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Review Article

A Review on Herbal Ointment for Anti-inflammatory Activity

Prajakta Thombare*, Shradha Gudaghe, Priti Sanap, Rushikesh Salve

MABD Institute of Pharmaceutical Education and Research, Yeola.

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ABSTRACT

Examining the phytochemical components and in vitro anti-inflammatory qualities of Tridax procumbens L. aerial parts was the aim of the current investigation. Qualitative phytochemical study revealed the presence of tannins, alkaloids, saponins, flavonoids, phlorotannin's, quinines, phenols, coumarins, steroids, and phytosterol terpenoids, but not glycosides or anthraquinones. The spectral response at different wavelengths is shown by analysis in the UV-visible region. FT-IR analysis was used to find organic substances such as alcohol, alkanes, alkyl halides, alkenes, and aromatic groups. Five distinct concentrations of plant aerial parts (20, 40, 60, 80, and 100 g/ml) were also tested for their anti-inflammatory properties utilizing a range of methods, such as protein denaturation inhibition and HRBC membrane stabilization and the inhibitory effects of proteinases. The highest anti-inflammatory benefits were shown by plant extract at a concentration of 100 g/ml for all three animals. The outcomes were compared to those of taking aspirin normally. In conclusion, the aerial part of Tridax procumbens L. shows a strong anti-inflammatory effect, which could be explained by the presence of flavonoid and phenolic chemicals. For over two millennia, curcumin, a naturally occurring polyphenolic compound, has been recognized for its potent anti-inflammatory properties in relation to a variety of conditions, including arthritis. Curcumin's limited water solubility, which results in reduced intestine absorption, is its primary disadvantage, as well as low bioavailability. We compared the anti-arthritis in vivo effects of several curcumin formulations in this work, including micellar curcumin, basic curcumin extract, curcumin combination with piperine, and microencapsulated curcumin. Methods: Complete Freund's adjuvant was used to cause arthritis in Wistar rats, and the arthritis scoring system was used every day to gauge the severity of the condition. Animals received formulations of curcumin once a day for 20.

INTRODUCTION

Inflammation is the body's natural defense against harmful stimuli, but when it becomes chronic or excessive, it can trigger health issues like skin

***Corresponding Author:** Prajakta Thombare

Address: MABD Institute of Pharmaceutical Education and Research, Yeola.

Email ✉: Prajaktathombare251@gmail.com

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disorders, arthritis, and autoimmune diseases. While conventional treatments such as NSAIDs and corticosteroids are effective, their long-term use is linked to side effects like gastrointestinal issues, liver toxicity, and immune suppression. These concerns have driven interest in safer, plant-based alternatives. Herbal medicine has gained popularity for its holistic benefits, safety, and minimal side effects. Topical herbal formulations are especially promising for treating inflammation and skin conditions.

Plants with anti-inflammatory and restorative qualities have long been used in traditional systems such as Ayurveda and Unani. Creating and testing a polyherbal cream with aloe vera gel, turmeric extract, peppermint oil, and rose oil is the main goal of this study. Although each component has a well-established therapeutic impact, little research has been done on how to mix them in a single topical formulation. The objective is to create a stable, potent cream and evaluate its anti-inflammatory and physicochemical characteristics.

Anti-inflammatory:

Anti-inflammatory or antiphlogistic refers to a substance or therapy that can reduce swelling or inflammation. This was the same inhibitory zone as the Tridax extract.

The Herbal Ointment Preparation

1. The ointment base was initially prepared with wool fat, white soft paraffin, Ceto stearyl alcohol, and steric acid. After that, it was carefully weighed and placed over a water bath in an evaporating dish. The ointment base is cooled after melting, and the mixture is then gently stirred to make it homogeneous.
2. Carefully weigh the tridax and Tridax procumbence extract to create a smooth paste

that is twice or three times the weight of the base. After that, gradually add more base until the ointment is uniform. Lastly, the mixture is moved into the proper container.

