Current Advances In The Physiological Aspects Of The Treatment Of Diabetes By Using *Tinospora Cordifolia…*

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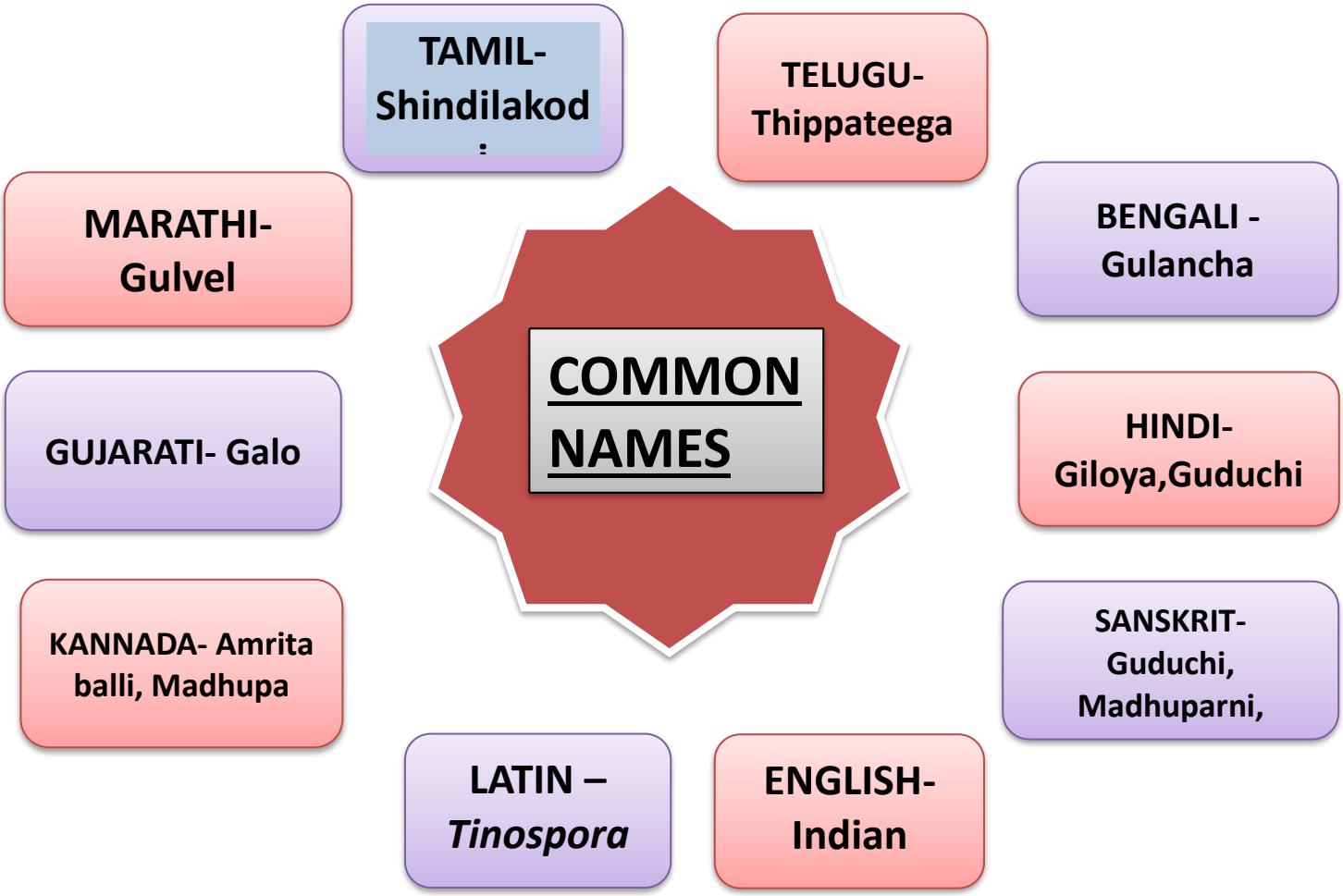
Abstract- Tinospora cordifolia **is one of the important herbs in Ayurveda. They are commonly known as heart leaves moonseed and Giloy belonging to the family - Menispermaceae They contain large amounts of bioactive compounds including alkaloids, glycosides, flavonoids, diterpenes, phenolic, and polysaccharides. These constituents give pharmacological activities such as anti-cancer, anti-inflammatory, immunomodulatory, and antioxidant effects. They also exhibit antidiabetic activity by regulating blood glucose levels and enhancing insulin secretion. The main aim of this article is to reduce blood glucose levels by using *Tinospora cordifolia* because various parts of *Tinospora cordifolia* are responsible for curing diabetes mellitus. It lowers high glucose levels and enhances hepatic metabolism during insulin resistance. It is regarded as a natural antihyperglycemic agent.**

Keywords: **Tinospora cordifolia, gulvel, giloy, diabetes mellitus, antihyperglycemic agents**

INTRODUCTION:

India is known as the world's botanical paradise and is the world's biggest producer of medicinal plants. A list of herbal medications used in the treatment of diabetes as well as medicinal plants with demonstrated anti-diabetic and related therapeutic effects is compiled. Hypo-glycemia, nausea, vomiting, hypernatremia, flatulence, diarrhoea or constipation, alcohol flush, headache, weight gain, lactic acidosis, pernicious anaemia, dyspepsia, dizziness, and joint pain are just a few of the negative impacts and side effects of using allopathic medications to treat diabetes. Therefore, herbal medications are a perfect alternative to allopathic medications as they essentially have no negative side effects. [1]

COMMON NAMES: [2]



Taxonomic classification

Kingdom: Plantae – Plants,
Subkingdom: Tracheophyta –Vascular Plants
Super- division: Spermatophyta-Seed bearing plants;
Division: Magnoliophyta-Flowering;
Class: Magnoliopsia- Dicotyledons
Subclass: Polypeptalae-Petals are free;
Series: Thalamiflorae-Many stamens and flower hypogynous
Order: Ranunculales
Family: Menispermaceae
Tribe: Tinosporeace
Genus: Tinospora
Species: cordifolia [3]

SYNONYM

Gulvel, Tinsopora, Giloy, Amrita

Biological Source: These are the dried leaves and stem pieces of woody climber Tinospora cordifolia, belonging to family Menispermaceae. It contains not less than 0.02 per cent of cordifolioside. [4]

Chemical constituents: The plant mainly contains alkaloids, glycosides, steroids, sesquiterpenoid, aliphatic compound, essential oils, mixture of fatty acids and polysaccharides. [5]

Composition of Tinospora *cordifolia* [6]

Chemical Contents	%Quantity
Fibre	15.9%
Protein	4.5%-11.2%
Carbohydrate	61.66%
Fat	3.1%
Potassium	0.845%
Chromium	0.006%
Iron	0.28%
Calcium	0.131%

Pharmacological Activity:

Potential of some *T. cordifolia* components to prevent diabetes.

The treatment for diabetes mellitus involves a variety of phytoconstituents that have been identified from various *T. cordifolia* sections. Alkaloids, tannins, cardiac glycosides, flavonoids, saponins, and steroids are some of these phytochemicals. [7]

Historically, Guduchi has been employed as a hypoglycemic drug in conventional medicine. Giloy's effectiveness as an herb for diabetes has been investigated in several clinical and preclinical investigations. Research suggests that Giloy is highly effective in reducing blood sugar levels. This herb decreases oxidative stress in the body and increases insulin sensitivity to achieve its hypoglycemic effects. Additionally, Guduchi interferes with several essential stages in the metabolism of glucose, including glycogenolysis and gluconeogenesis, which reduces blood glucose levels overall. [8, 9]

T. *cordifolia* has been used extensively as a type 2 diabetes (T2D) treatment in Asia and Africa [10]. It has been reported that the alkaloid-rich fraction from the stem, which includes palmatine, jatrorrhizine, and magnoflorine, has both in-vitro and in-vivo insulin-mimicking and insulin-releasing effects [11]. When hypoglycemic action was induced, isolated alkaloids from the T. *cordifolia* plant demonstrated an insulin-associated response [12]. T. *cordifolia* extract showed anti-hyperglycemic efficacy in a study using a diabetic mouse by lowering high glucose levels [13]

OTHER USES:

Immune booster

a) Hyperthermia
b) Anti-allergic
c) Ophthalmic use
d) Respiratory use
e) Hepatoprotective
f) Hypoglycemic
g) Anti-hyperlipidemic
h) Anti-inflammatory
i) Excellent immune booster for Postmenopausal period
j) Weight loss
k) Anti-tumor
l) Anti-HIV
m) Treat dengue fever
n) Treat arthritis
o) Treat anxiety and depression
p) Good for memory
q) Use as an antibiotic
r) Anti-asthmatic
s) Treat ulcer
t) Cures Skin wound[14]

SIDE EFFECTS:

Even at very high doses (900 mg/D), no study has examined the toxicological consequences of Guduchi or *Tinospora cordifolia* to date. However, nothing is known about the safety of utilising *Tinospora cordifolia* for extended periods of time or in conjunction with pregnancy and nursing. Thus, always get medical advice before using any herbs. [15]

Some of the common side effects are as follows:

1. Hypoglycemic effect
2. Harmful for pregnant women's
3. Autoimmune diseases
4. Constipation[14]

IMPORTANT FORMULATIONS

1. Amritarishta.
2. Guduchi sattva.
3. Chinnodbhavadi Kvatha Churna.
4. Guduchyadi Taila.
5. Kaishora Guggulu.
6. Brihat Guduchi Taila.
7. Amritottara Kvatha Churna[16]

Conclusion

Tinospora cordifolia prevents the hyperalgesia innovative diabetic neuropathy. It is an aldose reductase inhibitory activity in-vitro may give to the beneficial effects. In this study we conclude the appearance of phytochemical study of flavonoids, saponins, terpenoids, cardiac glycosides, tannins, alkaloids. Hence this plant can be used for the further development of phytomedicine for medicinal purpose.

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