



## A Review on Phytochemical Constituent and Wound Healing Property of Leaf and Flower Extract of *Tridax Procumbens* Linn.

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### Abstract

India is a country where veritably rich culture, folk drug and nature go hand in hand. Nature has been a source of medicinal agents for thousands of times and an emotional figures of ultramodern medicines have been insulated from natural coffers. Since India is blessed by all kinds of environmental conditions like Himalayan to temperate to tropical, veritably rich foliage is observed throughout the time. In nature numerous of the shops are present to which we call as Weeds, since their civilization and profitable status isn't veritably high, but similar weeds can be of great medicinal value. Traditional drugs or folk drugs are an important source of potentially useful new composites for the development of chemotherapeutic agents. *Tridax procumbens* Linn. is a spreading condiment set up throughout India. *Tridax procumbens* is known for several implicit remedial conditioning like antiviral, antioxidant, antibiotic effectualness, crack mending exertion, insecticidal and anti-inflammatory exertion, pharmacological conditioning like hepatoprotective exertion, anti-diabetic exertion. *Tridax procumbens* ethyl acetate splint extract. In the powdered extracts, phytoconstituents such flavonoids, saponins, cardiac glycosides, terpenoids, Quinones, and alkaloids can be seen through qualitative phytochemical examination.

**Keywords:** *Tridax procumbens* Linn., pharmacological activities, herbs, plant extract, wound healing.

### Introduction

A dermal wound is any break in the integrity of the skin, which is a common pathologic condition. Due to blood loss, discomfort, oedema, inflammation, and functional loss, it is linked to a high level of morbidity. The migration and proliferation of fibroblasts, endothelial and epithelial cells, the deposition of connective tissue, angiogenesis, re-epithelization, and eventually the constriction of the wound are the characteristics of cutaneous wounds.

Proper wound healing is essential to restore compromised anatomical continuity and functional status. Impaired healing of open wounds is one of the long-known and troublesome complications. It is arguable whether healing can be promoted in nutritionally and endocrinal normal individuals. Basic principles of wound healing, including proper nutrition, a moist wound healing environment, have proven most useful. Therefore, a drug that can promote angiogenesis, re-epithelialization, and collagen formation when applied topically should prove ideal.



For the restoration of disrupted anatomical continuity and disturbed functional state, wounds must be properly healed. One of the troublesome complications that has been known for a long time is impaired healing of open wounds. It is debatable whether systemic medications can expedite recovery in a person who has normal nutrition and endocrinology. The fundamentals of wound healing, which include minimizing tissue damage, removing nonviable tissue, increasing tissue perfusion and oxygenation, promoting proper nutrition, and creating a moist environment for wound healing,

are most helpful in these circumstances [2]. Therefore, a substance that, when applied topically, can promote vascularization, re-epithelization, and collagenation should prove ideal.

Herbs have been used to treat wounds ever since the dawn of time.

### The *Tridax procumbens* (L.)

**Synonym- English** - Coatbuttons, tridax daisy.

**Marathi** - Dagdi pala, Tantani.

**Sanskrit** - Jayanti veda.

**Biological source**- It consist of dried whole plant of *Teridax Procumben Linn.* Belonging to family **Asteraceae**.

**Kingdom**- Plantae

**Genus**- *Tridax*

**Species**- *T. Procumben*

**Botanical Name**- *Tridax procumben*



### *Extraction of plants*

The extraction process took place at room temperature with minimal shaking for 24 to 48 hours. Pure solvents of polar and non-polar origin (ethanol, methanol, acetone, chloroform, and ethyl acetate) were utilised for the extraction process. To extract the non-polar and polar chemicals, the powdered, finely ground, dried plant material (25 g) of each portion was extracted sequentially using a Soxhlet extractor with 250 ml of pure organic solvent separately. The obtained crude extracts were then concentrated at 40°C using a dryer after being filtered using Whatman No. 1 filter paper and bottle in separate containers. After that, the concentrated extracts were aseptically dried at room temperature. Prior to use in future experiments, the extract was stored in sterile screw-cap bottles under refrigeration at 40 C.

