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Pharmacology of Tridaxprocumbens a Weed

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Abstract: *Throughout India, Tridaxprocumbens Linn. Is a common herbaceous weed. It is sold used as Ayurvedic medication for liver diseases and hair development. It is commonly known as coat buttons. The weedy plant, which can be annual or perennial, is typically found in croplands, disturbed areas, lawns, and by the sides of roadways.*

Suggested that the plant's various components were said to include phytochemicals like tannins, fumaric acid, carotenoids, flavonoids, saponins, and alkaloids. Oleanolic acid was abundantly available, and salt and potassium are also present in large concentrations. Its blooms have also been discovered to contain bioactive compounds such luteolin, glucoluteolin, quercetin, and isoquercetin. Chlorophyll and carotenoids, which are basic plant pigments, This review focus on folk occurrence and the wide pharmacological activities of weed Tridaxprocumbens.

Keywords: Tridaxprocumbens, Weed, Pharmacology, Phytochemical.

I. INTRODUCTION

Due to their abundance in therapeutically valuable active ingredients, medicinal plants are an excellent source of treatment for human ailments. (2).Our dependence on pharmaceutical substances has increased due to the permanent consequences of current therapies and rising medication resistance. Plants as a herbal cure for infectious and fatal diseases(3). Tridaxprocumbens is a hispid, procumbent herb that is typically found as a weed and is extensively distributed. T. procumbens is a perennial plant that bears fruit and flowers all year long [4–7]. Tropical Africa, Asia, Australia, and India have all adopted the plant as native to tropical America. It is a wild herb that is found all over India. Traditional medicine has a long history in India. The Indian MateriaMedica contains a wealth of knowledge regarding folklore practises and conventional aspects of therapeutic

Plant review:-

Kingdom: Plantae – Plants Sub kingdom: Tracheobionta – Vascular plants Kingdom: Plantae – PlantsThespermatophytadivisionMagnoliophyta, a division of flowering plants
Magnoliopsida – Dicotyledons is the class.
Asteridae, a subclass
Family: Asteraceae, or the aster family Order: Asterales
Tridax L., also known as tridax
Tridaxprocumbens L., a species. Coat buttons

II. PHYTOCHEMICAL CONSTITUENTS:-

It has been demonstrated in numerous scientific investigations that the plant contains a variety of phytochemical substances. Alkaloids, carotenoids, saponins, flavonoids, and tannins were found to be present in this medicinal plant based on the phytochemical screening. The closest Tridaxprocumbens is high in calcium, potassium, and salt, according to features [8].It was determined in a previous study that the plant's leaf primarily comprises crude Calcium oxide makes up 5%, proteins 26%, crude fibre 17%, and soluble carbs 39%. On the other hand, its blossoms have been shown to contain luteolin, glucoluteolin, quercetin, and isoquercetin.The presence of fumaric acid and -sitosterol in the plant has also been noted [9].

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Chemical Constituents

Alkaloids, carotenoids, flavonoids (catechins and flavones), and tannins were all found throughout the phytochemical screening. Carotenoids and saponins are abundant in it. The plant is high in calcium, potassium, and sodium, according to the proximate profile[10]. Page of Tridax mostly includes crude proteins (26%), crude fibre (17%), soluble carbohydrates (39%), and calcium oxide (5%). Its blossoms have also been reported to contain luteolin, glucoluteolin, quercetin, and isoquercetin. However, the plant has also been linked to fumaric acid, fl-sitosterol, and tannin [11]. When tested against aglucosidase, oleanolic acid, which was produced in significant quantities from Tridax, was identified as a possible antidiabetic drug [12].

Phytochemical review:-

Alkaloids, carotenoids, flavonoids (catechins and flavones), and tannins were all found throughout the phytochemical screening. Carotenoids and saponins are abundant in it. The plant is high in calcium, potassium, and sodium, according to the proximate profile [13]. Page of Tridax mostly includes crude proteins (26%), crude fibre (17%), soluble carbohydrates (39%), and calcium oxide (5%). Its blossoms have also been reported to contain luteolin, glucoluteolin, quercetin, and isoquercetin. However, the plant has also been linked to fumaric acid, fl-sitosterol, and tannin [14]. When tested against a-glucosidase, oleanolic acid, which was produced in significant quantities from Tridax, was identified as a possible antidiabetic drug [15].

