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A Compressive Review On Tridex Procumbens Linn in Wound Healing

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Abstract: *Herbs have long been used as medicine, and more recently, they have been incorporated into cosmeceutical formulations, which are a vital part of the healthcare system. This review focuses on Tridax procumbens' ability to heal wounds. Tridax procumbens The Asteraceae family includes the plant linn, which has long been utilized as an ayurvedic herb in Asia. In traditional medicine, Tridax procumbens has been used to treat wounds, skin conditions, and blood clotting. Additionally, it possesses a number of pharmacological properties, including hepatoprotective, anti-inflammatory, antidiabetic, hypotensive, immunomodulatory, and dysentery properties; it also inhibits hair loss, encourages hair growth, and exhibits antimicrobial properties against both gram-positive and gram-negative bacteria.*

Keywords: Tridex procumbens, Wound Healing, Linn, Phytochemical Testing and Medical use

I. INTRODUCTION

Tridax Procumbens Linn

Tridax procumbens Linn is a member of the Asteraceae family. Due to its flowery look, it is widely referred to as "Ghamra'' and, in English, "coat buttons." The herb has been widely utilized to treat a variety of illnesses in the Ayurvedic medical system. Native to tropical America, the plant is also found in tropical Africa, Asia, Australia, and India. It is a wild herb that grows all over India. Roadsides, waste grounds, dikes, railroads, riverbanks, meadows, and dunes are some locations where coat buttons can be found. Because of its proliferating stems and copious seed production, it is widely distributed and significant as a weed. Division: Spermatophyta; Kingdom: Plantae Classification: Angiospermae Dicotyledonae class The Cotyloidal subclass Asterales is the order. The Asteraceae family Coat buttons are a common name. Name in botany: Tridax procumbens L.[1]

Fig.1: Plant of Tridax Procumbens linn

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Sr. No.	classification	Scientific Name	Biological Name
1	Kingdom	Plantae	Plant
2	Sub Kingdom	Tracheobionta	Vascular Plant
3	Division	Sprmatophyta	-
4	Subdivision	Magnolionphyta	Flowering Plant
5	Class	Magnoliopsida	dicotyledons
6	Subclass	Asteride	-
7	Order	Asterales	-
8	Family	Asteraceae	
9	Genus	Tridex .L	Tridex
10	Species	Tridex Procumbens L.	Coat buttons

Types of wound healing :

Wounds can be divided into a number of based on their causes:

i. Incision: Usually brought on by a sharp weapon, such as a knife or razor blade, these wounds are neat and straight. This also includes surgical incisions caused during medical operations.

ii. Laceration: Lacerations are abrasive, uneven wounds caused by skin tearing or blunt trauma. Animal bites, falls, and accidents are frequent causes.

iii. Abrasion: When skin comes into contact with a rough surface, it can result in an abrasion, also known aiv. Punctures: These are narrow, deep wounds brought on by sharp items such as splinters, nails, or needles. The profundity of these wounds and the possibility of lodged foreign objects make them susceptible to infection.[2]

iv. Avulsion: A part of the skin and underlying tissue are torn away in avulsion wounds. Surgery can be necessary to treat these severe injuries.

v. Contusion: Also referred to as a bruise, a contusion is where blood vessels beneath the skin burst, causing swelling and redness. Even though it's not an open wound, it's still an injury a scrape or road rash. Although these cuts are minor and might

vi. Burn: Burns are wounds to the skin and underlying tissues brought on by radiation, heat, chemicals, or electricity. According to their intensity, they are usually divided into three degrees: first, second, and third.

vii. Pressure Ulcer (Bed Sore): Also referred to as bed sores, pressure ulcers occur when extended pressure on the skin impedes blood flow, causing tissue damage. People who use wheelchairs or are bedridden frequently experience them.[3]

viii. Gunshot Wound: Gunshot wounds are caused by firearms and can range in severity based on the caliber of the bullet, the type of firearm, and the firing range.

ix. Crush Injury: These injuries are brought on by applying too much pressure or force to a body area, sometimes as a result of mishaps involving falling objects or large machines. Crush injuries may result in fractures and cause serious tissue damage.

x. Bite Wound: Insect stings, animal bites (such as dog or cat bites), and human bites can all cause bite wounds. They can be prone to infection and may bring bacteria into the wound.

xi. Ulcer: Ulcers are persistent open sores that frequently appear on the skin or mucous membranes, such as venous ulcers on the legs or oral ulcers in the mouth.[4]

Plant Morplology :

