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REVIEW ARTICLE ON WOUND HEALING PROPERTIES OF "TRIDAX PROCUMBENS"

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Abstract:

Tridax procumbens commonly known as "coat buttons" or "Tridax daisy" but local people knew it as "Ghamara" is a medicinal plant with a long history of traditional use in wound healing. The juice obtained from the leaves of Tridax Procumbens is used for healing dermal wound and matured leaves convert intopaste and then applied on the surface of wound. It belongs to the family Asteraceae is an ayurvedic herb in Asia, Africa, Australia. Tridax procumbens exhibits various pharmacological activities, including antimicrobial, anti-inflammatory, antioxidant, and immunomodulatory effects, which contribute to its efficacy in wound healing and it is also used as a drink to treat bronchial catarrh, diarrhoea,dysentery, andliver diseases. Key bioactive compounds such as flavonoids, alkaloids, and tannins present in Tridax Prochubains.Wound healing is a complex physiological process crucial for tissue repair and regeneration. It Have been used to treat wounds, skin disorders and To stop blood clotting in traditional medicine.

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INTRODUCTION:

"Tridax procumbens: A Natural Wonder for Wound Healing Discover the remarkable healing powers of Tridax procumbens, a plant renowned for its potent properties in accelerating wound recovery. From traditional remedies to modern research, delve into the fascinating realm of this botanical marvel and its potential applications in promoting skin regeneration and tissue repair. Tridax procumbens, commonly known as coat buttons or tridax daisy, has been used in traditional medicine systems across various cultures for its wound healing properties. Rich in bioactive compounds such as flavonoids, alkaloids, and tannins, Tridax procumbens exhibits antimicrobial, anti-inflammatory, and antioxidant effects, all of which contribute to its effectiveness in wound healing. Studies have shown that extracts from Tridax procumbens can promote cell proliferation, collagen synthesis, and angiogenesis, leading to faster wound closure and reduced risk of infection. Additionally, its anti-inflammatory properties help alleviate pain and swelling associated with wounds, while its antioxidant activity aids in protecting the wound site from oxidative damage, facilitating optimal healing. Whether used topically as a poultice or in the form of creams and ointments, Tridax procumbens offers a natural and sustainable approach to wound care, making it a promising candidate for further exploration in modern medicine and skincare.

- **Scientific classification of Tridax procumbens:**

-Kingdom: Plantae
-Clade: Angiosperms
-Clade: udicots Clade: Asterids
-Order: Asterales
-Family: Asteraceae
-Genus: Tridax
-Species: Tridax procumbens

- **Properties of Tridax Procumbens**

Tridax procumbens possesses several properties that contribute to its wound healing capabilities. These include:

1) Antimicrobial Activity: Tridax procumbens exhibits antimicrobial properties, which help prevent and combat infections in wounds by inhibiting the growth of bacteria and other pathogens.

2) Anti-inflammatory Effects: The plant contains compounds with anti-inflammatory properties, which reduce inflammation at the wound site, alleviating pain and swelling.

3) Antioxidant Action: Tridax procumbens is rich in antioxidants, which protect cells from oxidative stress and damage. This antioxidant activity helps promote healing and prevents further tissue damage.

4) Stimulates Cell Proliferation: Extracts from Tridax procumbens have been found to promote the proliferation of skin cells, aiding in the regeneration of damaged tissue and accelerating the healing process.

5) Promotes Collagen Synthesis: Collagen is essential for wound healing as it provides structural support to the skin. Tridax procumbens extracts have been shown to stimulate collagen synthesis, leading to improved wound closure and scar formation.

Overall, Tridax procumbens demonstrates promising potential as a natural remedy for wound healing, offering a multifaceted approach to promote faster and more effective recovery.

