



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

“TRIDAX PROCUMBENS LINN”

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Abstract:

Tridax procumbens is a plant used majorly in Indian traditional medicine. The plant is native of tropical America and naturalized in tropical Africa, Asia and Australia. It has been extensively used in Indian traditional medicine for wound healing, as an anticoagulant, in fungal infection, in diarrhea and dysentery, as an antioxidant, antimicrobial, anti-inflammatory and immunomodulatory, and mosquitoicidal. The medicinal plant is a rich source of natural remedies to treat pathogenic and other diseases. The plant Tridax procumbens belongs to the family Asteraceae. It is commonly recognized as “Ghamara”, in English generally called “coat button” and is distributed for “Bhringraj” by some of the practitioners of Ayurveda. Tridax procumbens is the most valued drug which is recycled in multiple researches involved in Ayurveda literature. Still, there is a dearth in studies on the isolation, characterization, and evaluation of active principles from the extract. This review article gives comprehensive information about the Tridax procumbens taxon.

Index Terms – *Tridax Procumbens*, morphology, geographical distribution, phytoconstituent, pharmacological activity, Antioxidant, Anti-inflammatory, Wound healing, Antifungal activity, Antidiabetics, Antimicrobial, Antihypertensive, Mosquitoicidal

I. INTRODUCTION

Tridax procumbens, commonly known as coat button [1], is a perennial plant belonging to the family Asteraceae. It is native to the tropical Americas, but it has been introduced to tropical, subtropical, and mild temperate regions worldwide. It is often rooting at the node, solitary, long-stalked, yellow composite, heterogamous, bisexual flower with white flowering heads and very hairy, with coarsely toothed, petioles, ovate or lanceolate leaves. The whole aerial part is useful

medicinally. Leaves possess wound healing, insecticidal, antisecretory, and hypotension action, while seeds are used to control bleeding [2]. Tridax procumbens is widely distributed in India up to 2400m above sea level [3,4]. The leaves have medicinal value and are used to treat catarrh, dysentery, and diarrhea. The different leaf extracts are used as antiseptics to treat fresh cuts, wounds, burns, and anemia [5]. It contains flavonoids, alkaloids, carotenoids, and hydroxyl

cinnamates, lignans, benzoic acid derivate, phyto steroid tannin, crude proteins fibers, soluble carbohydrates and calcium oxide [6] It is wide spread distribution and important as a weed are due to its spreading stem and abundant seed production [7] *Tridax procumbens* is a weak straggling herb about 12-24 cm long with few leaves 6-8 cm long and very long slender solitary peduncles a foot long and more. *Tridax* has two type of flower ray-florets and disk-florets basal placentation fruit is cypsela [8] the juice extracted from leaves is directed applied on wound. Its leaf extracts used for infectious skin diseases in folk medicine. The aim of this review is to highlight the important of this species as a valuable medicine plant [9]

II. Classification of *Tridax procumbens* Linn

English	Coat button and <i>Tridax</i> Daisy
Hindi	Ghamara
Marathi	Dagadi pala
Sanskrit	Jayanti veda
Malayalam	chiravanak
Telugu	Gaddi chamanti
Tamil	That pudu
Chinese	Kotobuki goku
Spanish	Cadillo chisaca
french	Herbe Caille

2.1. Vernacular Names of *Tridax procumbens*

Linn [10]

Sr.no	DIVISION	CLASSING
1	Kingdom	Plantae-plants
2	Sub kingdom	Tracheobionta-vascular plant
3	Division	spermatophyta
4	Subdivision	Magnoliophyta- flowering plant
5	Class	Magnoliopsida- Dicotyleaons
6	Subclass	Asteridae
7	Order	Asrerales
8	Family	Asteraceae –Aster family
9	Genus	<i>Tridax</i> L <i>tridax</i>
10	Species	<i>Tridax Procumbens</i> L-coat button





2. Morphology and cytology

2.1 Appearance –*Tridax procumbens* is a partial prostrate, yearly, climber basil with stalk climbing to 30-50 cm in tallness, divided, thinly hirsute and entrenched at bulges

2.2 flower- *Tridax procumbens* flower have white rays and yellow disk flower they are about 0.4-0.6 inches (1-1.5 cm) long stalk flower are tubular in nature with hairs having a capitulum inflorescence [11,12,13], This has two types of flower rays florests and disc florests with basal plancementation [12].