1 Habit: Tridex procumbens is characterized as a prostrate plant, which suggests that it has a trailing or creeping growth habit. Instead of growing straight, it usually spreads horizontally and grows near to the ground.[23]

2 Steam: is a powerful transport system with cylindrical, hispid stems covered in millimeter-long multicellular hairs. The plant steam is branching, sparsely hairy, and roots at nodes, growing to a height of 30 to 50 centimetres. Tridex procumbens stems are probably rather slender and pliable. They can be creeping or trailing, which enables the plant to spread out over the ground and resemble a mat.[5]

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Fig no. 2 Tridax Procumbens Linn Steam

3. Roots: Tridex procumbens is a prostrate plant, so it probably has a shallow root system that is concentrated close to the soil's surface. In addition to serving as the plant's anchor, these roots would take up nutrients and water from the surrounding soil.[6]

Fig no.3 Tridax Procumbens Linn Root

4. Flowers: The plant's blossoms resemble daisies. The tubular shape of the flower indicates that the petals have fused together to create a structure like a tube. The flower's center is yellow. The flowers can have either yellow or white petals. The florets, which are the outermost petals, contain three lobes or teeth. A capitulum, often called a flower head, is a compact cluster of flowers. The plant has two kinds of flowers: disc florets, which are the tiny tubular flowers in the centre , and ray florets.[7]

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Fig. no. 4 Tridax Procumbens Linn Flower

5. Leaves: There are uneven or asymmetrical teeth on the leaf edges. Typically, the leaves have a triangular or arrowhead form. Because they are not separated into leaflets, the leaves are simple. The leaves seem either lanceolate (lance-shaped) or ovate (egg-shaped). On the stem, they are positioned across from one another. Stipules, which are tiny, leaf-like projections at the base of the petiole, are absent from exstipulate leaves. The leaves are between three and seven centimetres long.[8]

Fig. no. 5 Tridax Procumbens Linn Leaves

Prior to extraction:
Gather fresh plant materials, such as roots, leaves, stems, or blossoms. To get rid of dust, give it a thorough wash with distilled water. For seven to ten days, shade dry at room temperature (not in direct sunlight). Use a mechanical grinder to ground the dried material into a fine powder.
For extraction:
1. keep the powder in an airtight container.
2. Typical Extraction Techniques A. Cold extraction using the maceration method Method:
1. Take a known amount of powdered plant material (for example, 100 g).
2. Pour in 500 milliliters of solvent (water, methanol, or ethanol).
3. Store the combination for 48 to 72 hours at room temperature in a closed jar.
4. To guarantee consistent extraction, stir from time to time.

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5. Use Whatman No. 1 filter paper to filter.
6. Use a water bath or rotary evaporator set to 40–50 °C to concentrate the filtrate.
7. Keep the raw extract refrigerated. Methanol, ethanol, acetone, chloroform, or water are all acceptable solvents.
Goal: Easy and efficient extraction of bioactive substances such as alkaloids, tannins, and flavonoids.[23]
Mechanisms relevant to wound healing :
Antimicrobial activity — Multiple in vitro studies report activity against common skin pathogens (including Staphylococcus aureus and E. coli), supporting infection control in wounds — a key determinant of healing.
Anti-inflammatory effects — Flavonoids and other phenolics reduce pro-inflammatory mediators in models, which can shorten the inflammatory phase and reduce tissue damage.
Antioxidant activity — Radical-scavenging properties protect cells at the wound site from oxidative stress and support cell survival and matrix deposition.[22]
Promotion of fibroblast proliferation, collagen deposition, and angiogenesis — Animal wound models showed increased fibroblastic activity, mucopolysaccharide production, and collagen synthesis after T. procumbens extract application — all essential for the proliferative phase.
Other proposed effects — Modulation of MMPs, growth factor signalling (inferred from docking and mechanistic studies), and synergistic effects when combined with nanoparticles or other herbal extracts.[9]

Preclinical studies: in vitro and in vivo evidence:
In vitro: Antibacterial assays, antioxidant assays (DPPH, FRAP), cytotoxicity on fibroblasts/keratinocytes (generally low at therapeutic concentrations in reported studies). Molecular docking studies have nominated caffeic acid, kaempferol and related compounds as potential binders to wound-repair proteins.
In vivo (animal) models: Multiple studies using excision, incision, and dead-space wound models in rodents report faster wound contraction, shorter epithelization time, higher hydroxyproline (collagen marker), and favourable histology after topical application of leaf juice, ethanolic extracts, or ointment formulations. Some studies used diabetic wound models and still reported benefits, though results vary by extract/preparation and dose.[10]

