



## Review Article

# Phytochemical And Pharmacological Activity Of *Tridax Procumbens* Linn

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### ABSTRACT

India has been blessed with an abundance of medicinal herbs primarily because of the country's climate and seasons, which promote the growth of various plant species. *Tridax procumbens* is a typical medicinal herb that is generally found in India as a weed and pest plant. It is classified as part of the Asteraceae family and is commonly referred to as Coat Button, Kansari (Hindi), or Ghamara (local language). The most valuable medicament utilized for the manufacturing of compounds described in Ayurvedic literature is *Tridax procumbens*. It is mostly used as an anticoagulant, an antifungal, and a wound healing agent insect repellent, dysentery and diarrhea in Indian traditional remedies. And their extract has various pharmacological properties (anti-inflammatory, hepatoprotective, immunomodulating, antimicrobial or antibacterial, antiseptic, anticancer, repellent, hemostatic, ant diabetic, urolithiasis, blood pressure lowering, antioxidant, bradycardia, etc.). The chemical components of the plant showed that its leaves contain various alkaloids, flavonoids, carotenoids, fumaric acid, etc. The synthesis of aromatic substances in the plant results in its primary secondary metabolites, such as the phenol derivative and oxygen oxidation. It is also active against antimicrobial agents such as gram-positive and gram-negative bacteria. It is also used as an adsorbent for chromium. Here we try to focus on the broad phytochemical and pharmacological activities of *Tridax Procumbens*.

### INTRODUCTION

*Tridax procumbens* could be a species of blossoming plant within the daisy (Asteraceae) family. It is best known as a broad weed and bug plant. The plant is local of tropical America and naturalized in tropical Africa, Asia, and Australia. It could be a wild herb dispersed all through India.

It is yearly or biennial to some degree patently hispid herbs. Stem branched, inching at base, sub erect or trailing over.[1] *Tridax procumbens* is best known as a far reaching weed and bother plant. *T. procumbens* is additionally known as 'Mexican daisy' (in Mexico), 'Coat button' and 'Tridax daisy' (in English), 'Jayanti Veda' (in

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Sanskrit), 'Gharma' (in Hindi), 'Dagadipala' (in Marathi), 'Vettukkaaya-thalai' (Tamil/Siddha) and 'Akala kohadi' (in society).[14] It is frequently establishing at hubs with singular, long stalked, yellow composite, heterogamous, promiscuous blooms with white blooming heads and exceptionally shaggy, coarsely toothed, petislate, praise or lanceolate takes off.[13] It is found in street sides, squander ground, railroads, riverbanks, glades. This plants wide spread conveyance and significance as a weed due to the spreading steam and inexhaustible seed generation.[2,3] *Tridax procumbens* is found to have pharmacological exercises like hepatoprotective impact, immunomodulating property, promising wound recuperating movement, antidiabetic, hypertensive impact, antimicrobial, creepy crawly repellent action, against incendiary and antioxidant, bronchial catarrh, diarrhea, loose bowels moreover anticipate falling of hairs and leads to hair

development advancement.[1] Flavonoids, fundamental oils, saponins, tannins, steroids, alkaloids, carbohydrates, carotenoids, terpenoids, and other chemical substances have been separated and recognized from this species.[14]

**Scientific classification of *Tridax procumbens*:** [3,16]

**Table 1: Classification of *Tridax procumbens***

Kingdom	Plantae
Division	Angiosperms
Arrange	Asterales
Family	Asteraceae
Genus	<i>Tridax</i>
Species	<i>Procumbens</i>
Scientific title	<i>Tridax Procumbens</i> Linn

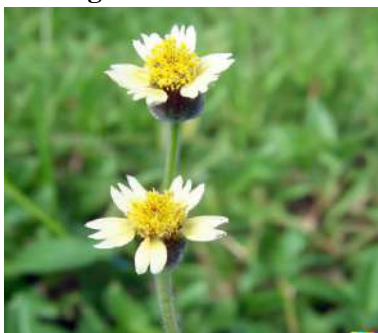
The complete plant and seed being utilized to treat an assortment of afflictions the clears out are cooked and eaten as a vegetable. But no Pharmacognostical work has been done so distant. Subsequently, an endeavor has been made to consider the Pharmacognostic parameters on the takes off of *Tridax procumbens* L.[13]