2.3 fruit-Fruit is hard achene covered with stiff hairs and having a feathery, plum like white pappus at one end, which assist in aerial dispersal [11,12], fruits are achenes that are dark brown to black in colour oblong 0.08 inches (2mm) long

2.4 seed- *Tridax procumbens* seed germinate at higher temperature (35\25 and 30\20 degree C) in presence of 58 to 78% light. This are water stress [7] the chromosome numbers are 36 (diploid) and

(haploid) in gametes [14] The prolongation is through spreading steam and seed production [11]

2.5 calyx- It is represented by scales or reduced pappus

2.6 leaves- Greeneries are unevenly jagged and usually arrow summit shaped, they are simple ovate, opposite, exstipulate and lanceolate and they are shortly petioled hairy on both surface.

2.7 stem and root- Stem are cylindrical, haploid , coverd with mulicellular hair of mm tuberculation at the base root is strong taproot system. The stem is ascending 30-50 cm height,branched,sparsely hairy rooting at nodes.

2.8 origin and distribution-*T ridax procumben linn* is native tropical America and neutralized in tropical Africa ,Australia and india the wild herb is distributed throughout india coat button are found or roade side, waste ground rail roades, dykes riverbanks,mindow and importance as awed are beacause of its spreading stem and plentiful seed production.



3. Chemical composition

Tridax procumbens has high moisture content of 88.30 % in stem and 90.05 % in leaf. It is rich in protein with 37.44 % dry weight (4.38 % wet weight) in the stem and 34.57 % dry weight (3.44% wet weight) in leaf. The total lipid and carbohydrate content in the stem is 0.85% dry weight (0.1% wet weight) and 41.03 % dry weight (4.80% wet weight) respectively and that in leaf is 6.03% dry weight(0.6% wet weight) and 51.26% dry weight (5.10% wet weight) respectively. The crude fiber contents is 16.41% dry weight(1.92% wet weight) in stem and 6.13% dry weight (0.61 % wet weight) in leaf The metabolizable vigor per 100 g of Tridax Procumbens is about 321.54 Kcal in dry weight (37.62 Kcal in wet weight) for stem and 397.59 Kcal in dry weight (39.57 Kcal in weight) for leaf [17] the phytochemical screening revealed the presence of alkaloid, carotenoid, flavonoid (catechism and flavons) saponins and tannins. It is richly endowed with carotenoid (9.41 mg/100 g WW 94.57 mg/100 g DW) and protein (10.30 mg/100g WW and 103.52/100 g DW) This result suggests the likelihood of this plant serving of potential source of protein supplement and pro vitamins and A (carotenoid) to the population. It indicate that dehydration can improve the nutritional quality of

tridax procumbent [18] in research study. The plant pigment of Tridax procumbens along with some other ethno medical plants were estimated. The study showed that total chlorophyll content was 1.424 mg/g tissues and carotenoid content was 0.724 mg/g tissues in this plant. Other two plant pigment research studies observed that these plant pigment contents may fluctuate due to the various environmental or other biogeochemical factors like effects of air pollution and it may differ with seasonal changes [19]. Aside from it, four known compounds puerarin, esculetin, oleonic corrosive and betulinic corrosive were likewise secluded from the plant parts [20].

4. occurrence in folk practice-

Antimicrobial activity against both gram positive and gram negative bacteria [21,22,23,24,25] Its leaves also use Tridax procumbens possesses significant Anti inflammatory, hepatoprotective, wound healing, Antidiabetic activity and for bronchial catarrh, diarrhea and to prevent falling of hair promotes the growth of hair, insect repellent [26,27,28,29]. In the West Africa sub-region and tropical zone of the world, Traditional medicinal practitioners and the native people of these areas use the leaves of the plant as a remedy against conjunctivitis [30]. It is also used as bioadsorbent for chromium (VI) is one of the highly toxic ions released into the environment through leather processing and chrome plating industries [31]

5. Pharmacological activities-

Tridax procumbens having different potential restorative exercises like Antimicrobial Activity, Antioxidant Activity, Antibiotic Activity, Wound healing activity, Insecticidal, Anti-inflammatory activity, diarrhea and dysentery [20]. Tridax procumbens show other activity like Anti-diabetes, Anti cancer, cardiovascular effects, Anti-juvenile hormone activity, Leishmanicidal activity, antitubercular potential etc.

