Pharmacognostic Study, Evaluation And Formulation Of Tridax Procumbens

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Abstract

Plant such as Tridax procumbens are traditionally used for the treatment of wound healing .Herbal cream is preferred due to availability of drugs and also herbal has fewer side effects. The present research has been under taken to design, formulate and evaluate the herbal cream. The extraction of the crude drug was performed and with phytochemical screening, TLC, and Ash value was performed.

This cream was formulated using accurately weighted drug extract with additives. The cream was evaluated with a test such as pH, Viscosity, and spreadability with this also the stability testing for the cream was done.

Keywords: Wound Healing Activity, Tridax Procumbens, Evaluation, TLC,Formulation

Introduction

The injury involves tearing, cutting, or puncturing the skin and is a physical trauma. Microorganisms enter the wound when it is exposed to air, which causes the wound to get contaminated and ultimately become infected. It is essentially a connective tissue response in action. An acute inflammatory phase is the first step in this process, followed by the production of collagen and other extracellular macromolecules that aid in creating a scar.

Externally applied creams frequently have two phases to them. To create a stable emulsion, an emulsifying agent, which is from films surrounding the globules of disperse phase, is utilized. The goal of the wound healing is to time required for healing.

Microscopy and Morphology Tridax procumben:

1) Kingdome: Plantae

2) Family: Asteraceae

3) Genus: Tridax

4) Species: T.procumbens

5) Common Name: A) Coat button. B) Tridax Daisy[(5)]

Microscopy

1) Leaf: The transverse section of the leaf reveals a single layer of epidermis on both surfaces, which is protected by thick cuticles T. S. A minor dip may be seen on the ventral side and a significant protuberance on the dorsal side while passing through the midrib region.

2)) Trichomes are simple, multicellular (3-6 celled), and more numerous on the posterior side. They resemble a cover. Trichomes have enlarged basal cells and a claw-like appearance.

3) The leaves are rare penniform, stipulate, simple, opposite, unimpaired hairy and short petioles. Lanceolate-ovate leaves have a wedge-shaped base and a sharp tip.[5,15]

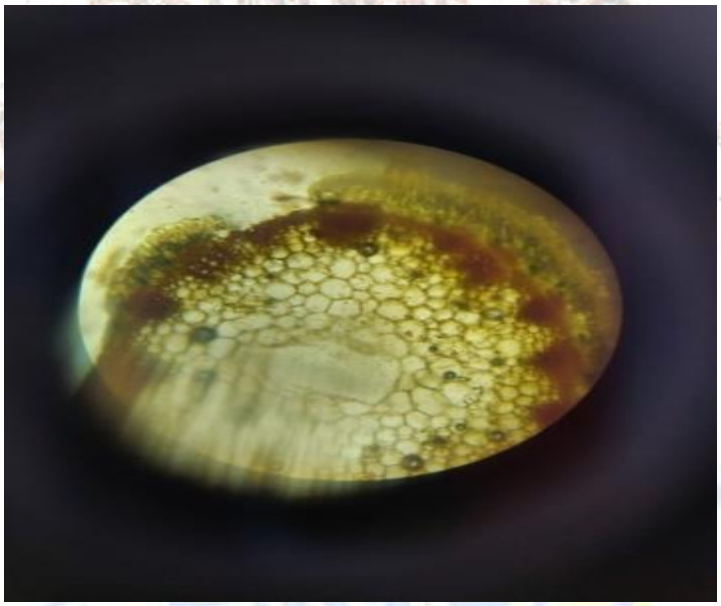

Fig.No.2 T.S.Of Stem

Materials and procedures

Collection plant materials

The Tridax procumbens was procured from local sources and the botanical gardens of AISSMS COLLEGE OF PHARMACY, PUNE. The plants' leaves are harvested. The leaves were washed, sorted, and allowed to air dry at room temperature in the shade. When the dried leaves were no longer needed for the treatment, they were turned into powder and stored in an airtight polythene bag.

