International Journal of Advance and Applied Research
www.ijaar.co.in
ISSN – 2347-7075 Impact Factor – 7.328
Peer Reviewed Bi-Monthly
Vol.2 No.18 July – Aug 2022

MEDICINAL PLANTS : TINOSPORA CORDIFOLIA

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Abstract:
Tinospora Cordifolia (menispermaceae) is also knows as Guduchi (Hindi), Galo (Gujarati), Amrita balli (Kannada).The plant is a glabrous climbing shrub fround throughout India, typically growing in deciduous and dry forests. The leaves are simple, alternate, entire cordate,7-9 nerved and heart shaped. Its fruits are drupes, turn red when ripe. It thrines easily in the tropical region, often attains a great height and climbe up the trunks of large neem trees. Nature of wood is soft, porous and a yellow tint is developed when a cut is made on surface. Long threadlike aerial roots come up from the branches. It has anti-diabetic.(1) Liver protective action.(2) Anti-cancerous(3) and immune stimulating properties.(4) It's stem has some chemical constituents like alkaloid berberine (I), palmatine (II), Giloin, and glucoside. Ayurvedic literature quotes different parts of guduchi as a constituent of several compound preparations, like stem is a bitter stomachic, stimulates bile secretion causes constipation, tonic, allays thirst, fever, burning sensation prevents vomiting, diuretic, enriches the blood, cures jaundice ,useful in skin diseases, the juice is useful in diabetes, vaginal and urethral discharges, low fever and enlarged spleen. This paper describes the plant's medicinal aspects and chemical constituents in its different parts, this paper also provides brief information of plant bio prospecting.

Introduction:
The medicinal plants are very important for human life. Tinospora Cordifolia is a medicinal plant it use not only present time but also in the past time. Traditional plants extracts have present bioactive components such as alkaloid steroids diterpenoid lactones aliphatics etc. Tinospora Cordifolia extract is also show to protect against staphylococcus aureus and Escherichia coli infections.(5) The extract of Tinospora Cordifolia is Showed antitumor potential against skin carcinogenesis in a mouse model.(6) This plant has bio-active properties as well as it has medicinal properties, so various scientists are interested in this plant, so this plant has been placed in 32 important medicinal plants. This work has been done by the NMPB Government of New Delhi.(7) Giloy is used in the indigenous system of medicine, which is found in various Ayurvedic systems such as Charak Sushrut and Breast Ashtang . It is used in various parts of the country in the form of Tribal or Folk Medicine. Giloy plant contains digestible amounts of micronutrients such as manganese , calcium, copper ,iron, zinc and phosphorus, which are used in endocrine and metabolic disorders.

Common Names (Abhimanyu Sharma 2010)(8)
Latin : Tinospora Cordifolia (willd) Hook.F. and Thomson
English : Gulancha / Indian Tinospora
Sanskrit : Guduchi , Madhuparni , Amrita Chinnaruha , Vatsadaani , Tantrums , Kundalini and Chakralakshanika
Hindi : Giloya , Guduchi
Marathi : Shindilakodi
Gujarathi : Gali

Taxonomic classification:
Kingdom: Plantae – Plants;
Super-division:Spermatophyta
Division:Magnoliophyta
Class:Magnoliopsia
Order:Ranunculales
Family:Menispermaceae-TheMoonsee family

Genus: Tinospora
Species:cordifolia

Family : The Tinosporacordifolia family belongs to the Menispermace . This family has about 70 genera and 450 species found in the tropical region. This family found usually has climbing twining and shrubs type plants. All plants in this family have high amounts Alkaloids and terpenes .

Genus : The genus Tinosporamiers(Menispermace) included 32 species found in Asia, Australia, tropical Africa, etc. There are four types of species found in India.

1. T.cordifolia (Thumb) Miers
2. T. Sinensis (Lour.) Mere.
3. T. Crisps (L) Hook.f. Thomson
4. T. Glabra (Burm.f.) Mere.

Species : Tinospora Cordifolia (Thumb.) Miers

Distribution : The Tinospora Cordifolia plant is found in the Topical and Sub-Topical areas of India. It is found in the Indigenous region of India, Sri Lanka, Indonesia, Thailand, China, Bangladesh and South Africa.

