

Phytopharmacological profile of *Tinospora cordifolia*: An updated review

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Abstract

Medicinal plants have played a crucial role in human healthcare since ancient times and continue to serve as valuable sources of therapeutic agents in modern medicine. Their healing potential arises mainly from bioactive secondary metabolites that exhibit diverse pharmacological effects. *Tinospora cordifolia* (Guduchi or Giloy), a widely used medicinal climber of the family Menispermaceae, holds a prominent place in Ayurvedic medicine due to its rejuvenating, immune-enhancing, and disease-preventive properties. This review provides a comprehensive overview of *T. cordifolia*, focusing on its botanical description, phytochemical composition, phytoconstituents, and its broad range of pharmacological activities.

The plant is rich in bioactive constituents, including diterpenoids, alkaloids, glycosides, steroids, flavonoids, and polysaccharides, which contribute to its wide therapeutic spectrum. Various extracts obtained from different parts of the plant have demonstrated significant antidiabetic, anticancer, cardioprotective, anti-arthritis, anti-osteoporotic, antimicrobial, anti-allergic, anti-stress, immunomodulatory, hepatoprotective, antioxidant, neuroprotective, and antiviral activities in both in vitro and in vivo studies. Its increased use during the COVID-19 pandemic further highlighted its importance as an immune-boosting herbal remedy.

By compiling available scientific literature, this review highlights the medicinal importance, phytochemical diversity, and pharmacological potential of *Tinospora cordifolia*. A better understanding of its bioactive compounds and their mechanisms of action may support the development of safe, effective, and affordable plant-based therapeutics, reinforcing its role in modern healthcare systems alongside traditional medicine.