Fig.No.1-collection of plant

Herbarium and Authentication Report: The fresh leaves of Tridax procumbeans were collected in the Aissms College of Pharmacy, Pune. After the collected leaves were washed and shade dried at room temperature and used for further investigation.

Extracting plant material:

By the Soxhlet Device:

The Tridax Procumbens is first ground into a powder, and then each piece is extracted using the Soxhlet method using ethanol as the solvent. The solution was twice filtered to remove any remaining particles once the Soxhlet process was finished. Then, to obtain the product, the solution was heated to an appropriate temperature. After that, to monitor how much moisture was removed from the product, it was kept in desiccators with a vacuum. For four to five days, that substance was set aside so it could be removed.

The Tridax procumbens were examined for photochemical:

For phytochemical analyses and to determine the identity of the plant, the extract of the juice from the leaves was

The same technique and chemical components were used for various phytochemical studies.

Evaporate the aqueous, alcoholic, and chloroform extracts separately to check for alkaloids. Add diluted HCL to the residue, stir well, filter the mixture with the filtrate, and run another test.

A) Dragandroff's Test: Add a few drops of Dragandroff's reagent to two to three ml of filtrate. Forming a pot was orange-brown.

B) Wagner's Test: PPT is obtained by adding a few drops of Wagner's reagent to 2- 3 ml of filtrate.

C) Mayer's Test: A few drops of Mayer's reagent added to 2- 3 ml of filtrate results in ppt.

D) Hager's Test: 2-3 ml of filtrate with a few drops of Hager's reagent gives yellow ppt

Test for Shinoda: Add 5 ml 95% ethanol/t-butyl alcohol, a few drops of concentrated HCL, and 0.5 g of magnesium to the extract to take it. A searing orange, pink, and red-to-purple color will then appear

Test for steroid use: Liebermann's response Combine 3ml of the extract with 3ml of acetic anhydrous. Cool and heat. Continually add a few drops of H2 SO4. The color blue is seen.

Glycoside screening:

Test solution plus hot methanol alkali was used by Raymond. not producing violet

Carbohydrates are tested using Molisch's technique.

Add two to three ml of the aqueous extract, a few drops of the alcohol-alpha-naphthalol solution, shake, and the concentrated H2 SO4 from the tube's sides. When two liquids come together, a violet ring is created

Fehling's test: 1 ml of Fehling's A and B combined, boiled for 1 minute, then placed in a water bath for 5 to 10 minutes, producing the first yellow brick ppt.

6) Test for tannins and phenolic compounds by mixing juice extract with fecl3 to get a blue-black ppt.

Test for lead acetate by taking juice extract and looking for lead acetate white ppt.[6,7]

Result of Phytochemical screening:

Name of Test	Result
1. Test for alkaloid	Positive
2. Test for flavonoid	Positive
3. Test for steroids	Positive
4. Test for Glycosides	Negative
5. Test for Carbohydrates	Positive
6. Test for Tannins and Phenolic compound	Positive

Thin layer chromatography: The Tridax procumbeans' beta-sitosterol thin layer chromatography was developed at 25 +/- 2° c. As the mobile phase, chloroform, methanol, and acetic acid were used in a ratio of 8: 0.5: 0.5 v/v. After that, a distance formed. 8 centimeters before drying. The spraying agent (0.2 ml Anisaldehyde + 20 ml Acetic Acid + concentrated 0.5 ml Sulphuric Acid) has been derivatives using Anisaldehyde. 20 minutes in the derivatization chamber. Heated to 105 ° C after drying.

