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Tinospora Cordifolia (Giloy) : A Review

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Abstract: *Tinospora cordifolia (Giloy) is one of the important and very common herbs, usually used as a common ingredient in various medicines of the Falcon, Ayurvedic, Unani and Siddha systems. Widely used in traditional Ayurvedic medicine. Jiro (Tinospora cordifolia) is a herbal medicine that is widely used in the Unani Medicine System. (USM) for various therapeutic purposes. It has antipyretic, analgesic, anti-inflammatory and anti-diabetic effects. This review article mainly contains his information on the cultivation of Tinospora, and the therapeutic benefits of this plant such as anti-ulcer, anti-diabetic, antiinflammatory, anti-cancer, anti-AIDS and anti-allergic activity, phytochemistry, morphology, pharmacological activites and therapeutic uses of these medicinal plants. From this we can conclude that it is one of the best herbal medicines for fever, diabetes mellitus and syphilis in USM.*

Keywords: Tinospora cordifolia.

I. INTRODUCTION

Tinospora cordifoli a (Thunb.) Miers has long Indian Ayurvedic Medicine. This perennial herbaceous vine they belong to the Menispermaceae family and have a lot in common Name i.e. Giloy, Guduchi, Gurcha, Amrita or Hartleave moonseed. The whole species is tropical,Subtropical at an They altitude of 600m. occurs in india Bangladesh, Sri Lanka, Myanmar, China, Thailand, Philippines, Indonesia, Malaysia, Borneo, Vietnam, North Africa and South Africa. Giloy is a large climbing shrub. The long branches are intertwined and spread widely. a distinctive feature is the presence of wire-like aerial roots arising from it branch. The stems are fairly juicy and creamy white to gray, Deeply fissured, paper-like bark and rosette-like pores (lenticels).The leaves are simple, alternate, cordate-ovate and very thin.The petioles are long and bulging at the base and tip. inflorescence,Racemes called are both axillary and terminal. Flowers are small, Green-yellow, unisexual dioecious. three fruits Shortstemmed drupes, scarlet when ripe.

The plant blooms in summer and bears fruit in winter. Plants are genetically diverse and some steroids, aliphatics, alkaloids, Glycosides and diterpenoid lactones. These active ingredients It is distributed throughout the plant, including roots and stem. Terpenoids, an energetic compound generally found in vegetation. It is the most important magnificence from the plant this is associated with the plant's fragrance, flavor and color. Terpenoids are wealthy in antimicrobial, antiviral, anticancer, and antidiabetic properties. Alkaloids are effective substances. From historic times, it's been used for infection and extreme problems.

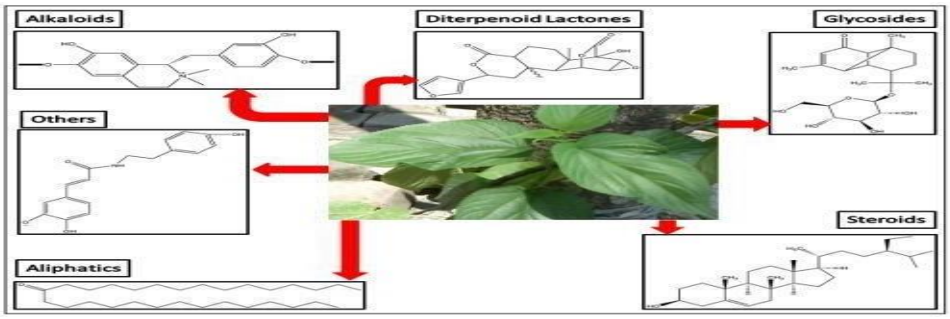

Fig. 1: Active compounds from *Tinospora cordifolia.*

Alkaloids gift withinside the plant also are utilized in medicine, even prescription medicine. It is capable of paintings on blood pressure, ache relief, malaria and plenty of more. Lignans from giloy vegetation are useful to reinforce the

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immune gadget and save you the increase of viruses, bacteria, fungi and different pathogens. Lignans are generally found in fibrous vegetation and trees. Steroid compounds are exceedingly used to decrease cholesterol. In addition, it additionally works for skin, wounds healing, etc. Antioxidant compounds are used to lower oxidative pressure and it's miles a required compound for the fitness of body.

