

MAHARASHTRA COLLEGE OF PHARMACY

NILANGA



YEAR-2023-2024

Formulation And Evaluation Of Wound Healing Herbal Cream.

Report submitted

In the partial fulfillment of Degree of Bachelor of Pharmacy.

To

Swami Ramanand Teerth Marathwada University Nanded.

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DECLARATION

We hearby declare that Practice School entitled
“**Formulation And Evaluation Of Wound Healing Herbal Cream**”

Was carried by us under the guidance and supervision of Mr. S.J
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requirement for the award of Degree in.

“BACHELOR OF PHARMACY”

We further declare that we have not submitted assignment
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ABSTRACT

The main aim to present work is to formulate and evaluate herbal cream by using Tridax procumbens extract. In order to make formulation which has less side effects and better healing of wound.

A wound is a physical trauma where skin is cut or punctured for that healing process cream is beneficial for wound healing for Tridax procumbens shows various activities like Antibacterial, Antifungal, Antimicrobial, Antioxidant and Wound healing.

The cream is not only transparent and viscous it is also easily spreadable and healing power of the cream is very fast.

They are also known as “COATBUTTONS”

The cream formulation is designed by using excipient such as Steryl alcohol, Beeswax, Methylparaben, Propylparaben and Liquid paraffin.

INTRODUCTION

Cream are the semi solid dosage form and intended for topical application to the skin, applied on the surface of skin for therapeutic or protective action.

These preparation are used for the localized effects produced at the site of their application by drug penetration into the skin.

It is semisolid emulsion of oil and water.

For prevention and to cure disease recently attention is paid towards utilization of ecofriendly and biofriendly plant based product. Herbal remedies play an important role in curing various ailments.

Therefore turning to safe, effective and time tested ayurvedic herbal formulation would be preferable option.

Herbal medicine in wound healing management involves disinfection and providing suitable environment for natural healing process.

COLLECTION OF PLANT FOR EXTRACTION

TRIDAX PROCUMBENS



The tridax procumbens are commonly known as coatbuttons. They are the species of flowering plants. They are best known as a wide spread weed and pest plant.

The tridax procumbens were collected from the surrounding of Maharashtra college of pharmacy Nilanga. By selecting the disease free plant leaves. As the plant are used as the traditional medicine.

Further the collected leaves are washed with the distilled water. The cleaned plant part leaves are then allowed for complete shade drying and then made to fine powder and stored in the air tight container.



MATERIAL USED IN WOUND HEALING HERBAL CREAM

- **Tridax procumbens:**

- **Botanical Name:** Tridax daisy
- **Family** : Asteraceae
- **Kingdom** : Plantae
- **Genus** : Tridax

Chemical Constituents:

The flavonoid procumbentin has been isolated from the aerial parts of tridax procumbens. Other chemical compound isolated from the plant includes alkyl ester, sterols, pentacyclic triterpenes, fatty acids and polysaccharides.

USES

- Tridax procumbens are used in India for wound healing.
- They are also used as anticogulant, antifungal, and insect repellent.
- Its leaves extraction is used for infectious skin diseases in flock medicines.
- The extracted juice from the leaves is directly applied on the wound.



STEARYL ALCOHOL

- **STEARYL ALCOHOL**

- It works by forming a layer over the skin and prevents water loss from the surface of skin.
- It works as a stabilizer and emulsifier and prevents the separation of oil from water in various formulations.
- Stearyl alcohol acts as an emulsifier and makes the cream smoother.
- It is a white waxy solid that is derived from stearic acid a saturated fatty acid that occurs naturally in animals and natural fats.

Chemical Constituents:

It can be used at a concentration of 0.1% to 50% depending on the formulation. It is soluble in water alcohol, ether, benzene.

USES:

- It helps to improve the skin texture while for protecting the skin from bacteria and moisture loss .
- It binds water to your skin and enhances their efficacy.



- **WHITE BEES WAX**

- It is the product made from the honeycomb of the honey bees and other bees.
- Mixing of pollen oil into honey comb wax turns the white wax into yellow colour.
- Early reserch shows that applying a mixture of beeswax, honey and olive oil to the affected area for 12 hr reduces the pain and bleeding.

Chemical Constituents:

It consist of 71% ester, 15% hydrocarbon, 8% free fatty acid and 6% other components.

USES:

- In food and beverages white beeswax are used as stiffening agents.
- They are also used as thickeners and emulsifiers in cosmetics.



- **PARAFFIN WAX:**

- Paraffin is a soft colourless solid derived from petroleum coal that consist of mixture of hydrocarbon atom molecules containg between 20 and 40 carbon atom.
- Paraffin hydrocarbon also called alkane any of the saturated hydrocarbons having the general formula C_nH_{2n+2}
- It is distinct from kerosene and other petroleum products that are sometimes called paraffin.

Chemical Constituents:

The paraffins are major constituents of natural gas and petroleum.

