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Formulation and Evaluation of Herbal Face Scrub by Using Turmeric

Dr. Nitin H. Indurwade[1], Ms. Samta S. Shambharkar[2], Ms. Shweta Anil Nagrale[3], Ms. Prajkta Dipak Rakhunde[4], Ms. Minal Arunrao Patil[5]

[1]Principal, Pharamcy Dr. R.G.Bhoyar Institute of Pharmaceutical Education And Research Wardha
[2]Assistant Professor, Pharamcy, Dr. R.G.Bhoyar Institute of Pharmaceutical Education And Research Wardha
[3,4,5,6]Student, Pharamcy, Dr. R.G.Bhoyar Institute of Pharmaceutical Education And Research Wardha

Abstract:
Herbal skincare products are widely preferred due to their safety, efficacy, and minimal side effects. This study focuses on the formulation and evaluation of an herbal face scrub incorporating turmeric (Curcuma longa), renowned for its antimicrobial, antioxidant, and anti-inflammatory properties. The scrub is developed using natural exfoliate like sugar along with moisturizing and soothing agents such as coconut oil, olive oil and glycerine.
The formulated scrub undergoes various evaluations, including organoleptic properties, pH determination, spreadability, stability, and skin irritation tests and grittiness. The results indicate that the herbal face scrub effectively removes dead skin cells, improves skin texture, and enhances brightness without causing irritation. The stability studies confirm that the formulation remains effective over time.
In conclusion, the turmeric-based herbal face scrub presents a natural and effective skincare solution, providing exfoliation and nourishment while maintaining skin health. Further research can be conducted to optimize the formulation for enhanced stability and prolonged shelf life.

Keywords: Herbal face scrub, Natural exfoliation, Skin nourishment.

1. Introduction:

Skincare has undergone a notable transformation, with an increasing shift toward herbal and natural products owing to their safety, efficacy, and low risk of side effects. Among the many botanical ingredients gaining popularity, turmeric (Curcuma longa) stands out for its well-known medicinal and cosmetic benefits. Renowned for its strong antimicrobial, antioxidant, and anti-inflammatory properties, turmeric is a highly valued component in skincare formulations.[1]
Face scrubs are essential in skincare routines, helping to eliminate dead skin cells, clear clogged pores, and enhance skin texture. Traditional face scrubs frequently include synthetic chemicals that can lead to skin irritation or potential long-term harm. On the other hand, herbal face scrubs rely on natural exfoliants such as sugar, offering a milder exfoliation process while also nourishing the skin.[2]
This study focuses on the formulation and evaluation of a herbal face scrub with turmeric as the primary active ingredient. The scrub is crafted using natural exfoliants and moisturizing agents like coconut oil,

olive oil, aloe vera gel, and glycerin to promote skin hydration and provide soothing effects. The developed formulation is analyzed based on several parameters, including its physical properties, pH level, spreadability, stability, and skin compatibility.[3]

This study aims to develop a turmeric-based herbal face scrub as a natural and effective alternative to synthetic exfoliants, with the goal of promoting healthy, glowing skin. The evaluation outcomes will offer insights into the formulation's efficacy, safety, and stability, thereby supporting the advancement of herbal cosmetic products.[4]

2. Plant profile:

Turmeric (Curcuma longa) is derived from the root of a plant belonging to the ginger family. It contains curcumin, a bioactive compound renowned for its strong anti-inflammatory and antioxidant effects. Widely used in traditional medicine systems like Ayurveda, turmeric also holds a valued place in skincare. Its antibacterial and anti-inflammatory properties make it effective in treating acne, reducing dark spots, and enhancing the skin's natural radiance. With regular use, it can also help delay visible signs of aging.[5]

3. Aim and Objectives:

Aim : The aim of this research is to formulate and evaluate a herbal face scrub using turmeric (Curcuma longa) as a key ingredient, assessing its physicochemical properties, stability, and skincare benefits.

Objectives :

1. Develop a turmeric-based herbal face scrub using natural exfoliants, moisturizers, and binding agents
2. Analyze key parameters such as pH, texture, spreadability, and stability.
3. Conduct skin irritation tests to ensure the formulation is safe for use.
4. Evaluate the scrub's effectiveness in removing dead skin cells, improving skin texture, and enhancing radiance.
5. Compare the formulated scrub with commercially available face scrubs in terms of efficacy and safety.