II. MORPHOLOGICAL CHARACTERISTICS

- **Flowers:** The male flowers are borne in the leaf axils of small lumbar bracts. Female flowers are usually solitary and resemble male flowers.
- **Sepals:** Sepals 6, 3 outer sepals small, ovate oblong sharp, inner 3 large, membranous, broadly oval, concave, 3-4 mm, yellow.
- **Petals:** petals have 6 petals and are about 2 mm. Long, broadly spatulate, each closely encircling stamens when young, claws wedge-shaped, lobes triangular or subtrilobate, reflex at apex.
- **Trunk:** Trunk grooved and corky, branches slender, pendulous, sending fleshy roots downward, cylindrical, grooved, pale tuberous. Its taste is bitter.
- **Leaves:** leaves are membranous, with 7-90 veins and 5-10 cm. or rarely 12 x 10 cm in size, globose or inferior deltoid myocardium with broad sinuses and large basal lobes, obtuse or more or less acute, with veins with microscopic luster of the underlying glands.
- **Habitat:** Found throughout tropical India, towering over 1000 feet.
- **Parts Used:** The whole plant and various parts such as the roots, bark and leaves of the trunk are used in traditional medicine to treat various ailments. Plant was described as her Murakkabul Quwa described and Hakim Abdul Hakim described her disposition as her Barid Yabis.
- **Dosage:** In classical literature, the dosage of Giloy is 4 to 9 g orally daily. However, according to the Unani pharmacopoeia, the oral dosage he is 5-10 g per day.
- **Side Effects:** No side effects have been observed with this drug as reported in the classical literature.
- **Correction:** Side effects, if they occur, can be controlled by using Tabacia and Danaheal.
- **Replacement:** Sategi Roy is available as a replacement.

III. PHARMACOLOGICAL ACTIVITY OF TINOSPORA CORDIFOLIA

Pharmacological activity of Tinospora cordifolia in Ayurvedic medicine, giloy has a very good effect Reproductive system, blood, fat. is being Used to treat a variety of conditions, from gout to jaundice Tuberculosis is now just a few of these applications Backed by scientific evidence.

Metastasis inhibitory effect of polysaccharides

Administration of polysaccharide fraction tinospora cordifolia has proven to be very effective Reduces the chance of metastasis of melanoma cells. There was 72% inhibition of metastasis formation Lungs of syngeneic mice, whilst the drug become administered concurrently with tumors challenge. Biochemical parameters together with lung collagen hydroxyproline, hexosamines and uronic acids which are markers of neoplastic improvement have been decreased substantially in the dealt with animals in comparison with the untreated manipulate animals. The remedy can also lessen serum glutamyltranspeptidase and sialic acid degrees as in comparison to the manipulate animals. [1]

Radiation Therapy

A examine posted in "Evidence-Based Complementary and Alternative Medicine" tested that giloy might also additionally help save you terrible facet consequences of radiation remedy. The experiment, which become carried out on grownup male mice, targeted on the dangerous testicular consequences of radiation remedy in males. Male mice who underwent remedy with giloy and have been uncovered to radiation suffered from fewer testicular lesions and different terrible facet consequences than folks that have been now no longer dealt with with giloy. These studies advocate that giloy can be powerful in stopping infertility and associated issues in guys who go through radiation remedy. [2]

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Against AIDS

Giloy can also be useful for humans with HIV and different autoimmune disorders. Giloy's conventional use as an immune stimulant led researchers to examine its consequences on sufferers with HIV. In a examine posted in the "Indian Journal of Pharmacology," 60 percentage of HIV sufferers who acquired giloy remedy mentioned a lower in diseaserelated symptoms, in place of most effective 20 percentage who acquired placebo remedy. This examine indicates that giloy might also additionally enhance the immune structures of sufferers with HIV and different immune disorders, at the same time as additionally assuaging common facet consequences of those conditions. [3]

Anti Diabetic Activity

The stem of Tinospora cordifolia is extensively utilized in the remedy of diabetes with the aid of using regulating the blood glucose[4] in conventional peoples medicinal drug of India. It has been stated to mediate its anti-diabetic capability thru mitigating oxidative stress (OS), selling insulin secretion and additionally with the aid of using inhibiting gluconeogenesis and glycogenolysis, thereby regulating blood glucose.[4] Alkaloids, tannins, cardiac glycosides, flavonoids, saponins, and steroids as the primary phytoconstituents[5] of Tinospora cordifolia had been stated to play an antidiabetic role. The isoquinoline alkaloid wealthy fraction from stem, such as, palmatine, jatrorrhizine, and magnoflorine had been stated for insulin‑mimicking and insulin‑liberating effect each in vitro and in vivo.[6] Oral remedies of root extracts had been stated to adjust blood glucose levels, enhance insulin secretion and suppress OS markers. Initiation and recuperation of cell defence anti-oxidant markers such as superoxide dismutase (SOD), glutathione peroxidase (GPx) and glutathione (GSH), inhibition of glucose 6-phosphatase and fructose 1, 6-diphosphatase, recuperation of glycogen content material in liver become stated in in vitro studies.[6] The crude stem ethyl acetate, dichloromethane (DCM), chloroforms and hexane extracts Of Tinospora cordifolia inhibited the enzyme's salivary and pancreatic amylase and glucosidase[7] hence growing the post‑prandial glucose degree and unearths capability application in remedy of diabetes mellitus. The root extract has been pronounce to lower the stage glycosylated hemoglobin, plasma thiobarbituric acid reactive substances, hydroperoxides, ceruloplasmin and nutrition E diabetic rats.[8] Oral management of Tinospora cordifolia extract in “Ilogen-Excel” formulation (Ayurvedic natural formulation) composed of 8 medicinal plants which include Curcuma longa, Strychnos potatorum, Salacia oblonga, Tinospora cordifolia, Vetivelia zizanioides, Coscinium fenestratum, Andrographis paniculata, and Mimosa pudica is pronounced to lessen GSH and nutrition C[8] in blood and urine glucose and lipids withinside the serum and tissues in alloxan diabetic rats with a next lower in frame weight.[9] Decreased attention of GSH, GPx, and SOD, catalase hobby is pronounced in coronary heart and mind of diabetic rats.[10] T. cardifolia root extract (TCE) has been pronounced to cause an growth in frame weight, general hemoglobin and hepatic hexokinase[11] and reducing hepatic glucose-6-phosphatase, serum acid phosphatase (ACP), alkaline phosphatase (ALP), and lactate dehydrogenase (LDH) in diabetic rats hence having hypoglycemic andhypo lipidaemic effect.[11] The protecting results of TCE have been pronounced in presence of better stages of anti-oxidant molecules and enzymes.[30] TCE has been proven to seriously counterbalance the diabetes-related OS withinside the maternal liver via way of means of reducing the stages of malondialdehyde and ROS and the increased stages of GSH and general thiols.[31]