Tridaxprocumbens' ethyl acetate-soluble portion of the hexane extract produced four terpenoids known as taraxasteryl acetate, betaamyrenone, lupeol, and oleanolic acid as well as a brand-new bisbithiophene called tridbisbithiophene. [16]8,3'-dihydroxy-3,7,4'- trimethoxy-6-O-D-glucopyranosyl flavone and another novel flavone were discovered. Puerarin, esculetin, oleanolic acid, and betulinic acid were also extracted from Tridaxprocumbens Linn., along with 6,8,3'-trihydroxy-3,7,4'- trimethoxyflavone. On the basis of chemical analysis and spectrum approaches (IR, 1D and 2D NMR, ESI-MS, HR-ESIMS), the structures of the two novel flavones were clarified. [17]On the basis of spectroscopic methods and by chemical means, a novel flavonoid (procumbenetin), isolated from the aerial portions of Tridaxprocumbens, has been characterised as 3,6-dimethoxy-5,7,2',3',4'- pentahydroxyflavone 7-O-betaDglucopyranoside. [18]WSTP-IA and WSTP-IB, two water-soluble polysaccharide components, were isolated from the main component of sugar. Studies on the native and modified polysaccharides using 1H and 13C NMR and methylation linkage analysis revealed that WSTP-IA is a L-arabino-D-galactan with a beta-(1- > 6)-D-galactan main chain in which at least one in Every two D-Galp residues have a single L-Araf (alpha-/beta-) or beta-D-Galp end-group residue as a substituent at position O-3 in the linear beta-(1->6) WSTP-IB.-D-galactan[19].

III. PHARMACOLOGICAL PROPERTY

Tridaxprocumbens has been studied using various solvent extracts, and various biological activity have been seen in animal models. These biological activities include anti-oxidant, anti-microbial, wound healing, anti-malarial, anti-cancer, blood coagulation, repellency, and anti-inflammatory. Hepatoprotective, immune-modulating, hypotensive, analgesic, hemostatic, anti-diabetic, anti-lithiasis, anti-obesity, and antihyperglycemic characteristics. The following is a description of these bioactivities:

Anti-oxidant Activity

The free radicals scavenging activity of the Tridaxprocumbens fractions and Ascorbic acid was Measured in terms of hydrogen donating or radical scavenging ability using the stable free Radical 2, 2-diphenyl-1-picrylhydrazyl (DPPH) [20]. The antioxidant activity of the fractions was Expressed as IC50 which was defined as theconcentration (mg/ml) of methanol extract fractions That indicates the formation of DPPH radicals by 50% [21].

Anti-bacterial Activity

The complete plant parts of Tridaxprocumbens have been found to exhibit anti-microbial action against diverse bacterial species in a previous research investigation. To extract juice that is administered twice daily for 4-5 days to treat cuts and wounds, an entire plant is squeezed between the palms of hands. Using the disc diffusion assay, the extract of the entire plant only demonstrated anti-microbial properties against Pseudomonas aeruginosa. Two

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grampositive Bacillus subtilis and Staphylococcus aureus strains and two gramnegative Escherichia coli and Pseudomonas aeruginosa strains were among the four bacterial strains used in the test [22]. This action was only clearly seen in ethanol extract against Pseudomonas aeruginosa strains.Multidrug-resistant Pseudomonas nosocomial strains seen in ventilator-associated pneumonia and urinary tract infections[23].

Wound Healing Activity

The complex interaction between epidermal and dermal cells, the extracellular matrix, controlled angiogenesis, and plasma-derived proteins that the plant decoction uses to treat wounds is regulated by cytokines and growth factors [24]. Waterleaf decoctions also worked well. Lysyl oxidase, however not as significantly as whole plant decoctions. It has been shown that both healthy and immune-compromised rats respond favourably to the extract of this plant's leaf. As a result of the rise in glycosaminoglycan content, the plant can raise the levels of lysyl oxidase, protein, and nucleic acids in the granulation tissue [25].

Anti-fungal Activity

To assess the antifungal activity of the plant decoctions, the disc diffusion method was applied to two fungus strains, Aspergillusflavus and Aspergillusniger.minimal inhibitory doses and minimal activity levels were used to observe total activity. Concentrations that are fungicidal.Alkaloids decoction had no effect on either of the test fungus, while flavonoids decoction had the best efficacy against Aspergillusniger [26].

Anti-malarial Activity

The water and ethanol decoctions show anti-plasmodial qualities against Plasmodium falciparum that is resistant to chloroquine. Although additional animal toxicity tests on the plant are required, the decoctions have little toxicity to human RBCs [27].

Anti-cancer Activity

By using the MTT assay, the chemicals from plants were used to assess their cytotoxicity against a human lung cancer cell line. Cell viability was 90% lower with the chemical. The substance is Lupeol, according to the results of the NMR, MS, and IR spectra. The Lupeol's ability to fight cancer Against a human lung cancer cell line has been assessed using clonogenic survival analysis, cell cycle regulation, a cell-based COX-2 activity assay, and DNA fragmentation. According to the research, the Lupeol molecule at 320 g/ml had strong anti-cancer efficacy [28].

