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Research Article

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"NOVEL TOPICAL FORMULATION & EVALUATION OF HERBAL SKIN CELL RECOVERY CREAM"

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ABSTRACT

The objective of the formulation is to prepare the foxtail millet skill call recovery cream. Creams are defined, a semisolid dosage form containing on more drug substances dissolved or dispersed in a suitable base intended for external application to the skin or mucous membrane. Herbal skin call recovery foxtail millet cream applied on the body. This cream serves multiple purposes in medicinal uses, acting for cooling effect, skin call recovery, wound healing effect. Aloe vera, foxtail millet, coconut oil, vitamin-E substance are used in the preparation of foxtail millet cream. To study the knowledge about skin, skin cell, layer of skin, properties of skin and application of cream. To study about various types of cream and their ideal properties. The different natural ingredients used in the preparation of cream was studied, and evolution of cream by using various tests such as viscosity test, spreadability test, irritation test, Greasiness test, Stability test. The current study was manufacturing and assessing a natural skin cell recovery cream with its multiple effect. The cream gives effects such as cooling effect, anti-acne, anti-aging and skin cell recovery effect on skin of the body. As we know that it is possible to increase the extent to efficacy of medical properties and single plant extract, but combining the different plant extract. The synthetic cream are harmful for skin, so to overcome this the Herbal skin call recovery cream was prepared.

INTRODUCTION

Creams are defined as" a semisolid dosage form containing on more drug substances dissolved or dispersed in a suitable bases intended for external application on the skin" or muscles membrane. They are semisolids usually consisting of solutions or dispersion of one or more medicament in a suitable cases. cream are crafted utilizing hydrophilic or hydrophobic bases to ensure compatibility with the skins natural secreations. The urge in demand for herbal medicinal cream can be attributed to the introduction of novel ingredients, promising lucrative financial incentives for those who successfully develop products while upholding stringent quality standards. These cream, applied externally on the body, including cream renowned for their cooling and skin revive properties. Notably, the Ayurvedic medicinal tradition stands out as a significant proponent, therapeutic potential of herbal plants and extracts for managing diverse disease states.

Classification of Creams

1. Oil Creams

Dispersion phase:- Oil

Continuous phase:- Water

Oil in water (O/W) cream which are composed of small droplets of oil dispersed in continuous phase. More comfortable and cosmetically acceptable as they are less greasy and more easily washed off using water. Emulsification agents of natural origin (borax, wool, alcohols, wool fat) Emollient and creamy, white or translucent and stiff.

Eg:-Flucinolone Acetonide Cream.

2. Aqueous Cream

Dispersion phase:-Water

Continuous phase:-Oil

Water in oil (W/O) creams are composed of small droplets of water dispersed in continuously oily phase. More difficult to handle but many drugs which are incorporated into creams are hydrophobic and will be released more readily from aW/O cream than an O/W cream. More moisturizing as they provide an oily barrier which reduces water loss from the stratum corneum, the outermost layer of the skin.

Eg-Moisturizing and cold cream.

3. Cosmetic Cream
All purposes cream, baby cream, barrier cream, bleaching cream, cleansing cream, cold cream, hair cream. hand cream, vanishing cream.

4. Medicated Cream
Hydrocortisone cream test rashes like poison ivy, psoriasis and eczema.
Anntibiotic cream abrasions or wound to treat minor infections.
Antifungal creams- Ring worm, Candida intertrigo or Candida diaper rash.
Zinc oxide cream:- Sunblock activity and for infant diaper rashes 157

Advantages of Herbal skin cells recovery cream
1. Wound Healing & Repair
Herbal ingredients like aloe vera, calendula, and chamomile are known for their wound-healing properties, promoting faster healing and reducing scarring.

2. Anti-Aging Effects Antioxidants and collagen-boosting ingredients in herbal creams can help reduce the appearance of fine lines, wrinkles, and age spots.

3. Enhanced Skin Clarity & Texture
Herbal ingredients can help exfoliate dead skin cells, unclog pores, and improve skin texture, leading to a smoother, more radiant complexion.