Anticancer Activity

The anticancer effect of Tinospora cordifolia is mainly studied in animal models. TCE showed up A radioprotective function via way of means of notably growth in frame weight, tissue weight, testes-frame weight ratio and tubularndiameter and inhibit the dangerous outcomes of sub-lethal gamma radiation on testes in male Swiss albino mice. In pre‑irradiating mice, TCE notably affected radiation caused upward thrust in lipid peroxidation and resulted withinside the decline of GSH awareness in testes.[32] Pre-remedy of HeLa cells via way of means of TCE had been proven to lower the mobileular viability, growth LDH and reduce in GSH S‑transferase interest.[33] Dihydrotestosterone (DHT) in TCE has been pronounced to stimulate the boom and proliferation of Human LNCaP cells (which might be androgen-touchy human prostate adenocarcinoma cells). Androgenic compounds in TCE act thru androgen receptor.[34] Newly isolated compounds like (5R, 10R)-4R, 8Rdihydroxy-2S, 3R:15,16-diepoxycleroda-13 (16), 17, 12S:18,1S-dilactone (ECD), a diterpenoid from Tinospora cordifolia has been pronounced for its

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chemopreventive capacity in diethylnitrosamine (DEN) caused hepatocellular carcinoma (HCC) in rats via way of means of lowering anti- oxidant sports thru SOD, CAT and cleansing enzymes like GSH, GPx and subsequent growth withinside the sports of the hepatic markers ((Serum glutamic oxaloacetic transaminase)SGOT, (Serum Glutamic Pyruvate Transaminase) SGPT, LDH) and reduced serum transaminase stage hence confirming its anti‑tumor outcomes and promising utility as a strong chemo preventive drug for HCC.[35] The radiosensitizing interest of DCM extract of Tinospora cordifolia has been pronounced in Ehrlich ascites carcinoma (EAC) mice permitting tumor-loose survival thru depletion of GSH and glutathione-S- transferase via way of means of multiplied stages of lipid peroxidation and DNA harm to tumor cells.[36,37,38] TCE hexane fraction has been proven to block the G1 section in EAC mice and motive apopto via way of means of the formation of apoptotic bodies, nuclear condensation, activation of caspase-3, reduced mobileular wide variety and ascites volume, elevated expression of pro-apoptotic gene, Bax, and reduced expression of anti-apoptotic gene, Bcl‑2. [39] TCE should set off a discount of papillomas, tumor yield, tumor burden, and tumor weight even as growth section II detoxifying enzymes[40] in pores and skin carcinoma animal models. The impact of a hydroalcoholic (80% ethanol: 20% distilled water) extract of aerial roots of Tinospora cordifolia on Swiss albino mice[41] discovered a considerable growth in acid‑soluble sulfhydryl (‑SH), cytochrome P (450) contents, and enzyme sports of cytochrome P (450) reductase, cytochrome b5 reductase, GST, DT-diaphorase (DTD), SOD, catalase, GPX, and GR interest withinside the liver highlighting the chemopreventive function of Tinospora cordifolia against carcinogenicity.[41]

Antiangiogenic activity of TCE in vivo in B16-F10 melanoma Demonstrated by increased pro-inflammatory levels Cytokines including IL-1β, IL-6, TNF-α, granulocytes monocyte colony-stimulating factor (GM-CSF) and vascular endothelial growth factor (VEGF), increased Manufacture of the antiangiogenic drug IL-2 and organization Inhibitor of metalloproteinase 1 (TIMP1) at B16-F10 Animals treated with the extract. [42]Polysaccharide Fraction Tinospora cordifolia has been found to be very effective in reducing it Metastatic potential of B16-F10 melanoma cells. Marking Significant reduction in tumor incidence Treated animals compared to untreated controls animal [43] Most synthetic chemotherapeutic drugs suffer from this Toxic side effects. [44] What is the effect of Guduchi extract? [45] Equal to or better than doxorubicin treatment.