Growth requirement : Tinospora Cordifolia grows in all climates but grows more easily in warmer areas. Planting is done between July and August. It grows easily in all types of soil but it grows easily in medium black or red soils.

Tinospora Cordifolia is a medicinal plant. All parts of this plant are important because bioactive compounds are found in all parts such as root, stem, leaf, flower seed, etc. They are described as follows.

1) Root : The root of the plant is found as aerial, long filiform squairsh and branches. Microscopic studies have observed its structure from tetra to penta arch primary structure. (11) Starch is found in root. Its color is light gray brown or creamy white. There is no smell present in it, it tastes good, bioactive compounds like alkaloids, miscellaneous compounds, steroids etc. Are found in them.

2) Stem : The stem of Tinosporacordifolia in nature is found in the form of long, filiform fleshy and climbing . Starch is found in the stem known as Guduchisativa, which contains a large number of nutrients and digestive elements, which are used to treat various diseases.(9)It contains important bioactive compounds such as glycosides, alkaloids, sesquiterpenoid.

3) Leaves : The leaves of the Tinosporacordifolia plant are found in heart shaped, twisted partially, pulvinate.(10) Leaf color is green but over mature leaves are yellowish green to yellow colour . The leaf contains high amount of protein, calcium and phosphorus.(11)Importantt bioactive compounds are also found in leaves.

4) Flowers : The flowers of the plant are small and unisexual whose color is greenish yellow. Flowering occurs in the plant between March to June.(12)

Chemical Composition:

Tinosporacordifolia is a medicinal plant. Various types of compounds are found inside it. These compounds can be divided into different classes such as steroids, glycosides,diterpenoidlactones, alkaloids, polysaccharides. Some important bioactive compounds are found in the Tinosporacordifolia plant. They are used in the manufacture of a variety of medicines. Like syringe, berberine, crude, berberine, crude,giloininand,polysaccharide,picrotene ,tinosporicacid,tinosporone,cordifolisides A to E,giloin,gilenin,gilosterol,Tinosporol,tinosporidine,palmarin,tinosporone,amritosides ,cordioside,makisterone A,magnoflorine,glucan,syringine,tembetarine,,isocolumbin,palmatine.

Various types of bioactive compounds have been found on gas chromatography mass spectroscopy of ethanolic extract of Tinosporacordifolia. They are used in the manufacture of different types of medicines. This bioactive compound is as follows.

S.N.	Compound Name	Formula	Molecular weight
1	2-Amino-1,3-Propanediol	C3H9NO2	91
2	Pentanoic acid,3-	C6H10O3	130

	methyl-4-oxo		
3	Acetic acid, pentyl ester	C7H14O2	130
4	1-butanol	C4H10O	74
5	Ethane, 1,1-diethoxy-	C6H14O2	118
6	Methacrylicacid,ethyl ester	C6H10O2	114
7	Ethylbenzene	C8H10	106
8	Alpha-Methyl-D-mannopyranoside	C7H14O6	194
9	Azulene	C10H8	128
10	Naphthalene	C10H8	128

Medicinal importance of Tinosporacordifolia:

Tinosporacordifolia is an important medicinal plant used in various biological activities search us anti allergic, Anti-arthritic , hepato-protective, Anti neuroplasticactivity,Anti-inflammatory, immunomodulatory, antioxidant , anti diabetes ,anti-leprotic ,etc. Tinosporacordifolia is also used in a verity of disease such us heart disease , leprosy asthma, diabetes , jaundice skin diseases etc

1. The root and stem of tinosporacordifolia is used to treat snake bite.
2. Tinosporacordifolia leaf juice is used in the treatment of arthritis.
3. Use of tinosporacordifolia leaf juice is beneficial in the treatment of jaundice.
4. Tinosporacordifolia coating with milk is beneficial in smallpox.
5. Plant bark is used in anti-leprotic,anti-pyretic,anti-allergic.
6. It is beneficial to use the root and stem of tinosporacordifolia with milk in the treatment of cancer.
7. Radio protective activity is represented by tinosporacordifoliaaqueous extracts.
8. Tinosporacordifolia juice and tulasileaves are used in the treatment of monkey malaria .
9. Tennis is also used to reduces body temperature.
10. Tinosporacordifolia is also used in the treatment of eye disorders.
11. Heartbeat each controlled by consuming tinosporacordifolia and bacopamonnieri.
12. Blood pressure is controlled by taking tinosporacordifolia, bacopamonnieri andsankhapuspi powder with Amla.