### *Chemical constituent*

- 1) Glycoside 5,7,4'-trihydroxy-6,3'-dimethoxy-flavon 5e-O-L-rhamnopyranoside from the leaf as an example.
- 2) 3,6-dimethoxy-5,7,2',3',4'-pentahydroxyflavone 7-O—D-glucopyranoside, which is an aerial component (flavonoid procumbent).
- 3) Flowers: -sitosterol-3-O-D-xylopyranoside (steroidal saponin) (ethanolic extract).
- 4) Airborne component: (ethanolic extract) Dendroarboreol B, Polyacetylenes 1,2-Dihydrodendroarboreol B, Polyacetylenes Dendroarboreol A (3S,5R,6S,7E) Ionone derivative: 3-tetradecanoate-5,6-epoxy-ionone (3S,5R,6S,7E) -5,6-epoxy (Nor isoprenoids) -3-hydroxy-7-megastigmene-9-one (6R,7E) Byzantines B, icariside B1, vomifoliol, -4,7-megastigmadien-3,9-dione, 4-megastigmene-3,9-dione, isopteroic acid (sesquiterpene), phytol, -tocopherol quinone, phytene-1,2-diol, -amyrin, oleanolic acid, and cycloeu (steroids), (-)-8-methoxyobliquine (coumarin), 4-hydroxybenzaldehyde (benzenoids), 2-hydroxybenzaldehyde (benzenoids), benzyl glucoside (benzenoids), adenosine A (adenosine), quercetin-3-methoxyl-4-O-glucoside (flavonoid glycosides), and quercetagetin-3,6,4'-trimethoxy (flavanol diglycosidic).



### **Wound healing activity:**

Tridax procumbens' whole plant extract (WPE) showed the most pro-healing effects when tested on an albino rat dead space wound, as shown by an increase in tensile strength and lysyl oxidase activity. For the purpose of estimating lysyl oxidase activity, tensile strength, and other biochemical parameters, granuloma tissue collected from 10 day old lesions was employed. Although to a lower extent than WPE, the aqueous extract was likewise seen to be efficient in boosting lysyl oxidase activity. Fumaric acid present in the plant may be responsible for its pro healing properties (Udupa AL, et al., 1995). Tridax procumbens Linn. whole plant extracts in aqueous and ethanolic forms were also tested for their capacity to promote wound healing. When compared to the water extract, the ethanolic extract significantly increased wound contraction. The ethanolic plant extract applied topically demonstrated a substantially higher tensile strength than the aqueous extracts, while the Cipla dine control groups had a significantly lower tensile strength than the extracts-treated groups. Both plant extracts boosted granulation and hexosamine production, but they also significantly raised the amount of hydroxyproline in the granulation tissue, a marker of quick collagen creation. Tridax procumbens Linn. might prove helpful in the process of healing the wounds. When compared to the water extract, the ethanolic extract significantly increased wound contraction. The ethanolic plant extract applied topically demonstrated a substantially higher tensile strength than the aqueous extracts, while the Cipla dine control groups had a significantly lower tensile strength than the extracts-treated groups. Both plant extracts boosted granulation and hexosamine production, but they also significantly raised the amount of hydroxyproline in the granulation tissue, a marker of quick collagen creation. Tridax procumbens Linn. could prove to be a helpful element in the wound healing process.