Antiallergic Action

Anti-allergic effect of Tinospora cordifolia studied effect. T cordifolia was found to provide a significant amount of Relieves sneezing, runny nose and nasal congestion Nasal itching compared to consistent placebo Improving nasal swab testing nasal mucosa. [14]

Anti-osteoporotic Effects

Single or synergistic formulations of Tinospora cordifolia with Zingiber officinale has been utilized in rheumatoid arthritis remedy in conventional medicine.[61] Tinospora cordifolia have been said to have an effect on the proliferation, differentiation and mineralization of bone like matrix on osteoblast model structures in vitro and subsequently reveals capability software as an anti- osteoporotic agent. Alcoholic extract of Tinospora cordifolia had been proven to stimulate the boom of osteoblasts, growing the differentiation of cells into osteoblastic lineage and additionally growing the mineralization of bone like matrix.[62] Ecdysteroids remoted from the plant had been said of protein anabolic and anti-osteoporotic outcomes in mammals. Beta‑Ecdysone (Ecd) from Tinospora cordifolia extracts had been said to set off a significant boom withinside the thickness of joint cartilage, set off the osteogenic differentiation in mouse mesenchymal stem cells[63] and to alleviate osteoporosis in osteoporotic animal models.[63] Further 20-OH-β-Ecd remoted from Tinospora cordifolia has been said of its anti‑osteoporotic outcomes[62] therefore highlighting the position of Tinospora cordifolia withinside the remedy of osteoporosis and osteoarthritis.[51]

Anti-toxic Effect

Extracts from Tinospora cordifolia have been reported to remove. [37] Free radicals produced during aflatoxinosis. Exhibited Protective effect by reducing thiobarbituric acid reactivity increased substances (TBARS) and GSH, Ascorbic Acid, Protein, and Antioxidant Activity Enzymes namely SOD, CAT, GPx, glutathione-S-transferase (GST) and glutathione reductase (GR) kidney. Alkaloid choline, tinosporin, isocolumbin, palmatine, Tetrahydropalmatine and

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magnoflorin from Tinospora Cordifolia showed protection against aflatoxin induction [37] Tinospora cordifolia foliage extract Showed hepatoprotective effects in male Swiss albino mice [64] for lead nitrate-induced toxicity. Oral administration Prevents the occurrence of lead nitrate in plant extracts [65] induced liver damage. SOD, CAT, and Increased levels of aspartate aminotransferase (AST), alanine Aminotransferase (ALT), ALP, and ACP have been observed in mice. [65] Suffers from lead poisoning. synergistic delivery of Aqueous extract of stems and leaves containing lead nitrate Increases the activity of SOD and CAT, Levels of AST, ALT, ALP, and ACP enzymes. [65] Protective role From aqueous extracts of stems and leaves of Tinospora cordifolia Overcoming lead toxicity has been shown as its efficacy [64] Cyclophosphamide (CP) Anticancer drugs have been reported to lower GSH Bladder and liver content and reduced levels The cytokines interferon-γ and IL2 are The proinflammatory cytokine TNF-α. This effect is Reversal on treatment with Tinospora cordifolia, indicating a role of Tinospora cordifolia in overcoming CP-induced toxicity in cancer treatment. [66]

As an immunomodulator and against liver disease amebiasis

The activity of the crude extract formulation is Experimental amoebic liver abscess in golden hamsters and Immunomodulatory studies by Youvraj R. Sohni et al. The formulation contains the following 5 botanicals Boerhavia diffusa, Tinospora cordifolia, Berberis aristata, Terminalia chebula and Zingiber officinale. Or Formulation demonstrated cure rates of up to 73% with a single dose 800 mg/kg/day for hepatic amebiasis Average Infectivity (ADI) to 1.3 and 4.2 Sham-treated controls. in immunomodulation Enhanced humoral immunity, as evidenced by studies Hemagglutination titer. T cell numbers remained Not affected in formulation-treated animals However, the cell-mediated immune response was thus stimulated Observed with leukocyte migration inhibition (LMI) test. [15]

Anti-Inflammatory Action

A study was performed by Siddalingappa C M et al. it has It was observed that Tinospora cordifolia showed clearly. Increased dose response time (pain threshold) 100mg/kg, 200mg/kg, 100mg/kg 5mg/kg Diclofenac after 30, 60 and 90 minutes administration. in the At the same dose as above, Tinospora cordifolia showed 32.63%, Reduced leg edema by 36.63% and 40.5% respectively End of three hours. [16]