USES:

- It is used to smooth the skin .
- It helps to hydrate the skin.
- They are used as preservatives in herbal cream.
- It some times acts as the skin lubricant

- **PROPYL PARABEN & METHYL PARABEN:**

☐ They acts as an antifungal and antimicrobial agent.



PROPYL PARABEN



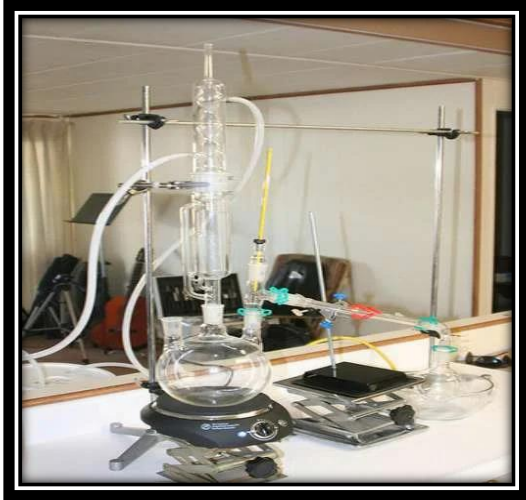
METHYL PARABEN



- **SORBITOL MONOOLEATE**

- Sorbitol monooleate is also known as sorbitan oleate.
- It is a w/o emulsifier with an sorbitan monooleate HbL scale value of 4.3.
- It is insoluble in water but can disperse in hot water.
- It is an emulsifier, thickener, and stabilizer found in food products house hold items and oral pharmaceuticals.
- It is also used as coupling agent and dispersing agents in various products.
- It is also used as friction modifier and emulsifier in personal care products.

- PREPARATION OF EXTRACT FOR WOUND HEALING
HERBAL CREAM:



SOXHLET APPARATUS

- The leaves of the plants were collected and sun dried for about 7days .Then the leaves were crushed into powder form.
- And the powder drug was passed through the sieve and the unwanted material was removed .
- Then the extraction process took place with the help of soxhlet apparatus .
- Then the extract was collected and filter.

❖ PREPARATION OF WOUND HEALING HERBAL CREAM:

Procedure:

Now keep the extract for evaporation on water bath untill the methanol is evaporated to get dry extract .



Then melt the white bees wax on water bath .



Then take stearyl alcohol in another beaker and put on water bath .



Then after that the melted ingredients i.e beeswax and stearyl alcohol is taken in a one beaker .



Then add extract in it as well as methyl and propyl paraben and liquid paraffin and stirr it properly.



After that add all ingredients in one beaker and keep on water bath for few min and stirr it untill the homogenous mixture is formed.



After some time semisolid mixture is formed i.e cream which is then poured in the air tight container and the cream is ready.

➤ **FORMULATION TABLE:** (FOR 25 GRAM)

| Sr.no | Ingredients | Quantity F1 | F2 | F3 |
|-------|------------------------|----------------|----------|---------|
| 1 | Tridax procumbens | 2 gm | 2 gm | 2 gm |
| 2 | Stearyl alcohol | 10 gm | 10 gm | 10 gm |
| 3 | Sorbitol monooleate | 4 ml | 4 ml | 5 ml |
| 4 | Paraffin | 1 ml | 2 ml | 3 ml |
| 5 | Propyl paraben | 0.015 gm | 0.015 gm | 0.015gm |
| 6 | Methyl paraben | 0.025 gm | 0.025 gm | 0.025gm |
| 7 | White beeswax | 7 gm | 6 gm | 5gm |
| 8 | Rose oil | 1ml | 1ml | 1ml |
| 9 | Distilled water | q.s | q.s | q.s |

EVALUATION:

Physicochemical Evaluation:

1. Determination of Ph:

The ph was measured using a ph meter. Which was calibrated before each use with the standard buffer solution. The electrode was inserted into the sample 10 min prior for taking the reading at room temperature.

2. Spreadability:

Spreadability is measured in terms of time in second taken by the two slides to slip off from the cream which is placed in between the slides under the direction of a certain load. The excess amount of sample was placed between the two glass slides and definite amount of weight was placed on this glass slides of uniform thickness. The amount of time required to separate the two slides was noted.

The spreadability was calculated by using the formula

$$S=M.L/T$$

Where as

M=wt tied to upper slide

L=length of glass slide

T=time taken to seprate the slide

3. Viscosity:

The viscosity measurements are made by using various viscometers.

Viscosity measures various formulation raw material and finished products like cream, lotion which are carried by viscometer.

Such as Brookfield viscometer which can be used with a spindle 29 to determine the viscosity of different topical formulation.

4 Washability:

The formulation was applied on the skin and then ease extend of washing with water was checked.

5 Non-irritancy test:

The preparation shows no redness and irritancy. Observation of the state was done for 24hr.