Blood Coagulation and Haemostatic Activity

It is possible to utilise leaves as a potent hemostatic agent because water decoctions of the leaves demonstrated considerable blood coagulation activity [29]. Utilising Lee-White's approach, the haemostatic properties of the plant's leaves from the various solvent extracts were tested in vitroAs all of the trials' blood samples' clotting times are decreased by the ethanol extract [30].

Anti-inflammatory Activity

There are substantial anti-inflammatory qualities in Tridaxprocumbens. Given the weight gain, corticotrophic influence may be to blame for the plant decoction's anti-inflammatory effects [31].Ethyl acetate, the plant's active component, was discovered to include Alkaloids and flavonoids are naturally occurring, moderately polar substances. These bioactive substances have been used to combat reactive oxidant species that have been linked to the pathophysiology of inflammation and other conditions. [32].

Toxicity Studies

The decoctions of Tridaxprocumbens were reported to have varied pharmacological effects from several research studies. The Lorkes method [33].was used to conduct the acute toxicity research. Based on intraperitoneal injection, the acute toxicity resulted in the The compounds in the decoctions were transmitted to the target organ by direct blood circulation, demonstrating their toxicity. Since the test animal received oral dosing, the LD50 may be significantly

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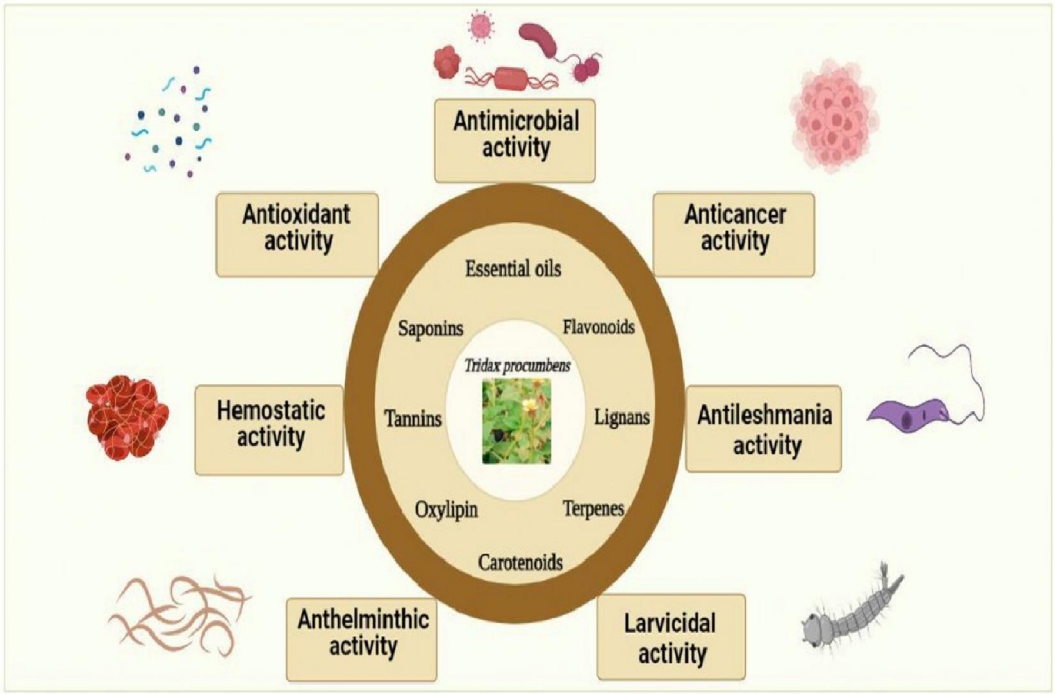
greater because the decoctions will go through metabolism to create a new product, which may be less harmful. Following acute injection, toxicity symptoms were seen, including restlessness and salivation as well as nose and mouth dropping to the cage floor. The decoctions' LD50 was 2100 mg/kg body weight, and every[34].

III. CONCLUSION

The botanical, phytochemical, nutritional, and pharmacological potential of Tridaxprocumbens Linn. Is tremendous. According to the aforementioned review study and explanation, the plant was widely utilized in the ancient system of medicine for a variety of biological As it is briefly covered in the review article, it has several notable phytopharmacological properties and is used to treat a variety of illnesses. There is a lot of room for future research to clarify the mechanism of action of this plant and explore its further pharmacological effects. In the future, the pharmaceutical industry may rely heavily on this medicinal plant as a source of herbal medications [35, 36].

Diagram of tridaxprocumbens plants



Graphical pharmacological activities of tridaxprocumbens

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