Antioxidant

Antioxidant capacity of Tinospora cordifolia strains Orally administered methanol extract Erythrocyte membrane lipid peroxide and catalase activity. It also decreased the activity of SOD and GPx. Alloxan-induced diabetic rats [9,12,13] Tinospora cordifolia Willd. (Menispermaceae) extract is a potential inhibitor Aldose reductase and antioxi dants [17]Reduction of chemical toxicity by free radicals. [46] TCE has been reported for its powerful free radicals superoxide anion (O2-), hydroxyl radical (OH), NO radical, peroxynitrite anion (ONOO-).[46] was also found to be an extract. [47,48] Toxic side effects of CP in mice due to free radical formation. Tinospora cordifolia lowers malondialdehyde levels and ROS with higher levels of GSH and total thiols. Or Protective effect of Tinospora cordifolia could be observed High concentrations of antioxidants, even in the fetal environment molecules and enzymes. [31] Tinospora cordifolia has the ability to scavenge free radicals Occurs during aflatoxinosis. Tinospora cordifolia showed Protection against aflatoxin induced nephrotoxicity by choline, tinosporin, isocolumbin, palmatine, tetrahydropalmatine, magnoflorin. [49] Significant improvement in concentration Decreased her TBARS in the brain with decreased heart [10] observed in diabetic rats. Formation improved of SOD, GPx, and GSH in the liver. Treatment with Tinospora Cordifolia also inhibited glucose-6-phosphatase and fructose 1,6- diphosphatase; restoration of glycogen content liver. Tinospora cordifolia has been shown to regulate blood glucose [50] (5R,10R)-4R,8Rdihydroxy-2S,3R:15, 16-diepoxy Creoda-13 (16), 17, 12S:18,1S-diractone (ECD), a diterpenoid Tinospora cordifolia detected Chemoprevention potential in DEN-induced HCC rats. Treatment of ECD in both preventive and curative DEN induced animals increased the level of anti-oxidants and detoxification enzymes.[35] An aqueous extract of Tinospora cordifolia has a radio-protective enhancing the survival of mice against a sub-lethal dose of gamma radiation.[51,52] Tinospora cordifolia was effective in elevating the GSH levels, expression of the gamma- glutamylcysteine ligase and Cu-Zn SOD genes.[53] Aqueous extract of Tinospora cordifolia inhibited radiation mediated 2deoxyribose degradation by inhibiting the formation of (Fe2+)-bipiridyl complex formation to confer radio‑protective effects.[54] The arabinogalactan

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polysaccharide (TSP) isolated from Tinospora cordifolia showed good protection against iron-mediated lipid peroxidation of rat brain homogenate as revealed by the TBARS and lipid hydroperoxide (LOOH) assays.[55] tinospora cordifolia also has the components that decrease the recurrent resistance of HIV virus to antiretroviral therapy (ART) and improve the outcome of the therapy.[56] The effect of a hydroalcoholic (80% ethanol: 20% distilled water) extract of aerial roots of Tinospora cordifolia on carcinogen/drug metabolizing phase-I and phase-II enzymes, anti-oxidant enzymes, GSH content, LDH and lipid peroxidation has been shown in liver of Swiss albino mice. The enhanced GSH level and enzyme activities involved in xenobiotic Metabolism and keeping anti-oxidant repute of cells are suggestive of a chemo preventive efficacy of Tinospora cordifolia. [41] Tinospora cordifolia has been suggested to comprise an alpha-glucosidase inhibitor, characterised as saponarin (apigenin-6- C-glucosyl-7-O-glucoside). The leaf extract had considerable antioxidant and hydroxyl radical scavenging sports.[57] Pepticare, a herbomineral formula of the Ayurveda remedy including the natural tablets: Glycyrrhiza glabra, Emblica officinalis and Tinospora cordifolia, has anti-ulcer and antioxidant pastime in rats.[58] Hyponidd is every other herbomineral formula composed of the extracts of 10 medicinal plants (Momordica charantia, Melia azadirachta, Pterocarpus marsupium, Tinospora cordifolia, Gymnema sylvestre, Enicostemma littorale, Emblica officinalis, Eugenia jambolana, Cassia auriculata and Curcuma longa). Hyponidd management additionally reduced degrees of glycosylated hemoglobin, plasma thiobarbituric acid reactive substances, hydroperoxides, ceruloplasmin and alpha-tocopherol in diabetic rats.[59] Anti-oxidant sports of Dihar, a polyherbal formula containing tablets from 8 special herbs viz., Syzygium cumini, Momordica charantia, Emblica officinalis, Gymnema sylvestre, Enicostemma littorale, Azadirachta indica, Tinospora cordifolia and Curcuma longa in streptozotocin precipitated kind 1 diabetic rats. Dihar produced a sizable lower in serum creatinine and urea degrees in diabetic rats.[60]

Anti-Ulcer Activity

D.N.K. Salma and others studied the anti-ulcer activity of using an ethanol extract of T. cordifolia roots, Observed to induce significant protective effects. For ulcers due to restraint stress for 8 hours Comparable to diazepam. [18]