### **Phytochemical Analysis**

1. **Test for carbohydrates:** To 2ml of plant extract, 1ml of Molisch's reagent and few drops of concentrated sulphuric acid were added. Presence of purple or reddish colour indicates the presence of carbohydrates.
2. **Test for phenols and tannins:** Crude extract was mixed with 2 ml of 5% solution of FeCl<sub>3</sub>. A blue-green or black coloration indicated the presence of phenols and tannins.
3. **Test for flavonoids (Shinoda test):** One to five drops of concentrated hydrochloric acid (HCl) were added to little amount of ethanolic extract of the plant material. Immediate development of a red colour indicates the presence of flavonoids.
4. **Test for saponins:** Extract was mixed with 5ml of distilled water in a test tube and it was shaken vigorously. The formation of stable foam was taken as an indication for the presence of saponins.
5. **Test for Glycosides Salkowski's test:** Crude extract was mixed with 2ml of chloroform. Then 2ml of concentrated H<sub>2</sub>SO<sub>4</sub> was added carefully and shaken gently. A reddish brown colour indicated the presence of steroidal ring, i.e., glycone portion of the glycoside.
6. **Keller-kilani test:** Crude extract was mixed with 2ml of glacial acetic acid containing 1-2 drops of 2% solution of FeCl<sub>3</sub>. The mixture was then poured into another test tube containing 2ml of concentrated H<sub>2</sub>SO<sub>4</sub>. A brown ring at the interphase indicated the presence of cardiac glycosides.
7. **Test for terpenoids:** Crude extract was dissolved in 2ml of chloroform and evaporated to dryness. To this, 2ml of concentrated H<sub>2</sub>SO<sub>4</sub> was added and heated for about 2 minutes. A grayish color indicated the presence of terpenoids.
8. **Test for quinones:** A small amount of extract was treated with concentrated HCl and observed for the formation of yellow colour precipitate.
9. **Test for alkaloids:** Two mL of extract was taken in a test tube and then 0.2 ml dilute HCl was included, followed by 1 ml of Meyer's reagent. A yellowish coloration indicates alkaloid's presence.

Sr. No.	Test	Result
1	Test for carbohydrates	Absent
2	Test for phenols and tannins	Absent
3	Test for flavonoids (Shinoda test)	Present
4	Test for saponins	Present
5	Test for Glycosides Salkowski's test	Present
6	Test for terpenoids	Present
7	Test for quinones	Present
8	Test for alkaloids	Present
9	Test for phlobatannins	Absent

### Conclusion:

From this research, we draw the conclusion that cardiac glycoside, flavonoids, saponins Quinones, alkaloids, and terpenoids are present in phytochemical studies. The existence of chemicals like carboxylic acid and alkane was discovered by the findings. Ketone, aldehyde, and amide. Compounds that are aromatic, haloalkane, and amine in extracts. Therefore, our findings unambiguously show that this plant may be deployed to further the development of phytomedicine for therapeutic purposes.

### Reference:

1. Md. Fruk Miya, Sayeed Shahriyar\* et al "Anti-Fungal potential of tridhara (*Tridax Procumbens*) leaves". Asian journal of Medical and Biological Research. 2015.
2. Vilas A. Kambale\*, Amit H. Moon. "Antifungal activity of crude extracts from *Tridax Procumbens L.* against potentially pathogenic fungal species". International journal of current research Vol. 7, Issue, 06, pp. 16930-16934, June, 2015.
3. Tran Dang Xuan\* et al. "Antihyperuricemia, Antioxidant, and Antibacterial Activity of *Tridax Procumbens L.* MDPI,2019.
4. P. B. RameshBabu, et al. "Evaluation of Anti-Fungal Property of *Tridax Procumbens* From Food Pathogens – *Aspergillus Flavis*". International Journal Of Pure And Applied Mathematics, Volume 119, No. 12 2018.
5. Abrar Husain MIR\*, Manjusha Sexena et al. "Estimation of phenolic and flavonoids content and in vitro antioxidant capacity of *Tridax Procumbens L.*". International Journal Of Pharma and Bio Science 2013, Apr:4(2): (B) 302-311.
6. Dr. Pinky Meena, Dr. Kamini Kaushal et al, "Tridax Procumbens: Pharmacological Activities- Review Article". International Ayurvedic Medical Journal, ISSN: 2320 5091.
7. M Balalakshitha, K Kolanjinathan, "Phytochemical and spectroscopical investigation of *Tridax Procumbens*". International Journal of Botany Studies. Vol 6, Issue 5, 2021, Page No. 1467-1471.
8. B. Yaduvanshi, Rajani Mathur et al "Evaluation of Wound Healing Potential of Topical Formulation of Leaf Juice of *Tridax Procumbens L.* in Mice", in Indian journal of pharmaceutical science.
9. <https://www.sciencedirect.com/science/article/abs/pii/S2213909520300094> 17/01/23
10. <https://www.sysrevpharm.org/articles/traditional-uses-and-pharmacology-of-plant-tridax-procumbens-a-review.pdf> 17/01/23.
11. [https://en.wikipedia.org/wiki/Tridax\\_procumbens](https://en.wikipedia.org/wiki/Tridax_procumbens) 22/10/2022.