

A Review of *Tridax Procumbens* a Weed: Review

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Abstract: *Tridax procumbens* Linn (Compositae) is a weed that can be found all throughout India. Tropical Africa, Asia, and Australia have all adopted the plant as their own. It is originally from tropical America. Locals refer to it as "Ghamara," and some Ayurvedic practitioners prescribe it for "Bhringraj" (often known as "coat buttons" in English). Alkaloids, carotenoids, flavonoids (catechins and flavones), fumaric acid, fl-sitosterol, saponins, and tannins were all found throughout the phytochemical screening. It is incredibly rich in ions including sodium, potassium, and calcium as well as carotenoids, saponins, and olcanolic acid. From its blooms, luteolin, glucoluteolin, quercetin, and isoquercetin have all been identified. It is well-known for a variety of pharmacological effects, including hepatoprotective, anti-inflammatory, wound-healing, antidiabetic, hypotensive, immunomodulating, bronchial catarrh, dysentery, diarrhoeal, and fall prevention.

Keywords: *Tridax procumbens*

I. INTRODUCTION

Tridax procumbens Linn's family. Due to its appearance, Compositae are frequently called "Ghamra" and "coat buttons" in English. a number of ailments, and some of the practitioners utilise it to create "Bhringraj," a well-known treatment for liver problems of flowers has been widely used in the Ayurvedic school of medicine¹. Tropical The plant has been adopted as a native of tropical America in Africa, Asia, Australia, and India. In India, it is a commonly utilised wild herb.

Additionally, wastelands, dikes, railroads, riverbanks, meadows, and dunes all include coat buttons. Its spreading stems are responsible for its wide distribution, significance as a weed, and prolific seed generations². *Trida* is wilting herb that is 12-24 cm long, with few leaves that are 6-8cm long, and very long, slender, solitary peduncles that are reach a foot or more. Simple, opposing, exstiolate, oval, acute, and capitulum shepe leaf. The blooms on *tridax* come in two varieties: disc-florets and ray-florets, *Cypsela* is a fruit³.



Figure 1 : The Plant Of *Tridax Procumbens* Linn.



Figure 2 : Natural Habitat Of *Tridax Procumbenslinn.*

Habitat: *Tridax procumbens* is an annual or perennial herbaceous weed that grows primarily during the rainy season in meadows, croplands, disturbed areas, lawns, roadside (Figure 2), or settled areas in tropical and subtropical regions of the world. This therapeutic plant demonstrates a common trait of a useful weed^{4,5,6,7,8}.



Figure 3: A Complete Plant

Growth: Plants grow in patches and are either prostrate or erect (Figure 3), with the flowering axis measuring 15 to 35 cm high.



Figure 4: Leaves

Leaves: Simple, opposing, and 1 to 2 cm long petioles support the leaves. They're dense, plush, and dark green. The lamina is firmly and irregularly serrated, oval to lanceolate, 2 to 6 cm long, and 2 to 4 cm wide. The base is attenuated at the corner (Figure 4). Bristles with a tuberculate base are hispid on both sides. The underside has a lot of pubescence.



Figure 5: Flower

Fruit: At maturity, the conical achene fruit is pubescent, 3.5 mm high, and brown to black in colour. At maturity, it has a pappus of horizontally prostrate feathery bristles surrounding it.



Figure 6: Root

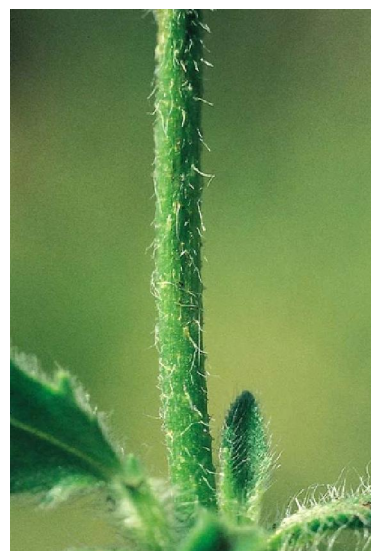


Figure 7: Steam

Root and Stem: The root is tuberculated at the base and the stem is cylindrical, hispid, and covered in one-millimeter multicellular hairs (Figure 6). The root is a robust taproot system (Figure 7)⁹.