Some general information about Tridax Procumbens:

Tridax procumbens, commonly known as coat buttons or tridax daisy, It is characterized by its small, yellow flowers arranged in clusters at the ends of long stems and its serrated, lance-shaped leaves.This plant has a wide distribution range, found in countries such as India, Nigeria, Brazil, the United States, and many others. It thrives in warm climates with well-drained soil and plenty of sunlight. In addition to its traditional medicinal uses for wound healing, Tridax procumbens has also been studied for its pharmacological properties, including anti-inflammatory, antimicrobial, antidiabetic, and antioxidant activities. Its extracts have been investigated for their potential in treating various ailments, ranging from skin disorders to gastrointestinal issues. Despite being considered a weed in some regions due to its invasive nature, Tridax procumbens continues to be valued for its medicinal properties and is cultivated for both traditional and modernhealthcare purposes.

- **TRADITIONAL USES OF TRIDAX PROCUMBEN:**

Tridax procumbens has a long history oftraditional uses across different cultures. Some of its traditional uses include:

1) Wound Healing: Tridax procumbens has been widely used in traditional medicine systems for treating wounds, cuts, and bruises. Its antimicrobial and anti-inflammatory properties help prevent infections and promote faster healing.

2) Skin Disorders: The plant is used topically to alleviate various skin ailments such as eczema, rashes, and dermatitis. Its anti-inflammatory and soothing effects can provide relief from itching and irritation.

3) Fever Reduction: In some traditional practices, Tridax procumbens is used to reduce fever. It is often prepared as a decoction or infusion and consumed orally.

4) Gastrointestinal Issues: Tridax procumbens is believed to have digestive benefits and is used to treat stomach-aches, diarrhoea, and other gastrointestinal problems. It may help alleviate symptoms and promote digestive health.

5) Respiratory Conditions: In certain cultures, Tridax procumbens is used as a remedy for respiratory issues such as coughs, colds, and bronchitis. It is often prepared as a herbal tea or decoction.

These traditional uses highlight the versatile therapeutic potential of Tridax procumbens in promoting overall health and well-being. However, it's important to consult with a healthcare professional before using any herbal remedies, especially for medicinal purposes.

- **Extraction Process**

The extraction of bioactive compounds from Tridax procumbens typically involves several steps:

1) Preparation: The plant material, including leaves, stems, and flowers, is collected, and cleaned to remove any dirt or debris. It may be dried to reduce moisture content and preserve the integrity of the bioactive compounds.

2) Extraction: Various extraction techniques can be used to isolate the bioactive compounds from the plant material. Common methods include maceration, where the plant material is soaked in a solvent (such as ethanol or water) for a period to allow the compounds to dissolve, and Soxhlet extraction, which involves continuous solvent percolation through the plant material.

3) Filtration: After extraction, the solvent containing the bioactive compounds is separated from the plant material using filtration techniques. This step removes any solid particles or impurities from the extract.

4) Concentration: The extracted solvent is then concentrated to increase the concentration of the bioactive compounds. This can be achieved through evaporation or other concentration methods.

5) Purification: Depending on the desired purity of the final product, further purification steps such as chromatography or crystallization may be employed to isolate specific compounds from the extract.
6) Drying: Finally, the concentrated and purified extract is dried to remove any remaining solvent and obtain a dry powder or solid form suitable for storage and further use.

Throughout the extraction process, it's important to optimize conditions such as solvent type, extraction time,and temperature to maximize the yield and quality of the extracted bioactive compounds from Tridax procumbens. Additionally, proper safety precautions should be followed to ensure the extraction process is conducted safely and efficiently.

