

FORMULATION AND EVALUATION STUDY OF THE HERBAL FACIAL SCRUB, USING INGREDIENT

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ABSTRACT

This study focuses on the formulation and evaluation of a herbal facial scrub designed to enhance skincare through natural ingredients. The herbal scrub was composed of key ingredients such as turmeric, aloe vera, neem, tulsi, honey, walnut, and coconut oil, each chosen for their unique skin benefits, including anti-inflammatory, moisturizing, and antibacterial properties. The formulation aimed to cleanse, exfoliate, and hydrate the skin while promoting a healthy, glowing complexion. The scrub was subjected to various evaluation tests, including pH, spreadability, viscosity, irritability, and washability, with promising results. The scrub exhibited good consistency, easy spreadability, and no irritation upon use. The product demonstrated an effective exfoliating action, while also being gentle on the skin, making it suitable for regular use. Furthermore, the article compares herbal scrubs with synthetic alternatives, highlighting the advantages of using natural ingredients over chemical-based products. The findings suggest that herbal facial scrubs not only offer skincare benefits but are also a safer, more sustainable option for consumers.

Keywords: Cosmetics, Antiseptic, Blackheads And Whiteheads, Non-Irritating.

I. INTRODUCTION

A face scrub is a skincare product that cleanses and exfoliates the skin by removing dead skin cells, dirt, and excess oil from pores. The term "cosmetics" traces its roots to the Greek word "kosmetikos," meaning adornment. Since ancient tribal days, humans have adorned themselves for beautification, with both men and women using various materials. The wellbeing, habits, schedule work, climatic conditions and upkeep were capable for people skin and hair beauty. The skin due to excessive exposure to heat will dehydrate during summer and causes wrinkle, spots, blemishes, pigmentation and sunburns. The extreme winter cause harms to the skin and hairs within the form of cracks, cuts, maceration, contaminations and hair fall. Herbal cosmetics are formulated, using different cosmetic ingredients to form the base in which one or more herbal ingredients are used to cure various skin ailments.

II. BENEFITS OF SCRUBBING YOUR SKIN

1. Scrubbing cleanses the skin, removes dead cells, and improves skin texture, promoting a clear, smooth, and glowing complexion.
2. Deep Cleaning of Skin: Scrubbing your skin helps skin to get free from dirt, oil and sweat. Other cleansing like face wash facial cleansers cannot clean the skin
3. Gives glow to skin and smooth texture: Scrubbing actually helps to give glow and smooth texture to skin.
4. Remove the Acne Scars. As scrubbing used to remove dead skin cells, it also remove the acnes scars from skin.
5. Promotes Hydration of Skin: Facial scrubs contents moisturizing agents and hydrating Agents. Exfoliation of skin helps to absorb moisture and it leaves our skin with filling soft.

1. OBJECTIVE

- The main objective of present study was to prepare a herbal facial scrub.
- In this formulation of herbal facial scrub, we used rose water, aloe vera, neem, tulsi, etc
- Dead skin cells make your face look dry and dull.
- Different evaluations tests are carried out for the prepared herbal facial scrub formulation, such as appearance, spreadability, irritability, PH, washability, etc.

2. ADVANTAGES

1. Rejuvenation of the skin
2. Deals with flaky skin

3. Healthy, glowing skin, minimise spore, reduces breakout and acne, Hides wrinkles
4. Increased absorption of the products, improve your tan, Maintain body
5. It also increases blood circulation, which inturn helps you to achieve healthy and glowing skin.

3. DISADVANTAGES

1. Hard scrubbing motions and hard scrubbing chemicals may cause skin irritation including redness, inflammation. If you have a sensitive skin one can also have allergic reactions to the chemicals present in the synthetic scrubs as well.
2. Over scrubbing can result in open pores which are exposed to pollution and UV rays at the same time. It also leaves your skin more prone to infections and tanning.
3. Proper moisturizing post scrubbing leaves your pores open and the dirt settles on them easily. This makes your skin more prone to acne due to bacterial growth in the dirt. And also, it leaves your skin dry.

Difference Between Herbal And Synthetic Products

Herbal scrub	Synthetic scrub
Herbal products are completely free from all the harmful chemicals as they are naturally derived.	Synthetic product are maybe slightly harmful chemicals as they are Synthetically derived.
Herbal refer to products that are prepared from plants for their medicinal value.	Synthetic refer to product that are prepared from chemicals.
Safe to use as compared to chemical-based cosmetics.	They may be harmful for sensitive skin.
Synthetic refer to product that are prepared from chemicals.	More side effect than herbal product.
E.g. Plum Green Tea gentle revival face scrub.	E.g. Cetaphil Extra gentle daily scrub.

III. MATERIAL AND METHOD

1. Turmeric powder



Fig 1:

- **Synonym**-Curcuma longa
- **Biological source** - It consists of dried rhizomes of Curcuma longa belonging to family Zingiberaceae.
- **Description** -
 Colour - Yellow Odour - Aromatic Taste - Bitter
- **Chief chemical constituents**- Curcumin, Curcuminoids
- **Uses** -Reduce acne, Glowing skin, Lightens skin.

A common condiment and colouring ingredient is turmeric. Other names for it include "golden spice" and "yellow root." The anti-inflammatory properties of turmeric are demonstrated in a disappearing cream base made with sandalwood and turmeric. Usually, turmeric is combined with water or honey to a It is applied straight to the skin and has a pasty consistency.