Genetics: *Tridax procumbens* has been assigned the chromosomal number $2n=36$ ¹⁰.

Traditional Uses: A common weed and flowering plant with a number of medical benefits is *Tridax procumbens*. It has historically been utilised in India as a wound healing agent, anti-coagulant, and anti-microbial. Boils and blisters can also be treated with it. This healing herb is frequently employed as a folk remedy for conditions including ulcers and hair loss. In traditional medicine, its leaf decoctions were used to cure infectious skin ailments. Because the plant decoctions have a hepatoprotective effect, it is a well-known ayurvedic remedy for liver problems. In addition, gastritis and heartburn can be treated with the extracts¹¹. It is frequently used to wounds to reduce haemorrhage caused by cuts, bruises, and wounds. The herb is also used to treat severe diarrhoea and dysentery, as well as excessive blood pressure and blood sugar levels^{12,13,14}.

It may be used to stop hair from falling out and it encourages hair growth. The herb is also used to treat respiratory conditions. It possesses strong anti-insect and immune-modulating properties¹⁵. The plant's leaves are used as a treatment for conjunctivitis by rural doctors and tribal peoples in West Africa and other tropical regions of the world¹⁶. Additionally, this medicinal plant was employed in the ethnic medical system to treat liver diseases and jaundice¹⁷. Additionally, kidney stone problems were treated using *Tridax procumbens* ethanol decoctions¹⁸.

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's proximate profile reveals that it is high in calcium, potassium, and sodium¹⁹. Cancer-fighting ability The leaf of the Tridax plant 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 tannin²⁰. When tested against aglucosidase, oleanolic acid, which was produced in good quantities from Tridax, was discovered to be a promising antidiabetic drug²¹.

Table 1: Common names of *T. procumbens* found throughout the world

Country/ Language	Vernacular Names	Source
Chinese	Kotobukigiku	Ankita and Jain 2012
French	HerbeCaille	Ankita and Jain 2012
Latin	Tridax procumbens (Linn.)	Ankita and Jain 2012
Malayalam	Chiravanak	Ankita and Jain 2012
Marathi	Dagadi Pala	Ankita and Jain 2012
Oriya	Oriya Bishalya Karani	Ankita and Jain 2012
Sanskrit	Jayanti Veda	Ankita and Jain 2012
Spanish	Cadillo, Chisaca	ITIS, ND, Ankita and Jain2012
Hawaii	Tridax	Holm et al., 1997
Puerto Rico	Tridax	Holm et al., 1997
Taiwan	Kotobuki-giku	Holm et al., 1997
Trinidad	Railway Weed	Holm et al., 1997
Thailand	Teen Tuk Kae	Holm et al., 1997
United States	Tridax daisy	Holm et al., 1997

T. Procumbens is a plant that grows with annual crops along roadsides, pastures, fallow ground, and waste areas in tropical and subtropical regions of the world (Holm et al., 1997). There are 36 diploids in the species (Raghavan and Vinkatusabban, 1941). It can reach a height of between 15 and 40 cm and has a herbaceous, semi-prostrate habit. The opposite, long, oval, and hirsute leaves have serrated margins on both the abaxial and adaxial sides (Powell, 1965). The inflorescence is a capitulum with yellow, tubular, bisexual disc inner flowers, with corollas 6 mm long, and three-toothed, white, ligulate ray florets that are female. The inflorescence produces a lot of pappus achenes, which are 2 mm long, oblong, setaceous, covered in stiff hairs, and can be transported by the wind for a great distance (Chauha and Johnson, 2008). If not controlled, this species, which is 2 mm long, obovoid, setaceous, and covered in stiff hairs that can be transported by the wind for long distances, could become invasive.

In the states of Alabama, Florida, Minnesota, North and South Carolina, and Vermont, *T. procumbens* is regarded as a noxious weed. Massachusetts forbids it and California and Oregon have quarantines on it.(U.S. Department of Agriculture). *T. procumbens* is a weed that grows in a variety of soil types in Guatemala, generally on formerly cultivated land between sea level and 2300 m (Pöhl, 2005)²².

