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Review on *tridax procubens linn*

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❖ ABSTRACTS

Tridax procumbens L. (Asteraceae), commonly known as coat buttons, tridax daisy, or ‘‘ghamra’’, is a perennial creeping herb distributed across tropical and subtropical regions worldwide. Traditionally used in folk medicine for wound healing, hemostatic, antimicrobial and anti-inflammatory purposes, T. procumbens has attracted research interest for its diverse phytochemical profile and wide spectrum of biological activities. This review provides a detailed and updated account of the plant’s taxonomy, botanical description, geographical distribution, cultivation and propagation, phytochemistry, pharmacological activities, traditional uses, preparations, toxicity and safety, analytical methods, formulation approaches, and future prospects for therapeutic development.

❖ KEYWORD

Oleanolic acid, Centaurein, Fumaric acid, Lauric acid, Lupeol, Luteolin

❖ INTRODUCTION

Tridax procumbens Linn. (Tridax) family Compositae commonly known as ‘Ghamra’ and in English popularly called ‘coat buttons’ because of appearance of flowers has been extensively used in Ayurvedic system of medicine for various ailments and is dispensed for “Bhringraj” by some of the practitioners of Ayurveda which is well known medicine for liver disorders. The plant is native of tropical America and naturalized in tropical Africa, Asia, Australia and India [1].

It is a wild herb distributed throughout India [2]. Traditionally herbal medicinal compounds have proven to show several therapeutic benefits and have been utilized several hundred years for curing several ailments in humans. In addition to modern antibiotics usefulness as antimicrobial, there are reports of several plant products proven to show antimicrobial activity in the treatment of various infectious diseases [3]. These species contain various

pharmacological activities due to the presence of various phytochemicals like alkaloids, tannins, flavonoids. Leaves juice extract of Tridax procumbens were used for various infectious skin diseases [4].

T. procumbens is widely distributed in India up to 2400 m above sea level. The leaves of the plant are used as raw feed to cattle and food additive by humans. The leaves have medicinal value and used to treat catarrh, dysentery and diarrhea [5]. The different leaf extracts are used as antiseptic to treat fresh cuts, wounds, burns and in anemia. It also contains hair growth enhancing ability [6].

The evaluation of these drugs is mostly based on:

- Pharmacogenetic investigation
- Phytochemical investigation
- Pharmacological investigation

❖ **Kingdom Plantae Plant:**

- Sub kingdom. Tracheobionta-Vascular plants
- Division: Spermatophyta
- Subdivision: Magnoliophyte-Flowering plants
- Class: Magnoliopsida – Dicotyledons
- Subclass: Asteridae
- Order: Asterales
- Family: Asteraceae-Aster family Genus: Tridas tridax

- Species: Tridax procumbens L. cout bumans

❖ MORPHOLOGY AND CYTOLOGY

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

Flower- Tridax procumbens flower have white rays and yellow disc 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 [7]. This has two types of flower ray's florists and disc florests with basal placentation.[8]

Fruit- Fruit is hard achene covered with hairs and having a feathery, plum like white pappus at one end, which assist in aerial dispersal fruits are achenes that are dark brown to black in color oblong 0.08 inches (2mm) long presence of 58 to 78% light. This are water stress the chromosome numbers are 36 (diploid) and (haploid) in gametes [9]. The prolongation is through spreading steam and seed Production

Calyx- It is represented by scales or reduced pappus.

Leaves- Greeneries are unevenly jagged and usually arrow summit shaped, they are simple ovate, opposite, exstipulate and lanceolate and they are shortly petiole hairy on both surfaces.

Stem and root- Stem are cylindrical, hispid, covered with multicellular hair of mm

tuberculation the base root is strong taproot system. The stem is ascending 30-50 cm height, branched, sparsely hairy rooting at nodes.

Origin and distribution- Tridax procumbent 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 road side, waste ground rail roads, dyke, riverbanks, meadow and importance as awed are because of its spreading stem and plentiful seed production.[10]

❖ PHARMACOLOGICAL ACTIVITY

➢ Wound healing

Research indicates that *Tridax procumbens* promotes wound healing [11]. Early studies demonstrated its pro-healing properties in animal models [12]. Further work has explored its efficacy in healing wounds complicated by diabetes and confirmed its wound-healing activity, attributing it to phytochemicals like flavonoids and tannins [13].