Herbal Cream Preparation: In a beaker, the oil phase (A) ingredient was melted over a water bath while being stirred steadily. The aqueous phase (B)'s components were combined and heated to a temperature that was similar to that of the oil phase (up to 700C). Preservatives propyl and methylparaben were heated and introduced to an aqueous phase. Then, with constant stirring, the oil phase was gradually added to the water phase.[10]

Cream preparation: To make the cream, a semi-solid extract was employed. An ointment basis was employed in the preparation of the herbal composition. The common trituration technique was applied, which involved melting and combining solid fats. Weighed and melted at a temperature of roughly 70 degrees Celsius, the necessary amount of the ointment base was then combined. A uniform dispersion was achieved after the preparation was gently and continuously agitated.[10]

	Ingredient	Quantity	Use of Ingredient
Oil Phase	Stearic acid	1 gm	Lubricating agent
	White beeswax	5 gm	Thickeners
	Cetyl alcohol	3 gm	Emulsifier
Aqueous Phase	Propylene glycol	5 ml	Emollients
	Glycerin	4 ml	Humectants
	Methyl Paraben	0.5 gm	Preservative
	Propyl Paraben	0.5 gm	Preservative
	Water	Upto100 ml	Vehicle
Plant Extract	Tridax procumbens	5 gm	Wound healing activity

Evaluation of the herbal cream that was created: The herbal cream that was created was examined according to different assessment criteria:

Evaluation of the herbal cream's organoleptic qualities, including color, odor, and consistency, was done manually.

Washability: The product was used on the hand and examined while submerged in water.

pH: A digital pH meter was used to calculate the pH of a specially-made herbal lotion. The pH was determined after 1 g of cream was weighed, and dissolved in 100 ml of pure water.[6,11]

In the present investigation, a book field viscometer at 100 revolutions per minute (rpm) was used to measure the viscosity of prepared herbal cream.

Extrudability: The formulation was placed into a container made of a collapsible tube. The weight was used to calculate the extrudability.

Spread ability: In the current study, a sample of the cream formulation was placed between two slides. On the upper slide, a 100 g weight was put down. The surplus formulation was discarded, and the weight was taken out. The apparatus's board held the bottom slide in place, and a non-flexible string that received load was used to secure the upper slide. It was recorded how long it took for the upper slide to come off.

Spreadability = ml/t.

Where M = weight fastened to the upper slide, l = glass slide length, and t = time in seconds.

To test for thermal stability, the prepared cream was spooned into a glass bottle, allowed to settle to the bottom, and then taped shut. Poured into

Test for thermal stability: The cream formulation was placed into a glass bottle with the aid of a spatula and taped to allow it to sink to the bottom as part of a test for thermal stability. filled two-thirds of the way up

The bottle's capacity once you put the plugging and tighten the cap. For 48 hours, the full bottle was kept upright within the incubator at 4°+/-1°. If there is no oil separation visible when the sample is removed from the incubator, the test was successful.

Microbial study: The cream formulation was introduced into the agar medium plates using the streak plate method, and control was made by omitting the cream. The plates were put inside the incubator, where they were kept at 37 °C for 24 hours. Plates were removed from the incubation period and checked for microbial growth by being compared to the control.[6,11,,12,13]

Results of the Evaluation Test

Sr.No	Parameters	Results
1.	Color	Greenish brown color
2.	Consistency	Semisolid
3.	Wash ability	Easily
4.	Extrudability	Good
5.	pH	6.8
6.	Spreadability	Satisfactory

7.	Viscosity	64000 cps
8.	Stability	Stable, no phase separation
9.	Microbial growth	Negative

Result:

The pH of the cream was studied in the healthy range for skin ph. The cream's formulation indicated that it needs a pH that is close to that of the skin. For example, during irritancy tests, the formulation did not cause any redness, edema, inflammation, or irritation. The skin might be safely used with these compositions. The extract was distributed evenly throughout the cream thanks to the formulation. Both touch and outward look served as confirmation of this. The cream is a bluish-green color. when the formula had been stored for a while. No change in the cream's color was discovered. Emollience, slipperiness, and some residue were observed after applying the predetermined amount of cream was found.[17,18,19]

Conclusion:

According to the findings of the current study, the Tridax procumbeans herbal cream sped up the healing process by promoting collagen synthesis and boosting the healing wounds' breaking strength. The phytoconstituents included in the formulation, which may be related to the additive activity of the phytoconstituents present in the extract to boost the wound healing action, are responsible for the powerful activity of herbal formulations.[21,22]

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