4. Brightening & Evens Skin Tone
Certain herbs and plant extracts can help lighten hyperpigmentation and even out skin tone, resulting in a more luminous appearance.

5. Antioxidant Protection
Herbal creams are often rich in antioxidants, which help protect the skin from free radical damage, a major cause of premature aging.

6. Reduced Risk of Irritation
Natural ingredients are less likely to cause allergic reactions or irritation compared to synthetic cosmetics.

7. Soothing & Calming
Many herbs have soothing and calming properties, which can help reduce redness, inflammation, and irritation.

AIM AND OBJECTIVES
Aim: The main aim of our project to formulate & evaluate the herbal skin cell's recovery cream.

Objectives
1. Promote skin rejuvenation and regeneration.
2. Accelerate wound healing and tissue repair.
3. Provide long-lasting hydration and moisturization to the skin.
4. Soothe and calm irritated or inflamed skin.
5. Reduce inflammation and redness associated with skin damage or irritation.

MATERIALS AND METHODS
The Herbal skin cells Recovery cream was prepared by collecting & using plant material.

These are powder of setaria itallica seeds, gel of aloevera leaf & the oils used for herbal cream coconut oil, vitamin E oil & rose oil.

Collected ingredients were identified by my project guide Prof. Gholap S.M

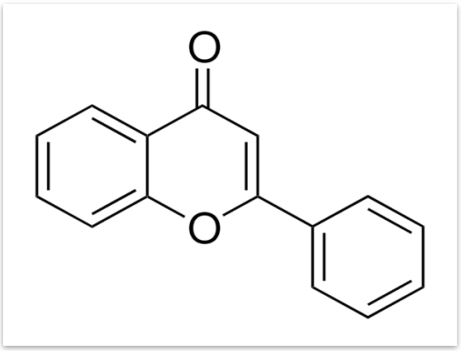
Solvents & Chemical Substance
- All the solvents & chemicals were analytical grade.
- chemical substance were used only borax
- Solvent used were distilled water.
- The above chemical substance & solvent were obtained from department of pharmacognosy S.W.C.O.P Ganegaon

SELECTION OF INGREDIENTS
I. SETARIA ITALLICA

Fig. 1: Setaria Itallica.

Common name: Foxtail millet
Biological source: biological source setaria itallica is the entire plant itself, specifically the seeds
Family: Poaceae

Chemical constituents: Foxtail millet (Setaria italica) contains a variety of chemical constituents, including carbohydrates, proteins, fiber, and minerals. It also boasts a rich array of phytochemicals, such as phenolics, flavonoids, carotenoids, and tocopherols.



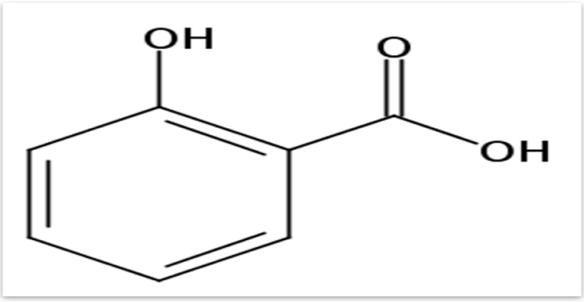
Str.- flavonoid

Uses
1. Protecting skin cells
2. Wound healing.
3. Reducing inflammation

II. AlOEVERA GEL

Fig. 2: Aloevera.

CommonName: AloeVera
Biological Name: Aloe Barbadensis mill
Family:- Asphodelaceae (Liliaceae)
Chemical constituents: Aloe vera contents 75 potentially active constituents vitamins, enzymes, lignin, saponins, salicylic acids and amino acids, sugars.