Phytoconstituents:
Several investigations have demonstrated that the plant contains distinct phytochemical screening; alkaloids, carotenoids, saponins, flavonoids, and Tannis have all been found to be present in these therapeutic plants.[21]
1. Alkaloids: Alkaloids are a broad class of chemical substances that frequently exhibit pharmacological properties. Numerous alkaloids have been discovered to possess therapeutic qualities, including antibacterial, antidiarrheal, and analgesic effects. Any family of nitrogenous organic substances derived from plants that significantly alter human physiology is referred to be an alkaloids.[11]

2. Carotenoids:
are fat-soluble pigments that are present in the leaves of plants and have three primary purposes: they help the plant absorb light, defend against photooxidative damage, and attract insects with their coloring. It has been hypothesized that carotenoids shield DNA from oxidative stress. Numerous forms of these secondary metabolites, such as beta-carotene, which may be transformed into vitamin A and is crucial for the upkeep of epithelial cells, have been identified from T. procumbent. A lack of vitamin A can cause xerophthalmia, night blindness, and problems with hematopoiesis and immunity. Beta-carotene and lutein are two carotenoids that have demonstrated efficacy in reducing UV-induced erythema. Carotenoids' antioxidant qualities have also been connected to their photoprotective qualities.[12]

3. Flavonoids:
Twenty-three flavonoids with a total amount of about 65 g/kg have been found in T. procumbens, according to a recent study. About 17.59% and 26.3%, respectively, are made up of kaempferol, catechin, and its derivatives (-)-epicatechin, (+)-catechin, (-)-gallocatechin , (+)- gallocatechin, (-)-Epigallocatechin-3-Gallate (EGCG), and (-)-Epicatechin-3-

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Gallate. Sixteen flavonoids, including biochanin, apigenin, naringenin, daidzein, quercetin, butein, robinetinbaicalein, nobiletin, genistin, ellagic acid, myricetin, baicalin, isorhamnetin, and silymarin, make up the remaining 52.[13]

4 Saponins:
These are steroidal glycosides with pharmacological and therapeutic qualities that have been found in T. procumbens flowers, notably a steroidal saponin and pB-Sitosterol-3-O-β-D- xylopyranoside. Another study found that by blocking the sodium glucose co-transporter-1 in the intestines of male Wistar albino rats, thasaponins from an ethanolic extract of T. procumbens may have antidiabetic effects.6.11%.[14]

Pharmacological Action :
Wound Healing Work :
Action of Pharmacology Work on wound healing For male experimental mice, the liquid discharge of T. procumbens (leaves) is beneficial not only for healing but also as an antidepressant. It has been studied that the rise in lysis oxidase activity brought on by repair may be a sign of wound healing. Elevated amounts of nucleic acids signify cellular activity [35]. In test animals, it was demonstrated that Tridax procumbens leaf juice inhibited wound penetration.[15]

Cardiovascular Effect:
Hypotensive and cardiovascular consequences Studies using an aqueous extract from T. procumbence leaves showed promising outcomes in Sprague-Dawley mice [36]. [16]

Hepatoprotective Function:
Hepatoprotective action In rats with hepatitis, the hepatoprotective properties of Tridax procumbens compounds were examined against d-galactosamine/lipopolysaccharide (d- GalN /LPS).[17]

Antimicrobial Activity :
Antimicrobial action Numerous bacteria have been shown to be susceptible to the antibacterial properties of the entire Tridax plant. To extract the juice, the entire plant is pressed between the palms of the hands. To treat cuts and wounds, fresh vegetable juice is applied twice daily for three to four days. Only pseudomonas aeruginosa was susceptible to the antibacterial activity of the entire plant Tridax extract. Antibacterial activity was tested using the disk dispersal method [37].[18]

Medical Uses
1. Topical ointments and herbal creams for cuts, burns, ulcers, and infected wounds.
2. Antiseptic herbal formulations for first aid and skin infections.
3. Potential biomaterial dressing when combined with polymers (PVA, chitosan).[19]
Safety Profile
1. Generally considered non-toxic at topical concentrations.[20]
2. Minimal irritation reported in animal testing.
3. Human clinical studies are still limited—standardization of extract and dosage needed.