Tridax Procumbens-

Tridax procumbens Linn. (Tridax) family Compositae is widely used in Ayurvedic medicine for a variety of diseases and is prescribed for "Bhringraj." It is also often known as "Ghamra" and, in English, "coat buttons" due to the appearance of its blossoms. A few practitioners of Ayurveda, a well-known treatment for liver problems. Originally from tropical America, the plant has spread to tropical Africa, Asia, Australia, and India. It is a wild herb that grows all over India. Traditional medicine has a long history in India. A wealth of knowledge about the traditional uses and mythology around medicinally significant natural items can be found in India's Materia medica. Indian traditional medicine is based on a number of systems, such as Siddha, Unani, and Ayurveda. The primary basis for evaluating these medications is pharmacogenetic research.

The investigation of phytochemistry and pharmacology



Fig.1: Tradax Procumbence

Scientific classification

- **Kingdom:** Plantae

- **Subkingdom:** Tracheobionta
- **Order:** Asterales
- **Family:** Asteraceae
- **Division:** Magnoliophyte
- **Class:** Magnoliopsida,
- **Subclass:** Asteridae,

Tridax procumbens is the species of the genus Tridax.

Chemical Component

Alkaloids, carotenoids, flavonoids (catechins and flavones), and tannins were found via phytochemical screening. It is abundant in saponins and carotenoids. The plant is high in calcium, potassium, and sodium, according to the proximate profile. Tridax leaves are mostly composed of crude fiber (17%), soluble carbohydrates (39%), calcium oxide 5%, and croud proteins (26%). Its blossoms have also been reported to contain luteolin, glucoluteolin, quercetin, and is quercetin. However, the plant has also been shown to contain fumaric acid, Fl-sitosterol, and tannin. When tested against a glucosidase, oleanolic acid, which was produced in good concentrations from Tridax, was discovered to be a possible antidiabetic drug.

Turmeric

Turmeric is a dietary spice with curcuma as its most active ingredient, widely used as a traditional medicine in Asian countries. curcuminoids are components of turmeric, which include mainly curcumin (diferuloyl methane), demethoxycurcumin and Bisdemethoxycurcumin. In ayurvedic medicine, curcumin has long been known for its antioxidant, anti-inflammatory, anti-carcinogenic, anti-microbial, and anti-parasitic properties, as demonstrated by numerous in vitro and in vivo studies in both humans and animals. The main pigment of turmeric was first isolated by

Pelletier in 1815, obtained in crystalline form by Daube in 1870, and its structure was determined by Lampe in 1910. More than 100 studies were carried out to examine the effects of natural origin compounds on human health, disease prevention, and treatment (Schmidt et al 2007). In these studies, polyphenols of natural origin polyphenols appear. as one of the most important groups. Curcuminoids can be defined as phenolic compounds derived from the roots of curcuma spp. (Zingiberaceae). The powdered form of the rhizome of C. longa is rich in curcuminoids. Recent emphasis on the use of natural and complementary medicines in western medicine has drawn the attention of the scientific community to this ancient remedy. Research has revealed that curcumin has a surprisingly wide range of beneficial properties, including anti-inflammatory and chemotherapeutic activity.



Fig.2: Curcuma Longa

Scientific classification

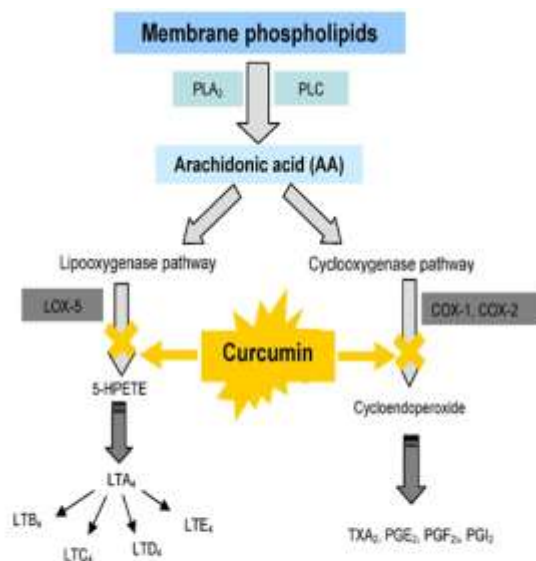
- **Kingdom:** Plantae
- **Subkingdom:** Tracheobionta
- **Subdivision:** Spermatophyta.
- **Division:** Magnoliophyta
- **Family:** Zingiberaceae;
- **Genus:** Curcuma
- **Specie:** longa;
- **Scientific name:** Curcuma longa;
- **Subclass:** Zingiberidae;
- **Order:** Zingiberales