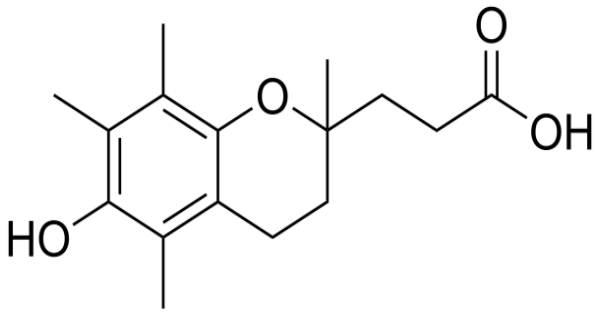
Str.- Amino acid

Uses
Anti-microbial
Anti-inflammatory
Moisturising the skin

III. VITAMIN E OIL

Fig. 3: Vitamin E Oil.

Common Name: Alpha tocopherol
Biological source: Obtain from plant oil such as repeseed (vegetable oil)
Family: Asphodelaceae (Liliaceae)
Chemical constituents: Alpha, beta, gamma, delta tocopherol alpha, beta, gamma delta tocotrienol.



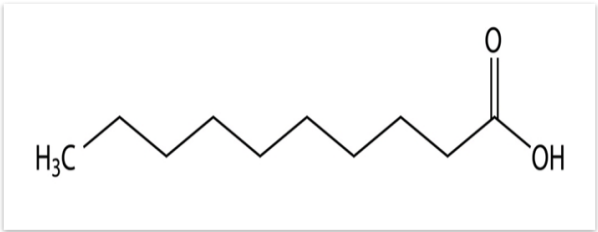
Str.- Alpha-tocopherol

Uses
Anti-oxidants
Moisturizing skin

IV. COCONUT OIL

Fig. 4: Coconut Oil.

Common Name: Cocas nucifera
Biological Source: Obtain from the dried solid part of endosperm of coconut, coco nurifera.
Family: Palmae
Chemical constituents: Capric acid, Lauric acid, Palmitic acid



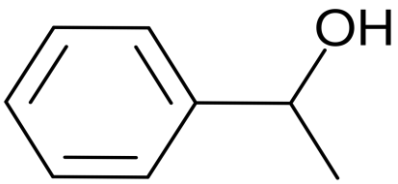
Str.- Capric acid

Uses
Anti-inflammatory
Analgesic
Anti-microbial

V. ROSE OIL

Fig. 5: Rose Oil.

Common name: rosa damascena
Biological source: Rose water is extracted from the flowers of Rosa damascene.
Family: rosaceae
Chemical constituents: phenylethanol, linalool, citronellol, nerol, geraniol.



Str. - Phenylethanol

Uses
1. Rose water can clam your skin
2. It has anti aging property
3. It can be used to create fragrance

VI. BEES WAX

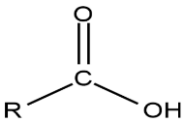
Fig. 4: Bees Wax.

Common Name: cera alba

Biological Source: Bees wax is a naturally occurring wax produced in the bees hives by honey bees a mellifera.

Family: Apidae

Chemical Constituents: esters, hydrocarbon, free fatty acids.



Str. - Fatty acid

Uses
1. Repairs damage and heals the skin
2. Removes dead skin cells.
3. Keep skin soft and moisturized.

DETAILS OF HERBES

Table No. 1: Details of Herbs.

Sr. No	Herbs	Family	Uses
1	Setaria Itallica Seeds	Poaceae	Reducing Inflammation, Wound Healing
2	Aloevera Gel	Liliaceae	Moisturizing, Smothing, Healing Properties
3	Coconut Oil	Palmae	Analgesic, Antimicrobial
4	Vitamin E Oil	Asphodelaceae	Antioxidant, Moisturizing Skin
5	Rose oil	Rosaceae	Anti- aging, Create fregarance
6	Bees wax	Apidae	Repair damage, Moisturizer

FORMULATION METHOD

All natural ingredients used in the study, including sitaria itallica powder Extracts, aloevera gel, Bees wax, coconut oil, vitamin E oil, rose oil & distilled water where procured in the markets.

FORMULATION TABLE

• Experimental study

Firstly we prepare our formulation using following material

A) FORMULA 1: Fail (Lack of consistency)

Table No 2: Formula.