II. PHARMACOLOGICAL PROPERTIES

Although we have yet to observe the use of Tridax in allopathic treatment, the wide range of secondary metabolites in this species demonstrate its potential pharmacological characteristics. These substances have been utilised for their abilities to fight cancer, prevent anaemia, protect the liver, boost the immune system, and have antibacterial, antifungal, antiparasitic, antiplasmodial, and antiviral characteristics. Because of this species' pharmacological potential, traditional and western medicine may be able to coexist more effectively. More active component separation and characterization are required. There is no evidence to suggest that the activity of pharmacological compounds changes during their preparation and isolation.

For instance, Ali et al. (2001) explain the extraction of flavonoids from aerial parts, but there is no association between the flavonoid procumbenetin and the antifungal activity. In other instances, 26 compounds with putative antifungal activity were discovered (Policegoudra et al., 2014), however the phytochemicals in charge of the action were not

mentioned. Contrary to the findings of Policegoudra and associates, there is no antibacterial action against *Candida albicans* in the work of Taddei and Romero (2002). It's possible that this is because of the various techniques employed or the kinds of bacterial strains utilized.

Taddei and Romero utilised a three-extraction approach over the course of seven days, employing dichloromethane (1:1; 3x 1000 ml) for the first extraction, and n-hexane and ethyl acetate for the second. These authors also used paper discs for analysis and left the source of the bacterial strains unspecified. Policegoudra used known bacterial strains, the agar-well diffusion method, and fractionated the methanol extract with dichloromethane. This shows that more effort is required to fix the problem²².

2.1 Immunomodulator Activity

When Albino rats are given *Pseudomonas aeruginosa*, ethanol extracts from *Tridax* leaves have immunomodulatory effects and also limit the growth of the same²³. Additionally, it has been noted that the ethanol insoluble fraction of the aqueous *Tridax* extract significantly increased the phagocytic index, leukocyte count, and splenic antibody-secreting cells. Along with an increase in the titer of hemagglutination antibodies, stimulation of the humoral immune response was also noticed. Additionally, research shows that *Tridax* affects the immune system's humoral and cell-mediated components²⁴.

III. CONCLUSION

It is a weed known as *Tridax procumbens* Linn. (Compositae) that is native to tropical America and has naturalised in tropical Africa, Asia, and Australia. This plant is widely used, and every portion of it possesses remarkable pharmacological properties. The research that has been conducted so far on its pharmacological effects, such as hepatoprotective effect, immunomodulating property, promising wound healing activity, antidiabetic, hypotensive effect, antimicrobial, insect repellent activity, anti-inflammatory and antioxidant, bronchial catarrh, dysentery, and diarrhoea, also prevents hair loss and promotes hair growth. Additionally, this plant serves as a bioadsorbent to remove Cr (VI) from industrial wastewater (summarized in Table 2). Some Ayurvedic doctors prescribe this in the case of "Bhringraj." Future study has a great opportunity to clarify the mechanisms of action of further pharmacological actions of plants. Studies on the plant *Tridax procumbens* Linn. also aimed to discover novel therapeutic compounds from it, with the isolation of oleanolic acid being one such documented triterpenoids²⁵.

Table 2: List of various pharmacological activity of part of plant *tridaxprocumbenc* Linn.

Plant part	Pharmacological activity	Reference
Whole plant	Antimicrobial activity against both gram-positive and gram-negative bacteria Anti coagulant Anti inflammatory	R.B. Mahato and R.P. Chaudhary 2005. Mohammed Ali et.al., 2001. R.Nia et.al 2003
Flowers, leaves Aerial parts Leaves	Anti septic, Insecticidal, Parasitocidal Hepatoprotective Wound healing To check haemorrhage from cuts, bruisesand wounds Hypotensive activity Antidiabetic activity Dysentery, Diarrhoea To prevent falling of hair and promotethe growth of hair. Against conjunctivitis Immunomodulating property Insect repellent activity	V. K. Saxena and Sosanna Albert, 2005 Vilwanathan Ravikumar et.al. 2005 Rajinder raina, et.al., 2008 V. K. Saxena and Sosanna Albert, 2005 Salahdeen H. M. et.al. 2004 Bhagwat D.A., et.al., 2008. V. K. Saxena and Sosanna Albert, 2005. V. K. Saxena and Sosanna Albert 2005; V. Rathi et.al., 2008. R. Nia et.al. 2003. Umesh Tiwari et.al. 2004, M.K. Oladunmoye et.al., 2006. Rajkumar, S. and Jebanesan, A., 2007.

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