Mechanism of Action of Turmeric

Due in large part to its poor bioavailability and low solubility, curcumin has shown promise as a therapeutic result in previous clinical trials. The review mostly concentrated on curcumin's anti-inflammatory properties, as well as new advancements in dosage forms and

nanoparticulate delivery systems and the potential therapeutic use of curcumin for cancer prevention and/or treatment. The mechanisms listed below were suggested.

Flow chart showing Inhibitory Effect of curcumin on Arachidonic Acid Pathway



COX: Cyclooxygenase; HPETE: Hydroperoxyeicosatetraenoate; LOX: Lipoxygenase;
LT: Leukotriene; PL: Phospholipase; PG: Prostaglandin; TX: thromboxane.

Chemical Constituents in turmeric with their uses: -

1.	Curcumin	prevalent and physiologically active ingredient in turmeric is curcumin. It has potent antioxidant, anti-inflammatory, antimicrobial, anticancer, and neuroprotective properties. Curcumin is widely studied for its potential therapeutic effects on various health conditions, including arthritis, cancer, Alzheimer's disease, diabetes, cardiovascular Disease, And Skin disorders
2	Curcuminoids	These substances may work in concert to improve curcumin's therapeutic benefits and also have anti-inflammatory and antioxidant qualities.
3	Turmerone	Turmeric contains a bioactive substance called turmeric one, which has been studied for possible anti-inflammatory and neuroprotective benefits. It might shield against neurodegenerative illnesses like Alzheimer's disease and enhance cognitive function.
4	Gingerols	Turmeric contains trace levels of gingerols, while gingerols are more frequently found in ginger. Turmeric's general health benefits may be attributed to gingerols, which are well-known for their anti-inflammatory and antioxidant qualities.
5	Essential oils	Essential oils such as zingiberene, atlantone, and turmerone are found in turmeric and add to its flavor and scent. These essential oils are helpful in skincare and aromatherapy since they also have antibacterial and anti-inflammatory qualities.

6	Polysaccharides	Polysaccharides, which are complex carbohydrates with a range of biological functions, are found in turmeric. Turmeric's polysaccharides may have immunomodulatory effects and add to its many health advantages.
7	Volatile compounds	Turmeric's distinct flavor and scent are attributed to volatile chemicals like curlone, turmerone, and ar turmerone. These substances may have antibacterial and anti-inflammatory properties, which makes them beneficial for taste and food preservation.

EXTRACTION (Tridax)

The selected plant can be dried in the shade and then ground into a fine powder to extract the plant material. Then, using the polar solvent hexane and the non-polar solvent hexane, the dried powdered material is percolated in a Soxhlet extractor for 48 hours.

Procedure of Extraction.

