes, while female flowers are solitary. Fruit is an ovoid and succulent drupe, lustrous, red in colour, and of the size of a large pea, having a single seed. Seed is fleshy and curved. Flowering occurs in May–June, while fruiting is witnessed in September–October.

Distribution

The species is endemic to India and is common throughout tropical and subtropical zones at an altitude of 600 m.



Tinospora cordifolia – plant

Climate and soil

The plant grows in subtropical and tropical climate. Light medium sandy loam soil rich in organic matter, and with adequate drainage, is suitable for its cultivation. It does not tolerate high rainfall or waterlogged conditions.

Propagation material

Stem cuttings are the best planting material for raising commercial crop. The cuttings can be obtained from mother plants in June–July.

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.

Agro-technique¹**Nursery technique**

- **Raising propagules** 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.
- **Propagule rate and pretreatment** About 2500 cuttings are required for plantation in 1 hectare of land. No specific treatment is required before sowing.

¹ Agro-technique study carried out by Jamia Hamdard, Hamdard Nagar, New Delhi 110 062.

Planting in the field

- *Land preparation and fertilizer application* The land is ploughed, harrowed, and made weed-free. 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.
- *Transplanting and optimum spacing* 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. Already growing shrubs or trees can also support the plant.
- *Intercropping system* Being a large twiner, it needs a host to twine and covers the host in a very short period. If the stem cuttings with aerial roots are thrown over trees, they start growing and strike roots in the ground.
- *Interculture and maintenance practices* Follow-up dose of 10 tonnes of FYM with 75 kg nitrogen (20% nitrogen content) is recommended. About two to three weedings and hoeings are required for good growth of twiner. The inter-row spaces between plants should be kept weed-free by frequent weeding and hoeing, as the plants may get suppressed by weeds, especially during early stages of growth.
- *Irrigation practices* The crop is grown under rain-fed conditions. However, occasional irrigation during extremes of cold and hot weather may help the crop survive adverse conditions.
- *Disease and pest control* No serious insect pest infestation or disease has been reported in this crop.



Tinospora cordifolia –
crop view

Harvest management

- *Crop maturity and harvesting* 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.
- *Post-harvest management* The stem should be cut into small pieces and dried in shade. It can be stored in gunny bags, and kept in cool and



Tinospora cordifolia –
fruits and flowers



airy storage godowns. Stem bark peels off even by touch, thus stem should be cut very cautiously as peeled stem decays very soon.

- *Chemical constituents* The stem contains bitter substances, of which tinosporine, a bitter principle, is a marker compound. Other compounds include gilonin, gilosterol, gilenin, and furanoditerpenes.
- *Yield and cost of cultivation* The plant yields about 1500 kg of fresh woody stem, reduced to 300 kg of dry weight per hectare in about two years. The per hectare cost of cultivation is estimated to be Rs 27 600 per hectare.