5.1 Anti-microbial activity-

Whole plant of tridax has reported for its antimicrobial activity on various species of bacteria. A whole plant is squeezed between the palms of hands to obtain juice. Whole plant of tridax has reported for its antimicrobial activity on various species of bacteria, This explain the reason for using the plant in traditional folk medicine to treat dysentery, diarrhea and gastrointestinal disorders of bacterial infections. Fresh plant juice is applied twice day for 3-4 days to cure cuts and wounds. The extract of whole plant of Tridax showed antibacterial activity only against *Pseudomonas aeruginosa*. The active components like tannins, flavonoids (apigenin, quercetin and kaemferol), ethyl esters (9,12-octadecadienoic corrosive ethyl ester, 5 α -cholestane, hexadecanoic corrosive ethyl ester and 9-octadecanoic corrosive ethyl ester) unsaturated fats, phenol, saponins and sterol are answerable for antimicrobial action observed [32]. Four strains of bacteria employed in test were two gram positive *Bacillus subtilis*, *Staphylococcus aureus* and two gram negative *Escherichia coli* and *Pseudomonas aeruginosa* [25].

5.2 Antioxident –

The tridax procumbens having the total phenol expressed as Gallic acid Equivalent (GAE) show high phenolic contents of 12 mg/g GAE. The result indicates that having some relationship between the content of phenol in medicinal plant and antioxidant activity. Chloroform insoluble fraction of ethanolic extract of Tridax procumbens against D-galactosamine lipopolysaccharide (Dgaln\LPS) induced hepatitis in rats. Tridax procumbens is very effective in alleviating the D-galn\LPS induced oxidative stress suggesting its antioxidant property [33]. A large number of previous reports support this finding that plant optional metabolites like flavonoids, tannins, catechins and other phenolic. Compound has potential cell reinforcement activity [20].

5.3 Wound Healing-

Wound healing involve a complex interaction between epidermal and dermal cells. The extracellular matrix, controlled angiogenesis and plasma-derived protein all coordinated by array of cytokines and growth factors [34]. The plant not only increases lysyl oxidase but also, protein and nucleic acid content in the granulation tissues, probably as a result of increase in glycosaminoglycan content [30]. Watery concentrate was likewise viable in expanding lysyl oxidase yet less significantly than entire plant remove. Further it has been shown that extract has leaves of this plant also promote wound healing. The plant is not only increases lysyl oxidase but also protein also nucleic acid content in the granulation tissue probably due to increase in glucosaminoglycan content. Wound healing properties of Tridax procumbens aqueous and ethanolic extract

of whole plant by using animal model. In this study both excision and incision wound are treated with both extract of plant.

5.4 Anti-Inflammatory-

Tridax procumbens show Anti-inflammatory activity few isolated chemical constituent show Antibacterial property, Antifungal property, and wound healing also. Tridax procumbens shows existence of a quantity of valued components such as flavone Glycoside, bithiophene, flavonoid, sterols, terpenoids, lipids and polysaccharides. The plant also prevent hair fall and is used as a hair growth promoter. Tridax procumbens Linn is a commonly dispersed weed establish everywhere in India, America, Tropical Africa, Asia, and Australia. number of studies have been showed on dissimilar fragments of Tridax procumbens LINN which verify that Tridax procumbens Linn is a helpful therapeutic plant. The anti-inflammatory activity of tridax procumbens extract was assessed on carragenin induced paw edema along with standard drug Ibuprofen. The Tridax procumbens extract increased the inhibition of edema if treated with standard drug Ibuprofen. The inhibition zone was comparable with extract of Tridax procumbens increased inhibition of edema if treated with standard drug ibuprofen. Drug ibuprofen with extract of Tridax procumbens showed significant anti-inflammatory activity. Water soluble powder of Tridax leaf extract was administered orally at different doses to rats, flavonoid compound Quercetin is responsible for inflammatory pain and allodynic effect on chronic constriction injury (CCI) injury induced neuropathic pain model [35]