Wound Healing Activity

Umesh Jain et al. observed a methanol extract has significant wound-healing activity of Tinospora Cordifolia. This research Methanol extract of Tinospora cordifolia has better properties wound healing was evident through increase in wound contraction; reduction in Epithelialization phase, increased collagen deposition Increased tensile strength of granulation tissue. [19]

Psychiatric Disorders

Whole grass and leaf juice is traditional Used for various mental disorders. this is, Best psychiatric drug in India. [20]

Effects on Memory

T. cordifolia has also been shown to improve cognition (learning and memory) normal rats and vice versa Memory impairment due to cyclosporine. both alcoholics and aqueous extracts of T. cordifolia Decrease in learning points in Hebb William's maze and Retention memory showing improved learning and memory. [21]

Against Dengue Fever

Capsules developed from Jiroy Dengue fever treatment. Very useful in Ayurveda process. [22]

Trace Element Research

Traditionally, Tinospora Cordifolia is used as a medicinal plant India cures illnesses such as colds and skin diseases Serious illnesses such as illnesses and tooth infections Diabetes, hypertension, jaundice, rheumatism, etc. Understanding, correlating and tracking medical applications Elemental studies of aqueous extracts of these medicinal substances Plants were performed using particle-guided X-rays emission technology. A 2 MeV proton beam was used for this purpose. Identification and characterization of major and trace elements i.e. Cl, K, Ca, Ti, Cr, Mn, Fe, Co, Ni,

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Cu, Zn, Br, Sr Overall very high concentrations of Cl, K and Ca Leaf sample, significant content of Mn and much Zn Content of T. cordifolia. [1]

Guduchi Uses and Benefits

All parts of the Guduchi plant are used for various medicinal purposes Purpose. Vegetable oil has a pain-relieving effect, Edema, gout, skin disease. harmonizing herbs Longevity, improved memory, improved health, Gives youthfulness and improves complexion, voice and energy skin glow. Helps treat indigestion hyperacidity, colitis, worm-eating, loss of appetite, abdominal pain, excessive thirst, vomiting and even liver disease such as hepatitis. Fresh Guduchi Juice accelerates when mixed with Hyouka Hepatitis patient recovery. Help corrective action lactapitta, anemia, heart failure, diabetes, Sexual weakness and disease of the spleen. the strength of The plant is used as a home remedy for chronic fever, moderates combustion, increases energy, appetite. A decoction of Guduchi mixed with Nimba and Vasa, Relieves itching and tearing. It benefits common weaknesses, Indigestion, impotence, dysentery, secondary syphilis, Tuberculosis, Jaundice, Constipation, Leprosy, General Weakness, rash, condyloma. Guduchi helps Removes kidney stones and lowers urea levels in the blood. Guduchi and sunti decoctions are a good combination For the treatment of gout and rheumatic diseases. Guduchi juice when taken with milk or lodra Effective against fluorine. mixed with juice Consume to reduce cumin and burning Sensation by pitta. Guduchi root It has a strong emetic effect and is used for intestinal obstruction.

Attention

Diabetics are advised to use Guduchi with caution. Because it can lower blood sugar. if you're by my side He must stop taking Guduchi for 2 weeks before undergoing surgery prior to administration as it may affect glycemic control in operation. Guduchi should be avoided at this time Pregnancy and lactation period. [23]

Use within the Framework of the Siddha Drug System

In diabetics, samulam or the whole plant is crushed Then the juice is extracted. 2 to 3 ounces of this juice is given 3 Once a day before meals is a very effective means. Controls glucose levels. Roast the leaves with fire Apply externally over wounds. prepare a decoction Samulam's is an effective remedy for fever. for the better Results parpadakam, chandanam, chukku, koraikizhangu It can be used to prepare this brew. Effective Siddha preparation called Seenthil sarkarai or Seethil Upu is a highly effective treatment for sexually transmitted infections, Diabetes, skin disease, splenomegaly, jaundice, cough Seethil leghyam is an effective remedy for slums (fever), diarrhea, venereal disease, etc. The plant is recommended daily for AIDS. Research Work at this facility has proven that it increases Immunity and defense mechanisms against retroviruses and prolong the patient's life. For rheumatic diseases such as rheumatoid arthritis, 20 It is recommended to drink up to 30 ml of the juice of this plant twice a day. It turns out that Seethil choornam and Seethil uppu bring together with excellent results in diseases such as chronic skin diseases, Bone disease and infertility. [24]

IV. MEDICINAL PROPERTIES

T. cordifolia is widely used in traditional Ayurvedic medicine in India. It shows great potential for the development of biopharmaceuticals to treat various diseases [25]. Giloy is a tonic, alternative diuretic and aphrodisiac. Antipyretic used for malaria and chronic fever. It is also a liver tonic. Antispasmodic, antidiabetic, anti-arthritic, anti-periodic, anti-inflammatory, antioxidant, anti- stress, anti-allergic, malaria-suppressive, hepatoprotective, anti-tumor, and anti- tumor effects , and immunomodulatory effects of plants have been reported [26].