- **Pathophysiology of Wound Healing:**
  The pathophysiology of wound healing involves a series of complex and coordinated processes that aim to restore the integrity of the injured tissue. Here's a simplified overview:

1. Haemostasis : When a wound occurs, blood vessels in the vicinity constrict to reduce blood loss.
   Platelets then aggregate at the site of injury, forming a temporary plug to stop bleeding. This process is known as hemostasis.
2. Inflammation: Following hemostasis, the inflammatory phase begins. Inflammatory cells, such as neutrophils and macrophages, migrate to the wound site to remove debris, foreign particles, and dead cells. This phase also involves the release of various cytokines and growth factors, which helpregulate the subsequent phases of healing.
3. Proliferation: During the proliferation phase, new tissue is formed to replace the damaged or lost tissue. Fibroblasts migrate to the wound area and produce collagen, a key component of the extracellular matrix that provides structural support to the healing tissue. Angiogenesis, the formation of new blood vessels, also occurs during this phase to provide oxygen and nutrients to the developing tissue.
4. Remodeling : The final phase of wound healing is remodeling, which can last for months to years. During this phase, the newly formed tissue undergoes remodeling and maturation. Collagen fibers are reorganized and cross-linked to increase tissue strength, and excess scar tissue may be graduallyremodeled and reduced.

Several factors can influence the wound healing process, including the type and extent of the injury, the presence of underlying medical conditions (e.g., diabetes, malnutrition), and external factors such as infection and mechanical stress. Proper wound care, including keeping the wound clean and moist, optimizing nutrition, and managing underlying health conditions, is essential for promoting
optimal wound healing.

CONCLUSION:

In summary, the review of Tridax procumbens reveals its rich phytochemical composition and potential therapeutic benefits, particularly in wound healing. The plant exhibits a diverse array of bioactive compounds, including alkaloids, flavonoids, tannins, saponins, glycosides, and phenolic compounds, which contribute to its traditional medicinal uses.

Studies suggest that Tridax procumbens possesses antimicrobial, anti-inflammatory, and antioxidant properties, all of which are crucial for promoting wound healing and combating infections. Its ability to accelerate the healing process and reduce inflammation makes it a promising candidate for natural wound care treatments.

However, while the evidence supporting its efficacy is promising, further research is necessary to fully understand the mechanisms of action, optimize extraction methods, and assess its safety profile for clinical use. Overall, Tridax procumbens holds significant potential as a valuable resource in the development of novel wound healing therapies.

REFERENCE:

1) Perumal SR, Ignacimuthu S, Raja DP (1999) Preliminary Screening of ethnomedicinal plants from India. JEthnopharmacol 66(2): 235-240.
2) Alison MR (1992) Repair and regenerative responses. 1st (Vol), Oxford University Press, Oxford: New York, pp: 365-402.
3) Guo SA, DiPietro LA (2010) Factors affecting wound Healing. J Dent Res 89(3): 219-229.
4) Yadav P, Nayak P (2011) Microscopic Studies of Tridex Procumbens Linn. Bull Pharm Res 1(2): 25-32.
5) Xu R, Zhang J, Yuan K (2010) Two new flavones from Tridax procumbens Linn. Molecules 15(9): 6357-6364.
6) Trease GE, Evans WC. Oxford: ELSB Baillere Tindal; 1987. A textbook of pharmacognosy ; p. 1055.
7) Goodson, Hunt TK. Wound healing and diabetic patient. Sur Gynecol Obst. 1979.
8) Clark RAF. New York: Oxford University; 1991. Cutaneous wound repair; p. 576.
9) Bhagwat DA, Killdeer SG, Adnaik RS. Anti-diabetic activity of leaf extract of Tridax procumbens. Int J Green Pharm 2008; 2(2):126-

128
10) Harding KG, Morris HL. Clinical Review Science, Medicine and the future- healing-chronic wounds. BritMed J 2002; 324: 160-163
11) Faoagali J. Use of antiseptics in managing difficult wounds. Prim Intention 1999; 7: 156-160.
12) Patil PA, Kulkarni DR. Antiproliferative agents on healing of dead space wounds in rats. Ind J Med Res 1984; 79: 445-447.
13) Saxena VK, Albert S. β-Sitosterol-3-O-β-D-xylopyranoside from the flowers of Tridax procumbens Linn. J Chem Sci 2005; 117(3): 263-266