**Table 2 : Plant information of *Tridax Procumbens* Linn.**

Parts	Observation
Whole Plant	Semi prostate, annual, creeper herb with stem ascending to 30-50 cm in height, branched, sparsely hairy and rooted at nodes. [16]
Leaves	Arrangement Simple, Opposite, Size 3-7 cm long, 1- 4 cm wide, Colour Green, Oduor Characteristic, Taste Acrid, Appearance Rough & Scabrous, Margin Irregularly toothed, Apex Acute, Base wedge shaped, Petiole Short, Texture Short, Hairy on both surface, Fracture Easy. [11,16,17]
Upper epidermis	Appears single layered, multicellular covering trichome and lower epidermis is single layered, stretched cell and closely organized.[16]
Xylem vessel	Appears the nearness of calcium oxalate precious stones. [16]
Flowers	This has two sorts of blooms: beam florets and plate florets with basal placentation Blooms are tubular in nature, yellow in color with hairs having a capitulum inflorescence.[16]
Stems	Green, woody, erect, and round and hollow, up to 40 cm in tallness bearing various branches and 3-6 mm thickness, smell was characteristic and taste was harsh.[18]
Fruits	Natural product may be a difficult achene secured with hardened hairs and having a fluffy, plume-like white pappus at one conclusion, which helps in ethereal dispersal. [16]



**Fig 1 A. Whole Plant**



**Fig 1 B. Tridax Flower**



**Fig 1 C Tridax Leaves**

## **MATERIAL AND METHODS:**

### **Collection of Medicinal Plant (Tridax Procumbens):**

The takes off of Tridax procumbens were collected from Western Ghats, Tamilnadu, India. T.Procumbens was transported to the research facility for distinguishing proof and a example was put away for assist thinks about. It was shade dried for 10 days and powdered employing a blender processor. The leaf powder was utilized for the extraction of phytochemicals. [4]

### **APPARATUS AND CHEMICALS: [1]**

Soxhlet extractor, forceps clamp stand, heating mantle, three round bottomed jar, reflux condenser, heating mantle and chiller, TLC plate, column for chromatography, refining (Distilled)

device iodine chamber and test tubes. Ethanol, Hexane, Ethyl acetic acid derivation (ethyl acetate), Silica gel, Pet ether and distilled water.

### **Methods for Extractions:**

#### **1. By Macerations: [9]**

- For both phytochemical and pharmacological screening, the powder must be extricated utilizing water.
- The maceration prepare is vital for fluid extraction.
- We were given 20gm of Tridax procumbens powdered takes off in a measuring utensil.
- After completely mixing, include 5ml of chloroform to anticipate any organism from developing. Utilize a muslin cloth to appropriately seal the measuring utensil after that.
- For seven days, the measuring utensil was altogether mixed each 2-3 hours. On the seventh day, the arrangement was sifted. By applying warm from exterior, the filtrate will be dissipated.
- The filtrate was vanished till the strong molecule was gotten.
- In arrange to do a phytochemical and pharmacological screening, the strong molecule ought to be collected and adequately weakened.

#### **2. By Soxhlet Extractions: [9]**

- For ethanolic extraction by utilizing the Soxhlet device, we taken around 10gm of powdered takes off of Tridax procumbens into the Soxhlet device.
- Included the powder test in a permeable pack or “thimble” made of solid channel paper or a muslin cloth, which is put in chamber of the Soxhlet device.
- Chloroform will evacuate greasy acids and chlorophyll display within the powder test. At that point included 250ml of

Chloroform in device and begin the water supply.

- Begun the warming mental and put at 600C and proceeded supply the warm till the drop of dissolvable from the siphon tube does not take off buildup when dissipated.
- Stopped the warming supply and hold up for cool the gathering.
- Collected the powder from permeable pack or thimble and dry it appropriately at room temperature. After drying powder once more included it in permeable pack or thimble.
- Included the 250ml of Ethanol within the get together and begin the water supply. Begun the warming mental and put at 600C.

- Proceeded supply the warm till the drop of dissolvable from the siphon tube does not take off buildup when dissipated.
- Halt the warming supply and hold up for cool the get together. Taken dissolvable collected at circular foot carafe and go for vanishing.
- Dissipated the dissolvable till we accomplish the strong particulate. Scratch and weaken it and go for phytochemical and pharmacological screening.

C. Soxhlet gadget and extraction done with 100 ml of particular solvents (moo (low) polar to tall (High) polar) like as hexane, butanol, chloroform, ethanol and water. [7]

### PHYTOCHEMICAL SCREENING (COVERING) OF TRIDAX PROCUMBENS: [3,9,10]

Table 3: Qualitative test for T.procumbens Linn.