5.5 Prolongation clotting time-

Tridax procumbens extract 200 mg/kg IP injected to experimental rabbits, reduced normal heparin induced prolongation of clotting time [36]

5.6 Anti-fungal Activity-

Tridax procumbens Linn plate dissemination examine was performed against two pathogenic contagious strains. Minimum inhibitory concentration (MIC), minimum fungicidal concentration (MFC) and absolute movement were additionally assessed for assurance of antifungal capability of every dynamic concentrate. The flavonoid removes showed surprising action against *A. niger* though alkaloid removes were viewed as inert against both the test parasite. Incredible antifungal potential was recorded with the expectation of complimentary flavonoid of stem and bound flavonoid of stem and flower *A. niger* study indicated that tridax procumbens can be used as a source of formulation of anti-fungal drug for treatment of disease caused by *A. niger* [37]

5.7 immunomodulatory Activity-

Ethanol extract of leaves of Tridax procumbens have immunomodulatory effect on Albino rats dosed with *Pseudomonas aeruginosa* also inhibits proliferation of some [38]. Also a significant increases in phagocytic index, leukocyte count and splenic antibody secreting cell has been reported to ethanol insoluble fraction of aqueous extract of Tridax stimulation of humoral immune response was also observed along with elevation in hemagglutination antibody titer. Study also reveals that Tridax influences both humoral as well as cell mediated immune system [34]

5.8 Anti- cancerous activity-

The effect of anti- cancer activity of traditional plant *Tridax procumbens* flower crude aqueous and acetone extract was tested on prostate epithelial cancerous cell PC3 was determined by measuring cell viability by MTT assay. Experiment consists of cleavage of the soluble yellow coloured tetrazolium salt MTT [3-(4,5 dimethyl-thiazole-2-yl)-2,5-diphenyl tetrazolium bromide] to a blue coloured formazon by the mitochondrial succinate dehydrogenase. The assay was based on the capacity of mitochondrial enzymes of viable cell to reduce the yellow soluble salt MTT to purple blue insoluble formazan precipitate which is then quantified spectrophotometrically at 570 nm. The result of this analysis revealed the fact that flower crude extract has anti cancer activity [39]

5.9 Anti diabetic activity-

The hypoglycemic activity properties of the ethanolic extract (TP-1) and its fraction were evaluated. The search was perused in normoglycemic and alloxan –diabetic rats . The blood sugar level of diabetic was were reduced by 10-17%, however this extract has no effect on fasted blood sugar level of this normal rats .oral administration of TP-2-1 could improve both oral and intraperitoneal glucose tolerance of normal glycemic rats [40]

5.10 Antidiarrheal/ Antisecretory activity-

Alcohol, hexane, chloroform ,butanol and aqueous extract of different parts of 31 indigenous medicinal plants of india werw screened for their antisecretory activity against *E.coli*. extract of

Tridax procumbens showed highly significant antisecretory activity [2]

6. conclusion-

Review shows that the *Tridax procumbens* Linn. is a rich medicinal plant. Phytochemically, Pharmacologically as well as traditional medicinal system also proves this . Every part and histopathological , phytochemical study reveals present of site and sources of phyto molecule. The broad survey of literature reviews that *Tridax procumbens* Linn has shown many significant Antimicrobial Activity. Few isolated chemical constituents show Antibacterial property, and wound healing properties also.*tridax procumbens* shows existence of a quantity of valued components such as flavone glycoside, bithiophene, flavonoid, sterols, terpenoid, lipids and polysaccharide. The plant also prevent hair fall and used as hair growth promoter. *Tridax procumbens* Linn is a commonly dispersed weed establish everywhere in india , America, tropical Africa, Asia and Australia . Number of studies have been showed on dissimilar fragments of *Tridax procumbens* Linn which verify that *Tridax procumbens* Linn is therapeutic plant,

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