Ingredients	Amount in gram (gm)
Setarea Itallica Powder Extraction	5.0 g
Aloevera Gel	12.0 g
Bees wax	0.5 g
Coconut Oil	10.5 g
Vitamin E Oil	1.0 g
Distilled Water (Q.S)	21.0 g
Total	50.0 g

Reason: The cream did not have a consistent texture because the ingredients were not mixed in the right amounts. Because there is too much oil.

B) FORMULA 2: Fail (Microbial growth)
Table No. 03: Formula.

Ingredients	Amount in gram (gm)
Setarea Itallica Powder Extraction	5.0 g
Aloevera Gel	12.0 g
Bees wax	0.5 g
Coconut Oil	10.5 g
Vitamin E Oil	1.0 g
Distilled Water (Q.S)	21.0 g
Total	50.0 g

Reason: The cream developed an unpleasant odor because it contained too much water, which can promote microbial growth and spoilage.

C) FORMULA 3: Success
Table No. 04: Formula.

Ingredients	Amount in gram (gm)
Setaria itallica seeds powder Extract	5.0 g
Aloevera Gel	12.5 g
Bees wax	0.5 g
Coconut Oil	10.0 g
Vitamin E Oil	2.5 g
Rose oil	1.25 g
Distilled Water (Q.S)	18.25 g
Total	50 g

Reason: In this formula
1 The cream showed better consistency. The texture became smooth and stable.
2. There is no unpleasant smell.
3. Formulation is effective & noticeable skin cells recovery benefits.

- **EXTRACTION PROCESS**

Setaria itallica's seeds powder extraction
Clean & dry seed. Grind seeds into fine powder & weigh required amount of powder. Then place powder in thimble (Soxhlet Extractor) & add solvent (Ethanol) to round bottom flask and assemble soxhlet apparatus.

Then heat gently (Solvent Boils, Vapors Rise) & vapors condense in condenser then condensed solvent drips into thimble → Extracts Compound & chamber fills & siphons back into flask then repeat cycle (6–8 Hours) & stop heating, cool down apparatus & collect extract from round bottom flask.

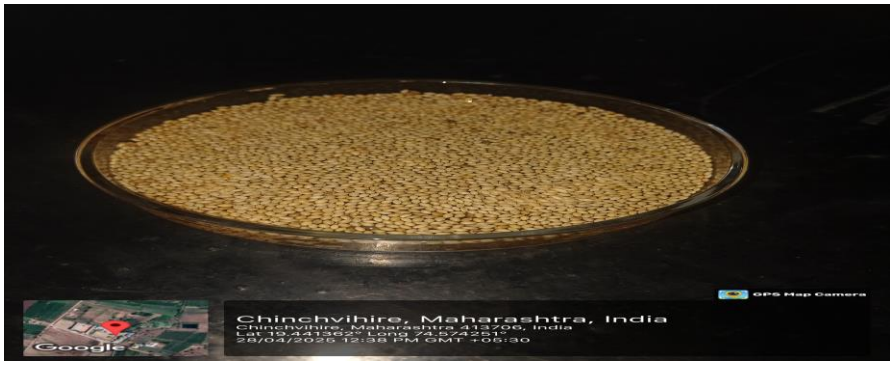
FORMULATION PROCESS

Oil Phase
Mix coconut oil, borax, and vitamin E oil.- Heat gently in a beaker until beeswax melts completely,
After removing the oil phase from heat, when it is cool slightly then add rose oil

Aqueous Phase
In a separate beaker, heat distilled water and aloe vera gel to the same temperature and add extraction of seeds powder in the warm water-aloe mixture.

Emulsification
Slowly add the aqueous phase to the oil phase with continuous stirring, Stir until the mixture thickens and cools down to room temperature.

Final Adjustment
Check pH and Transfer into a clean container.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EVALUATION OF PARAMETERS

Evaluation of Herbal cell recovery cream was following. Physical Evaluation formulated herbal cream was further evaluated by using the following parameters.

Colour:-The colour of cream was observed by visual examination was white.

Odour:- The creams scent was observed to possess distinctive characteristics.

Consistency:-The formulation was examined by rubbing cream on hand manually.The cream having soft consistency.