Chemical constituents	Chemical Test	Observations
1. Alkaloids	Dragendroffs test or Mayer test	Orange/red accelerates (Precipitate) and yellowish precipitation.
2. Flavonoids	Soluble(Alkaline) reagent	Strongly yellow color
3. Glycosides	Bronberg's test	Pink color (Alkali layer's)(Ammonia layer's)
4. Tannin	Fec13 test	Green of blue-black coloration.
5. Saponins	Foaming test	Froth(Foam)

### PRELIMINARY PHYTOCHEMICAL SCREENING (COVERING) OF T.PROCUMBENS:

The distinctive organic dissolvable extracts of Tridax procumbens were utilized to screen the taking after phytochemicals like sugar, alkaloids, phenolic compounds, Flavonoids, tannins, saponins, amino acids and ascorbic acids. Chemical tests were carried out on the watery extricate (Extract) on the powdered examples utilizing standard methods. [7]

#### Thin Layered Chromatography:

[1] Thin layer chromatography is done as employing a thin, uniform layer of silica gel coated

onto a piece of glass. The stationary stage for thin layer chromatography too frequently contains the mobile stage could be a appropriate fluid dissolvable or mixture of solvents. The RF value for each compound is at that point worked out utilizing the equation. (Mobile Phase: 7ml Hexane: 3ml Acetone) [8].

#### Equation for Thin layer chromatography:

RF Value (Retention Factor): Distance travelled by solute / Distance travelled by solvent.

### PHARMACOLOGICAL ACTIVITY OF TRIDAX PROCUMBENS LINN:

The chemical constituents of the plant appeared that its leaves contain different alkaloids,



flavonoids, carotenoids, fumaric corrosive (acid) etc. Their extricate has different pharmacological properties (anti-inflammatory, hepatoprotective, immunomodulatory, antimicrobial or antibacterial, movement sterile, anti-cancerous movement, repellency movement, hemostatic movement, antidiabetic, anti-urolithiatic action, hypotensive, antioxidant effect, bradycardiac effects, Wound Healing etc.) [1]

Plant Parts	Extract	Biological activity	Phytochemical	Reference
Whole (Entire) Plant.	Methanol & Watery (Aqueous).	Antioxidant and antibacterial Activities exercises.	Phenolic and flavonoids compounds.	Ammar MA Ali1,2, Methaq N Algabr.,et.al (2023) [10]
Whole plant	Hexane, butanol, chloroform, ethanol and aqueous	Antimicrobial activity.	Phenols, flavonoids and Saponins.	Valivittan, K and P. Dhasarathan (2014). [7]
Whole Plant	Methanol Maceration.	Anti staphylococcal Activity.	–	Arnab Bera and Nilanjana Banerjee. (2023) [19]
Leaves	Ethanol and Aqueous extract	Antimicrobial and antioxidant activity.	Secondary metabolite.	A. Shanmugapriya and S. Maneemegalai (2017). [6]
Leaves	60% ethyl alcohol, Methanolic and Aqueous.	Anti-Inflammatory Activity.	–	Awasthi S.1, Irshad M., et.al (2009). [5]
Leaves	Methanol, ethanol, chloroform and water.	Antibacterial, antioxidant potentials and cytotoxic activity.	Flavonoids, Phenolic content, Catechins, Tannins.	Asad Syed, and Natarajan Benit.,et.al.(2020). [4]
Leaves	Acetone	Antioxidant Activity	Chlorophyll	Durga devi.m, banu.n. (2015) [8]
Leaves	–	Wound healing activity.	–	Nimbekar T.P., Meshram A. S. Farooqui M. S. (2019)
Different parts (leaf, stem and flowers)	Ethanol 96%	Antibacterial, antioxidant, wound healing activities and stop-bleeding effect.	Flavonoids, terpenoids, tannin, alkaloids and saponin.	Ammar MA Ali1,2, Methaq N Algabr.,et.al (2023) [10]
Flowers	Acetone	Apoptotic effect (Anti-cancer)	–	Vinod gubbiveeranna, s. Nagaraju. (2016) [16]

## CONCLUSION:

Tridax procumbens contains a number of valuable constituents such as flavone glycoside, chromone glycoside, bithiophenes, flavonoid (procumbenetin), sterols, terpenoids, lipids and

polysaccharides, phenolic content, tannins, catechins, and various secondary metabolites with significant pharmacological activities such as anti-inflammatory, antibacterial, wound-healing, and antioxidant activity, anti cancer,





antistaphylococcal, apoptotic effect. Apart from this, it also possesses antimicrobial and immunomodulatory action, which provides the basis for further studies.

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