Pharmacology :

Based on Ayurvedic and ethnobotanical reports , it has been proved that tinosporacordifoliais used as a different medicine. At present, the plant has been used in pharmacological, pre-clinical and clinical investigations.

The drug has various biological activities which are as-

Immunomodulatory	Anti asthmatic	Androgenic
Antioxidant	Antifertility	Antidiabetic
Anti-hyperglycaemic	Hypolipidaemic	Anti allergy
Anticancer	Anti periodic	Anti stress
Hepatoprotective	Antipyretic	Diuretic
Anti inflammatory	Radioprotective	Anti depression
Antimicrobial	Anti ulcer	Analgesic
Antineoplastic	Antitumor	Mental disorder
Anti malaria	Antispasmodic	Antileprotic

Conclusion:

Various types of medicinal properties are found in Tinosporacordifolia. Hence this plant is placed in the category of traditional medicine plant. Hence it is also used as a multipurpose medicinal agent. Various parts of the plant contain important compounds, so in Ayurveda it is

used to improve the immune system and fight infections. Currently, Tinosporacordifolia juice is prepared and drunk in every household to fight the coronavirus pandemic.

Reference :

1)tanelyM,princeP,MenorVP.Hypoglycaemic and hypolipidaemic action of alcohal extract of Tinosporacardifolia roots in chemical induced diabetes in rats.phytotherRes.2003;17(4):410-413.

2) B. Bishayi, S. Roychowdherry. S. Ghochi,M. SengustaJ.toxicol sci.2002,27,139-146.

3) Subramanian M,chintalwar GJ, chattopadhgay S, et al. Antioxidant properties of a tinosporacordifolia polysaccharide against iron – mediated lipid damage and gamma -ray induced protein damage.RedoxRep.2002,7:137-143.

4) Goel HC , prasadJ,singhS.et al . Radioprotective potential of an herbal extract of Tinosporacardifolia. J Radiat Res(TOKKO).2004;45:61-68.

5) U. M. Thatte, M. R. Kulkarni, and S. A. Dahanukar, "Immuno-therapeutic modification of Escherichia coli peritonitis and bacteremia by Tinosporacordifolia," Journal of Postgraduate Medicine, vol. 38, pp. 13-15, 1992.

6) R. Chaudhry, S. Jahan, and P. K. Goyal, "Chemopreventive potential of an Indian medicinal plant (Tinosporacordifolia) on skin carcinogenesis in mice," Journal of Environmental Pathology, Toxicology and Oncology, vol. 27, pp. 233-243, 2008.

7) Jitendra M, Sharma MM, Batra A (2014) Tinosporacordifolia: a multipurpose medicinal plant. A review. Journal of Medicinal Plants Studies 2(2): 32-47.

8) Abhimanyu Sharma, AsmithaGupta,Sakshi Singh AmlaBatra, "Tinosporacordifolia (Willd.) Hook. F. & Thomson - A plant with immense economic potential", Journal of Chemical and Research, 2(5), 327-333, 2010.

9) KN. Aiyer, M. Kolammal, Pharmacognosy of Ayuevedic Drugs Series 1. 1 stedTrivendram , The centeral Research institute, 1963.

10) B. Bishayi, S. Roychowdhury, S Ghosh, M. Sengupta, "Hepatoprotective andimmunomodulatory properties of Tinosporacordifolia in CCl4 intoxicated mature albino rats" The Journal of Toxicological Sciences 27 (3),139-146, 2002.

11) S. Nasreen, R. Radha, N. Jayshree, B. Selvaraj, A. Rajendran, "Assessment of quality ofTinosporacordifolia (willd) mierspharmacognostical and phyto-physicochemical profile".International Journal of Comprehensive Pharmacy, 1(5), 1-4, 2010.

12) K. Raghunathan, KC. Cluneker, PV. Sharma, "Pharmacognostical studies on GuduchiTinosporacordifolia (Miers)",J Res Indian Med, 6:201, 1969.