State:- The state of cream was examine visually.The cream was solid in state result.

Determination of pH of the Cream:-The pH meter was calibrated using standard buffer solution.About 1gm of the cream was weighted and dissolved in100ml distilled water and its pH was measured.

Homogeneity:- The formulations underwent assessment for homogeneity through visual inspection and tactile examination.

Spread ability:- Spreadability is carried out for formulation. The less time take for the separation ofboth slide betterthespreadability.

Greasiness:-This test is basically used to check nature of cream either oily or greased.The formulation was Non-greasy.

Irritancy test:- Designate a region measuring 1 square centimeter on the dorsal surface of the left hand for the irritancy test.The cream was applied to the Specified area and checked if any for regular intervals up to 24hrs and time was noted. Irritancy, erythematic, oedema, was tested temperature away from sunlight and observed for 24 hours for phase.

Phase separation:- Prepared cream is kept in tightly closed container at room temperature away from sunlight and observed for 24hrs for phase.

Washability:-Wash ability test was carried out by applying small amount of cream on the hand and then washing it with tap water. Formulation was washable.

Rheological studies:-The formulated cream was found to be non-Newtonian. Take a fixed quantity. 10gms of cream in a 10ml beaker. Keep it impact for 1 hr. The beakerwasinclined the one side see whether the cream is liquefied or not. Beaker is shaken toand for continuous mns. Subsequently, an assessment was conducted to determine if there had been any alterationin consistency. The beaker was once more tilted and inspected for changes pour ability of the Cream

EVALUATION TABLE

Table No. 05: Evaluation Table.

Sr. No.	Parameters	Result
1	Colour	White
2	Odour	Characteristics
3	State	Semi- Solid
4	Consistency	Smooth
5	PH	5
6	Washability	Easily washable
7	Non- irritancy test	Non- irritent
8	Phase separation	No phase separation
9	Greasiness	Non- greasy
10	Stability test	No seperation occurs

RESULT AND DISCUSSION

The current study focused on formulating and assessing a natural Cell recovery cream. Result parameters included the physical evaluation of the cream and its pH levels 5, Spredability, Washability, Non irritancy test, Viscosity and Phase separation of the natural ricestarch face cream. As an o/w type emulsion, this cream formulation could be easily rinsed off with plain water post-application. Cream does not show any type of non-greasy in nature

and easily removable after application.The formulation was non-irritant and not harm to the skin.

1. Evaluation of physical characteristics

Table No. 06: Evaluation of physical characteristics.

Sr. No.	Characteristics	F1
1	Colour	White
2	Odour	Pleasant
3	State	Semi- Solid
4	Consistency	Smooth

2. PH test

Table No. 07: pH test.

Sr. No.	Test	PH
1	Ph test	5

3. Phase Separation

Table No 08: phase Separation.

Sr. No.	Test	Phase separation
1	Phase separation	No phase separation

4. Washability test

Table No. 9: Washability Test.

Sr. No.	Formulation	Washability
1	Washability test	Easily washable

5. Irritancy test

Table No. 10: Irritancy Test.

Sr. No.	Test	Result
1	Irritancy test	Non irritancy

6. Greasiness Test

Table No. 11: Greasiness Test.

Sr. No.	Test	Greasiness
1	Greasiness test	Non-greasy

CONCLUSION

The cell recovery cream made from Foxtail millet shows promise as a natural and effective skincare product. Its antioxidant, antiinflammatory, and nutrient-rich properties may help promote skin health, reduce inflammation, and support wound healing. Antioxidant Properties: Protects the skin from oxidative stress and damage .Anti-Inflammatory Effects: Reduces inflammation and promotes wound healing. Further Research: Conduct more studies to fully understand the benefits and mechanisms of Foxtail millet in skincare. Clinical Trials: Perform human clinical trials to evaluate the safety and efficacy of the cream. Product Development: Optimize the cream's formulation and texture to enhance user experience Skincare: Use the cream as a natural and effective skincare product. Wound Healing: Use the cream to promote wound healing and reduce inflammation.

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