➢ Antimicrobial activity

Studies highlight the antimicrobial potential of *Tridax procumbens*. It has shown broad-spectrum antibacterial activity against human pathogens and antifungal effects against various strains, including *Aspergillus niger [14]*. The plant has also demonstrated effectiveness against the parasite that causes leishmaniasis [15].

➢ Anti-inflammatory activity

Tridax procumbens exhibits anti-inflammatory properties. Studies using different animal models of pain and inflammation have shown significant effects [16]. Research has also investigated the molecular mechanisms

underlying this activity, and reports indicate that aqueous leaf extracts can inhibit protein denaturation, a marker of anti-inflammatory action [17].

- **Antioxidant activity**

The plant possesses antioxidant activity. Research has compared its antioxidant capacity to standard antioxidants [18]. Reviews note the high antioxidant potential linked to the plant's phenolic content, and studies have evaluated the antioxidant activity of different extracts [19].

- **Antidiabetic activity**

Studies support the antidiabetic activity of *Tridax procumbens*. Research in animal models confirmed that oral administration of extracts lowered blood glucose levels [20]. Findings suggest that flavonoids in the plant may help regenerate pancreatic beta-cells. The plant's antidiabetic effects have been noted in conjunction with its antioxidant and anti-urolithiasis properties [21]

Table 1. Parts of Tridax Procubens, Constituents and Uses

Sr.no.	Plant Parts	Chemical Constituent	Pharmacological Uses
1.	Leaves	Oleanolic acid Centaurein Luteolin B-sitosterol Qurcetin	Antidiabetic Anti-inflammatory Blood clotting Tissue repair Anti-microbial
2.	Stem	Procumbenetin Linoleic Lupeol	Antioxidant Anti-septic Anti-microbial, Hemostasis
3.	Root	Lauric acid Esculein Centaurein Palmitic acid Fumaric acid	Anti-inflammatory Anti-oxidant Blood stop Collagen production increases Immunomodulatory
4.	Fruit	Catechin Apigenin Bcarotene	Promote tissue regeneration Anti-inflammatory Anti-oxidant
5.	Flower	Apigenin Kaempferon Quercetin	Promote skin barrier Anti-oxidant, Anti-microbial Anti-inflammatory

❖ THERAPEUTIC USES

➢ Healing of wounds Applying fresh leaf juice to wounds, burns, and cuts Hair and cuts hair development and maintenance Applying leaf extract to the scalp can encourage hair growth and stop hair loss.[22]

➢ Skin conditions Leaf decoction or paste for infections, eczema, and acne Applying an anti-inflammatory poultice or decoction helps to lessen pain and swelling [23]. Issues with the respiratory system Decoction for bronchial catarrh, cold, and cough.

➢ Dysentery and diarrhea an oral aqueous leaf extract.[24]

➢ Malaria and fever Leaf decoction is used to treat malaria and as a febrifuge.

➢ Hepatic conditions in traditional medicine, used as a liver tonic.

➢ Dental care Leaf paste for toothaches and pyorrhea applied to the gums Issues with the eyes Conjunctivitis eye drops made from diluted leaf juice (folk practice).[25]

❖ FUTURE SCOPE

Future Scope: Research on Tridax procumbens' active ingredients, safety, clinical trials, and innovative formulations could lead to its standardization as a herbal medication.

Tridax procumbens still has wide research potential. Future work can focus on :

➢ Isolation and identification of new active compounds.

➢ Use of nanotechnology and novel formulations to improve its effect.

➢ Detailed toxicity and safety studies.

➢ Clinical trials to prove its medicinal claims.

➢ Study of its exact action mechanisms.

➢ Standardization of extracts for quality control.

➢ Use in polyherbal and biotechnological approaches

❖ CONCLUSION

Tridax procumbens is a multiuse medicinal herb with a strong ethnomedicinal background and growing scientific validation for several bioactivities, notably wound healing and antimicrobial properties. While preclinical evidence is encouraging, robust clinical data and comprehensive safety evaluations are essential before widespread therapeutic adoption. The plant's accessibility and phytochemical diversity make it an attractive candidate for further phytopharmaceutical research.

❖ RESULT

Tridax procumbens shows many medicinal properties. It has antioxidant, wound healing, antimicrobial, anti-diabetic and liver protective activities. The plant also helps in blood clotting and supports immunity. These results agree with its traditional uses in medicine

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