Table 1: List of Ingredients required in polyherbal hair serum preparation

Sr. No.	Ingredients	Quantity Taken(100gm)	Roles of Ingredients
1.	Turmeric Powder	10gm	Antiseptic, Anti-inflammatory, Antioxidant.
2.	Sugar	40gm	Exfoliant
3.	Coconut Oil	10gm(10.87ml)	Moisturizer.
4.	Olive Oil	10gm (10.99ml)	Moisturizer, Exfoliating Scrub
5.	Honey	8gm(5.63)	Hydrating Agent
6.	Aloe Vera Gel	10gm(10ml)	Moisturizer
7.	Vitamin E Oil	1gm (1.09ml)	Preservative Agent.
8.	Sodium Benzoate	1gm	Preservative.
9.	Glycerin	Sufficient Quantity	Smooth and Soften the Skin

4. Materials and methods:

Raw Materials: The selected materials used to prepare the face scrub are derived from natural origins. And the formulation of face scrub requires main ingredients, these are:

1. Turmeric: Turmeric is great for skin due to its antibacterial and anti-inflammatory properties. It helps reduce acne, dark spots, and gives a natural glow. Regular use can also slow down signs of aging.

Figure No. 1: Turmeric

2. Sugar: Sugar granules are small and slightly coarse, which helps to manually slough off dead skin cells, unclog pores, and promote smoother skin.

Figure No. 2: Sugar

3. Coconut oil: Coconut oil is rich in fatty acids (like lauric acid), which deeply hydrate and nourish the skin, leaving it soft and smooth after exfoliation.

Figure No. 3: Coconut Oil

4.Olive oil: It's rich in healthy fats and emollients, which help soften and smooth the skin, locking in moisture after exfoliation**.**

Figure No. 4: Olive oil

5. Honey: Honey has natural anti-inflammatory properties and promotes wound healing, which is helpful if your skin is irritated or has blemishes.

Figure No. 5: Honey

6. Aloe vera gel: It instantly soothes irritated, sunburned, or inflamed skin—great for calming down redness after exfoliation.

Figure No. 6: Aloe vera gel

1. Method of preparation :

Formulation of Turmeric Face Scrub:

The required quantity of turmeric powder and sugar for the face scrub preparation were accurately weighed individually by using digital balance.

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The turmeric powder and sugar were passed through suitable sieve individually.

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The turmeric powder and coarse sugar were transferred to mortar and pestle and triturate to form a uniform mixture by using glycerin.

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In a separate beaker, blend olive oil, coconut oil, aloe vera gel and honey.

↓

Combine the two mixtures and stir until uniform.

↓

Add Vitamin E oil and sodium benzoate (preservative).

↓

Transfer to an airtight container.

1. Evaluation Parameter:

Appearance: The prepared scrub was evaluated for its odour and color. The color was found to be yellowish brown in color and odour was found to be characteristics.

Consistency: It was found to be semisolid and homogeneity with visual observation.

pH: pH of the prepared scrub as evaluated. Small amount of the scrub diluted in water and set in pH meter and found to be 7.0. It is a neutral in nature.

Spreadability: The spreadability is very important in the behavior of gel that comes out from the tube. It is used to identify the extend of spreadability by the gel on the skin. A small quantity of sample was placed on a glass slide. The time taken for the gel to spread on the slide was noted and measured which was found to be 6 cm in 60 sec.

Irritability: A small amount of scrub was applied over the skin and kept for few minutes and found to be non-irritated.

Washability: A little quantity of scrub was applied over the skin and was wash with water and it was easily washable.
Grittiness: Scrub was found to have a few gritty particles.

List of Evaluation Parameter

Sr. No.	Parameter	Observation
1.	Color	Yellowish Brown
2.	Odour	Aromatic
3.	Consistency	Good
4.	pH	7.0
5.	Spreadability	6.6 cm
6.	Washability	Washability
7.	Grittiness	Presence of Gritty Particles
8.	Irritability	Non-Irritant

7. RESULT AND DISCUSSION:

A herbal face scrub was successfully formulated using turmeric powder as an anti-inflammatory and antibacterial agent and granulated sugar as the primary exfoliant. The base included natural ingredients such as honey, aloe vera gel, and a carrier oil (e.g., coconut or almond oil) to ensure moisturizing properties and product stability.
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8. CONCLUSION:

The herbal face scrub formulated using turmeric and sugar proved to be effective, safe, and stable for topical application. Turmeric contributed its anti-inflammatory and antibacterial properties, while sugar acted as a natural exfoliant, helping to remove dead skin cells and improve skin texture. The formulation showed acceptable organoleptic properties, a skin-friendly pH, good spreadability, and no signs of irritation upon application. Based on the evaluation results, the scrub can be considered a beneficial addition to natural skincare routines.

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