- 124 grams. A Soxhlet extractor is filled with powdered Tridax procumbens and maintained at a steady level.
- One liter of ethanol is put into a 5000 ml round-bottom flask. Hoover grease is used on movable components to lessen friction.
- Cotton and aluminum foil are also used to cover connectors to prevent leaks.
- The heating mantle supplies power and maintains the temperature at 60°C after the Soxhlet extractor is set.
- A chiller is then connected to the extractor to provide chillin
- The same procedure is repeated for 48 hours.
- The ethanol extract and crude extraction are separated by distillation.
- With the use of ethanol, we discovered the 22.5 gramme. of crude leaves.
- Add hexane to the crude, strain off the soluble material, and use TLC to confirm. The entire mass of Ten grammes of crude hexane separated

Extraction. (Curcumin Longa)

Turmeric rhizomes were sliced and air dried for 48 hr. before being ground into a fine power. A 100 grams sample of this powder was subjected to extraction using 132mL of 70% ethanol in a Soxhlet apparatus. The extract was then concentrated under vacuum at 50-degree Celsius and subsequently dried in a desiccator to eliminate any remaining moisture. The process yielded approximately 15 grams of crude extract, equating to an extraction efficiency of 18.67%.

CONCLUSION

Herbal preparations combining turmeric and Tridax procumbens have shown promising results in skincare and haircare applications.

Turmeric Benefits:

- **Skin Brightening:** Turmeric's anti-inflammatory and antioxidant properties help reduce blemishes and promote even skin tone.
- **Moisturization:** Turmeric-based creams, like Amaira Herbals Turmeric Skin Care Cream, provide long-lasting hydration and nourishment.
- **UV Protection:** Turmeric helps prevent UV ray penetration, maintaining skin's natural pigment.

Tridax Procumbens Benefits:

- **Wound Healing:** Tridax procumbens extracts exhibit antimicrobial and anti-inflammatory properties, ideal for wound care and skin infections.



- **Hair Growth:** Tridax procumbens-based hair shampoos, like Vine roots, promote healthy hair growth and reduce dandruff.
- **Scalp Health:** Tridax procumbens helps heal minor scalp issues and maintains scalp health.

Combined Benefits:

The combination of turmeric and Tridax procumbens in herbal ointments may enhance wound healing, reduce inflammation, and promote overall skin and hair health^{1 2 3}.

REFERENCES

1. Prabhu, V.V., Nalini, G., Chidambaranathan, N. and Kisan, S.S., 2011. Evaluation of anti-inflammatory and analgesic activity of Tridax procumbens Linn against formalin, acetic acid and CFA induced pain models. *Int J Pharm Pharm Sci*, 3(2), pp.126-30.
2. Evans, W.C., 2002. Trease and Evans Pharmacognosy, 15th. Saunders Company, London, pp.344-346.
3. Manimaran, S. and Nithya, P.T., 2014. Development and screening of topical herbal cream formulation for antimicrobial and wound healing activity. *Int J Biol Pharm Res*, 5(5), pp.383-8.
4. Ghosh P, Biswas S, Biswas M, Dutta A, Sil Sand Chatterjee S.2019. "Morphological, Ethno biological and Phytopharmacological Attributes of Tridax procumbens Linn. (Asteraceae): A Review". *International. Journal of Scientific Research in Biological Sciences*. 6(2): 182-191
5. Ikewuchi C, J., Ikewuchi C, C. and Ngozi, M.I., 2009. Chemical profile of Tridax procumbens Linn.
6. Verma, R.K. and Gupta, M.M., 1988. Lipid constituents of Tridax procumbens. *Phytochemistry*, 27(2), pp.459-463.
7. Basnet, P. and Skalko-Basnet, N., 2011. Curcumin: an anti-inflammatory molecule from a curry spice on the path to cancer treatment. *Molecules*, 16(6), pp.4567-4598.
8. Ghosh, P., Biswas, S., Biswas, M., Dutta, A., Sil, S. and Chatterjee, S., 2019. Morphological, Ethno biological and Phytopharmacological Attributes of Tridax procumbens Linn.(Asteraceae): A Review. *Int. J. Sci. Res. in Biological Sciences* Vol, 6, p.2.
9. Onuegbu, G.C., Nnorom, O.O. and Onyedika, G.O., 2023. Comparative study on the acid-base indicator properties of natural dye, turmeric rhizome (*curcuma longa*) and synthetic dyes. *Journal of Textile Science and Technology*, 9(1), pp.20-29.

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