II. CONCLUSION

This review article discusses Tridax procumbens, which has been used in traditional medicine to treat wounds, skin conditions, and blood clotting. Additionally, it possesses a number of pharmacological properties, including antimicrobial activity against both gram positive and gram negative bacteria, hepatoprotective activity, anti-inflammatory, antidiabetic, hypotensive, immunomodulatory, and dysentery properties. microorganisms, both gram-positive and gram-negative. Alkaloids, carotenoids, flavonoids (catechins and flavones), fumaric acid, saponins, and tannins are among the chemical components found in Tridax procumbens that are shown to have wound-healing properties by phytochemical screening. For the market to be introduced and for patients and medical professionals to be

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informed about this innovative treatment option, regulatory approval will be essential. Additionally, investigating the possibility of synergistic effects with additional wound-healing agents may result in treatments that are even more successful.

REFERENCES

[1]. Perumal SR, Ignacimuthu S, Raja DP (1999) Preliminary screening of ethnomedicinal plants from India. J Ethnopharmacology 66(2): 235-240.
[2]. Fabricant DS, Farnsworth NR (2001) The value of plants used in traditional medicine for drug discovery. Environmental health perspectives 109(1): 69-75.
[3]. Alison MR (1992) Repair and regenerative responses. 1st (Vol), Oxford University Press, Oxford: New York, pp: 365-402.
[4]. Gupta N, Gupta SK, Shukla VK, Singh SP (2004) An Indian community-based epidemiological study of wounds J Wound Care 13(8): 0020323-325.
[5]. Megadaltons SZ, Ruhollah E, Hajrati M, Karimian H, Abdulla MA, et al. (2015) Annona muricata leaves accelerate wound healing in rats via involvement of Hsp70 and antioxidant defence. Int J Surge 18(1): 110-117.
[6]. What to know about types of wound healing.
[7]. Jalalpur SS, Agrawal N, Patil MB, Chim Kode R, Tripathi A (2008) Antimicrobial and wound healing activities of leaves of Alternanthera sessile Linn. International Journal of Green Pharmacy 2(3).
[8]. Schultz GS (1999) Molecular regulation of wound healing. 2nd (Edn.), Acute and chronic wounds: Nursing management. St. Louis, MO: Mosby. pp: 413-429.
[9]. Lazarus GS, Cooper DM, Knighton DR, Margolis DJ, Pecoraro RE, et al. (1994) Definitions and guidelines for assessment of wounds and evaluation of healing. Arch Dermatol 2(3): 165-170.
[10]. Menke NB, Ward KR, Witten TM, Bonchek DG, Siegelman RF et al. (2007) Impaired wound healing. Clinics in dermatology 25(1): 19-25.
[11]. Krishnan P (2006) The scientific study of herbal wound healing therapies: Current state of play. Current Anaesthesia & Critical Care 17(1): 21-27.
[12]. Li J, Chen J, Kirsner R (2007) Pathophysiology of acute wound healing. Clin Dermatol 25(1): 9-18.
[13]. Guo SA, DiPietro LA (2010) Factors affecting wound healing. J Dent Res 89(3): 219-229.
[14]. Landre M.M, Som thane P.N (2020) A review on wound healing properties of coat buttons, International Journal of Science and Research 9(3): 1411-1415.
[15]. Vinita A, Singh K, Rani S (2013) Tridax Procumbens: a review on medicinal herb of India. International journal of advance pharmaceutical and biological sciences 3(1): 8-16.
[16]. Yadav P, Nayak P (2011) Microscopic Studies of Tridex Procumbens Linn. Bull Pharm Res 1(2): 25-32.
[17]. Mundada S, Shivhare R (2010) Pharmacology of Tridax procumbens a weed. Int J Pharm Tech Res 2(2): 1391-1394.
[18]. Verma RK, Gupta MM (1998) Lipid constituents of Tridax procumbens. Phytochemistry 27(2): 459-463.
[19]. Ikewuchi CC, Ikewuchi JC, Ifeanacho MO (2015) Phytochemical composition of Tridax procumbens Linn leaves: Potential as a functional food. Food and Nutrition Sciences 6(11): 992-1004
[20]. Dillard CJ, German JB (2000) Phytochemicals: nutraceuticals and human health. Journal of the Science of Food and Agriculture 80(12): 1744-1756.
[21]. Xu R, Zhang J, Yuan K (2010) Two new flavones from Tridax procumbens Linn. Molecules 15(9): 6357-6364.
[22]. Ali M, Ravinder E, Ramachandram R (2001) A new flavonoid from the aerial parts of Tridax procumbens. Fitoterapia 72(3): 313-315.
[23]. Jude CI, Catherine CI, Ngozi MI (2009) Chemical profile of Tridax procumbens Linn. Pakistan Journal of Nutrition 8(5): 548-550