V. PHYTOCHEMISTRY

Almost all parts of the plant are used in Ayurveda Prescription. Fresh plants are more effective than dried plants. Plants mainly contain alkaloids, glycosides, steroids, Sesquiterpenoids, fatty compounds, essential oils, mixtures fatty acids and polysaccharides. belonging to alkaloids Berberine, bitter gyronine, nonglycoside gyronine, gyrosterol. The main alkaloid and secondary metabolites of Giloy are Tinosporine, Tinosporide, Tinosporaside, Cordifolide, Cordifol, Heptacosanol and Tinosporidin are effective in detoxifying the body and strengthening the immune system [27]. isolated 4 new compounds and 7 known compounds. Two new aporphine alkaloids N-formylacylobin 2-O-β-

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Dglucopyranosyl-(1→2)-β-D-glucopyranoside(tinoscorsideA) and Nacetylacylobin 2-O -β-D-glucopyranosyl-(1→2))-β-D-glucopyranoside tinoscorside B), the new clerodan diterpene, tinoscorside C, and the new phenylpropanoid, sinapyl 4-O-β-D-apiofuranosyl-(1→6)-O-β- D- glucopyranoside (tinoscorside) D) (Upadhyay et al., 2011). In addition to its therapeutic properties, the plant also provides several essential minerals such as iron, copper, manganese, calcium, zinc and phosphorus.T Cordifolia is high in fiber (15.8%), protein (4.5% - 11.2%), carbohydrates (61.66%) and low in fat (3.1%). T. cordifolia has a nutritional value of 292.54 calories per 100 grams, is high in potassium (0.845%), high in chromium (0.006%), has good iron (0.28%) and good calcium (0.131%) . Leaf extracts have shown anti-HIV1 activity. Therefore, it can be said that biological extracts from this plant are certainly useful in protecting and treating various viral diseases in humans. , antiinflammatory, and anti-epileptic properties. This plant is probably safe for short-term oral use.T. Cordifolia stem extract, safe to use for 8 weeks.

VI. USES OF DIFFERENT PARTS OF TINOSPORA CORDIFOLIA

- **Stem:** Giloy's Stem is one of several Ayurvedic preparations commonly used for weakness, indigestion, fever and urinary tract disorders. Stems are bitter, stomach irritant, diuretic, stimulates bile secretion, causes constipation, relieves thirst, relieves burning, vomiting, thickens blood, cures jaundice. The stems also have anti-hyperglycemic and anti-carcinogenic properties and are used for respiratory infections and skin conditions.
- **Roots:** Giloy roots and stems are prescribed in combination with other medicines as an antidote for snakebites and scorpion stings. It also has anti-tumor properties and antioxidant properties.
- **Leaf:** The juice or decoction of leaf is taken orally with the honey contained in Cordifolia fever bark. Jiroy has antispasmodic, antipyretic, antiallergic and antileprosy properties. Aqueous extract of jiroi root has antioxidant properties. Successful experiments in diabetic male albino rats.
- **Whole Grass:** Giloy whole grass is used for diabetes. Rheumatoid arthritis, gout, cancer, high cholesterol, analgesia and neuropharmacological activity.
- **Chemical Composition**: Gilo Different chemical constituents are found in different parts of the plant. They belong to different classes such as alkaloids, diterpenoids, lactones, steroids, glycosides, aliphatic compounds and polysaccharides.
- **Stem:** berberine, palmatine, 18-norclerodan glucoside, furanoid dithepen glucoside, cordifoliside A to E palmatosides C and F, cordioside
- **Whole plant**: furanolactone, clerodane derivatives and tinosporon, tinosporide, jateolin, aquilegia, octacosanol, cordifol.
- **Root**: Jatrolithin, Tetrahydropalmitin, Isocolumbin, Palmatine, Magnoflorin, Tembetaline.

VII. SCIENTIFIC REPORTS

Hypoglycemic Effect

Streptozocin in Diabetic Albino Rats Dosage Forms (200 and 400 mg/kg body weight) of GiloY parent extracts (both aqueous and It has a blood sugar effect. It also increases the activity of hepatic glycogen synthase and increases glucose storage in hepatocytes. Giloy root extract has inherent pancreatic protective properties and hypoglycemic activity.

Hepatoprotective

Giloy leaf extract exhibits hepatoprotective activity against CCl4-induced hepatotoxicity in rats. Due to its potential to minimize the effects of free radicals, including proxy radicals of, and its antioxidant activity combined with inhibition of lipid peroxidation, gyro plant material has been shown to benefit from the synergistic action of constituents and micronutrients.

Antispasmodics

Dried giloy bark has antispasmodic properties. [Anti-ulcer activity: Ethanol extract of jiroi root combined with Centenella asiatica provided significant protective effect against restraint stress-induced ulcers.

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Antibacterial Activity

The crude extract of Giloy strain showed antibacterial and antifungal activity.

Antipyretics

Studies have shown that the hexane and chloroform soluble fractions of the Giloy strain have negligible antipyretic effects.