EVALUATION TABLE:

Physical Evaluation:

| Parameters | Observation | | |
|------------|-------------|------------|------------|
| | F1 | F2 | F3 |
| Colour | Dark green | Dark green | Dark green |
| Odour | Pleasant | Pleasant | Pleasant |
| State | Semi solid | Semi solid | Semi solid |
| Texture | Smooth | Smooth | Smooth |

Physicochemical Evaluation Test:

| Parameters | Observation | | |
|-----------------------|--------------|--------------|----------------------|
| | F1 | F2 | F3 |
| Ph Determination | 6.5 | 5.9 | 6.2 |
| Spreadability | Satisfactory | Satisfactory | Easily spreadable |
| Washability | Good | Good | Very good |
| Viscosity | | | |
| Non-irritancy test | | | |

HOW TO APPLY WOUND HEALING HERBAL CREAM



Firstly clean the wound area with clean water with the help of cotton. Then apply the cream on the affected part and cover the wound with the suitable bandage where necessary.

Apply two to three times a day depending upon the severity of the wound.

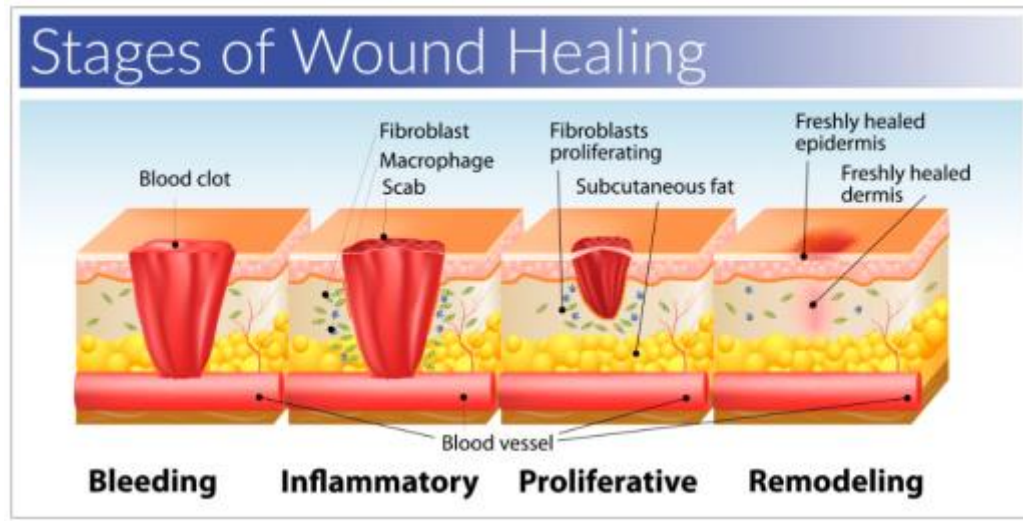
Consult a health care professional in case of a deep and long standing wound.

Protect from dust after applied.

Avoid contact with eyes.

Wash hand with soap after the application of cream.

STAGES OF WOUND HEALING



Inflammatory phase:

It begins within the minute of the injury and lasts about 3 days.

Destructive phase:

Begins before the inflammation and ends at last about 2-5 days.

Proliferative phase:

Begins at last from 3-24 days.

Maturation phase:

The final stage of healing and may take more than a year.

- **RESULT AND DISCUSSION**

RESULT:

| Sr.NO | Evaluation Parameters | Observation | | |
|-------|-----------------------|--------------|--------------|-------------------|
| | | F1 | F2 | F3 |
| 1 | Colour | Dark green | Dark green | Dark green |
| 2 | Odour | Pleasant | Pleasant | Pleasant |
| 3 | State | Semi solid | Semi solid | Semi solid |
| 4 | Texture | Smooth | Smooth | Smooth |
| 5 | Ph Determination | 6.5 | 5.9 | 6.2 |
| 6 | Spreadability | Satisfactory | Satisfactory | Easily spreadable |
| 7 | Washability | Good | Good | Very good |
| 8 | Viscosity | | | |
| 9 | Non-irritancy test | | | |

- **DISCUSSION:**

The present study was done to prepare and evaluate the herbal cream. For this the herbal extract were prepared by using extraction process to obtain the good yield of extract and there was no any harm to the chemical constituents and their activity.

The simple method was used to perpare cream so that uniform mixing of the herbal extract with the cream base was occurred which was stable during the storage.

The physicochemical properties were studied which shows satisfactory result for ph determination, spreadability, washability, viscocity, non- irritancy test and other.

Also this formulation was placed for stability study at different temperature. There were no changes observed in spreading ability, diffusion study as well as irritant effect.

- **CONCLUSION:**

The aim of this review was to formulate different herbs into cream for wound healing. The review also provides important information about the *Tridax procumbens* plant.

The cream contains the properties of *Tridax procumbens* that helps to provide nourishment for wounds. *Tridax procumbens* contains various phytochemicals that shows anti-inflammatory, antioxidant and antibacterial activity that are important for wound healing.

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Thank you