Antihyperlipidemic Activity

Alloxan administration of gyro root extract to diabetic rats for 6 weeks significantly decreased tissue cholesterol, phospholipids and free fatty acids. Jiro root extract significantly lowers cholesterol, TG, LDL, glucose levels and increases HDL cholesterol levels.

Immunomodulatory Activity

A study showed an improvement in a group of rats Bone marrow cellular and α esterase activity after treatment with alcoholic guillo extract. This reveals that these drugs have immunomodulatory effects

Cardioprotective Activity

Previous doses of methanolic dilo extract damp Isoprenaline-induced myocardial infarction. The cardioprotective activity of Tinospora cordifolia is probably related to this. Ability to strengthen the myocardium through membrane stabilizing effects.

Anti Scabies

A 50% guillo lotion showed significant reductions in all parameters. Indicated A clear reduction in prevalence, preferred locations, and overall ratings while showing a significant increase in clinical improvement in patients during clinical examination evaluation. Although there was a bitter feeling when the lotion was applied externally, the patient After dinner, I was asked to apply lotion after washing my hands. Giro Lotion Comparable efficacy against scabies with permethrin at the same cure rate [Gilo: 70%, 53.60 tons 86.94%; Permethrin: 50%, 32.11-67.89%. P=0.187], clearance time 23 days, from 20.47 25.53 days. Giro lotion is cheaper than over-the-counter drugs, so you can do this used as an alternative treatment for scabies.

VIII. BOTANICAL DESCRIPTION

The periwinkle family consists of about 70 genera and 450 species. tropical lowland regions. Tinospora cordifolia is a perennial deciduous vine with succulents. stem. The bark is paper creamy white to gray with large rosette-like lenticles. Leaf Simple, alternating or lobular, cardiform, whole, 7-9 nerves. Flowers are small simos, yellow or greenish color. Male and female flowers are on separate branches. male flower It grows in clumps, but female flowers are usually solitary [28]. The fruit is pea-shaped, shiny, and has a drupe As it grows, it turns red. It flowers in summer and bears fruit in winter. that is Propagated by cuttings. The leaves provide good fodder for cattle [29]. There are warts on the surface of greyish stock. The leaves are broad and heart-shaped.

IX. CULTIVATION PRACTICES

Giloy grows well in a wide variety of soils. From sand to loam. However, the floor Well-drained, well-watered, rich in organic matter important for its growth. Grows under changing climatic conditions conditions. Crops are grown under rain-fed conditions. Or The plant is very hardy and can be grown in almost any climate However, it prefers warm climates. Cuttings are the best planting Materials for growing useful plants. planting is usually done During the rainy season (July-August). stem cuttings Sow directly in the field. cuttings are obtained from old knotty stem. Cuttings should be sown within 24 hours Distance from parent plant. now they should submerged half vertically. About 2500 cuttings Required for planting on 1 hectare of land. plants can do Grow with seeds. You need almost twice as many seeds Time to mature and administer the same amount of drug. Foundation FYM (farm manure) @ 10 tons/ha and Sprinkle half the amount of nitrogen (75 kg) at landing Ready. Knotty cuttings are sown directly field. Recommended optimal distance is 3m x 3m for better yields. Plants need support to grow. Installation of wooden stakes or trellis.

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About 2-3 weeds Creepers need a hoe to grow. not serious Pest damage and disease have been reported for this crop. Stems are harvested in autumn. Over 2.5cm in diameter. root part remains growth. Finely chop the stalks and dry them shade. The skin of the trunk peels off when touched, this is how the trunk should be Peeled stems rot quickly, so cut them carefully. Plant Yield approx. (10-15 q/ha) 1500 kg of fresh woody stems, It reduces to 300 kg dry weight per hectare in about 2 years.

X. CONCLUSION

This is truly a wonderful herb that can be used for all ailments. giloy is not approved by the Federal Drug Administration and, like other herbal remedies and drugs, can cause side effects such as constipation. Further research is needed. Additionally, if you have a medical condition or if you are pregnant or breastfeeding, you should consult your doctor before using giloy. a plant with roles as diverse as Tinospora cordifolia A universal resource for all life forms. there is The aforementioned reports containing botanical extracts alkaloids, glycosides, lactones and steroids. All of these active ingredients are Various immunomodulatory and physiological roles type, thus showing the diverse versatility of plant. It is necessary to conduct research considering aspects such as Active ingredients actually interact with biological systems Influences the relationship between structure and function. Crystal Structures of membranebound receptors and activation of downstream signaling cascades and Changes in the immediate vicinity of the place of action can lead us to identify new perspectives understanding of nature. in search of a living spring Nature can also guide us to various interactions between them An evolutionarily related group of organisms. Future The scope of the review is limited to biochemical use. Signal transduction pathways of the active components of Tinospora This enables effective disease targeting. in a lot of things Offering the plant Tinosporia to the scientific community of medicine Acts as an incredible resource.

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