2. Aloe vera

- **Synonym**- aloe vera, burn plant
- **Biological source**- dried latex of leaves of it also known as cape aloe belong to the family- liliaceae
- **Decription**- Colour- clear to slightly yellow/translucent gold Odour-similar like rotten garlic or onion
- **taste**- Bitter
- **Chemical constituents**- aloe emodin

- **Uses-** heals burns and clears acne



Fig 2:

The leaves of Aloe vera contain significant amounts of the polysaccharide gel acemannan, which can be used for topical purposes. There are many products containing aloe vera's acemannan, including skin lotions, cosmetics, ointments and gels for minor burns, skin abrasions, insect bites, and windburn. Aloe vera are show the anti-inflammatory properties for skin.

3. Neem leaves powder-

- **Synonym** - Neem
- **Biological source** -
- It consists of dried leaves of *Azadirachta indica* belonging to family Meliaceae.
- **Description Colour** -
- Green Odour - Pungent Taste - Bitter
- **Chief chemical constituents-**
- Nimbinin, Nimbidin, Quercetin
- **Uses-** Skin toner, lightens skin blemishes, Remove blackheads



Fig 3:

Because of its well-known antibacterial and antifungal qualities, neem is a fantastic addition to scrubs, especially for skin that is prone to acne. Neem powder may be used with other natural substances, such as yogurt, honey, or turmeric, to make a mild exfoliating scrub that helps remove dirt and bacteria that causes acne. Just use caution as neem may be fairly strong if you have sensitive skin.

4. Tulsi leaves powder



Fig 4:

- **Synonym-** Tulsi
- **Biological source-**It consists of dried leaves of *Ocimum sanctum* L belonging to family Lamiaceae.
- **Description Colour** - Green Odour - Aromatic Taste - Pungent
- **Chief Chemical constituents** -oleanoic acid, ursolic acid, rosmarinic acid
- **Uses-** Prevents acne and pimples, Improve skin texture, Cleanser

Neem most commonly found in tropical and subtropical regions like India, Bangladesh, Pakistan, and Nepal. neem show the anti-inflammation , antibacterial ,antifungal and antiviral properties.

5. Sugar Cane

- **Synonyme** - Sacchrom, Nobel cane
- **Biological source** - saccharum officinarum
- **Family** - poaccac
- **Chief chemical constituent** - Cellulose, hemicellulose, lignin, glycolic acid

Uses - Antiaging, fine skin line, moisturizing the ski



Fig 5:

This helps your skin absorb subsequent products better and can help you achieve a brighter, more even complexion. Sugar scrubs have smaller particles and tend to be gentler on the skin. They are often less drying and less abrasive than salt scrubs.

5. Walnut

Consuming walnuts are an excellent option for skin and body. Even several cosmetics and skin care product manufacturer include walnuts in their material because they are full of nutrition which is necessary for our skin. Besides skin care, walnuts are very popular for hair colour too.



Fig 6:

6. Honey-

- **Synonym**- Shahad
- **Biological source** -It consists of saccharine liquid prepared from the nectar of the flowers by the Honey-bee Apis mellifica belonging to family Apadae.
- **Description Colour**- Yellow brown coloured liquid Odour - Sweet Taste - Sweet
- **Chief chemical constituents** Dextrose and laevulose (70-80%) Dextrin (0.06-1.25%) Proteins
- **Uses**-Good for wrinkles and aging Prevent acne Remove dirt from pores Highly popular and used in cosmetic treatment honey used in preparing hair conditioner and face wash, etc. Honey is the only insect derived natural product which has therapeutic and cosmetic as well as nutritional values Honey has been used for both as food and in medicines since ancient times.



Fig 7:

7. Coconut oil-

Coconut oil is beneficial for use in cosmetics, typically as a moisturizer, and in soaps. Historically, coconut oil was used as a remedy for treating illnesses and infection, healing wounds, promoting the growth of strong bones, and protecting skin against blemishes. In cosmetic it is used as, emollient, protectively hydrating, lubricating, cooling, soothing.



Fig 8:

8. Rose Water

Rose water uses for different purposes like helps soothe skin irritation, Soothes sore throats, reduces skin redness, helps prevent and treats infections. contains antioxidants, heals cuts, scars, and burns, enhances mood, relieves headaches, it has anti-aging properties, soothes digestion problems.



Fig 9:

Formulation Table Of Herbal Scrub

Sr.no.	Ingredient	Quantity taken	Category
1	Turmeric	2gm	Antiseptic
2	Aloe vera	2 gm	Skin hydrating
3	Neem	1gm	Anti-inflammatory
4	Tulsi	1gm	antibacterial
5	Sugar cane	0.5gm	Antiaging
6	Honey	0.5gm	Exfoliating
7	Coconut oil	0.5gm	Essential oil
8	Walnut	0.2gm	Moisturizing
9	Water	q.s	Vehicle

Procedure

Firstly, weighed all the ingredients properly.

- Mixed the dry ingredient-**Combine the exfoliant (sugar powder) with any powder/ active ingredient like turmeric or neem.
- Add the wetting ingredient-** Added binding agent (coconut oil , honey) mixing until you a achieve consistency that is easy to apply but not to rubbing.
- Incorporate aloe vera-** Add in few tablespoons of aloe vera for smoothing property.
- Essential oil-** Add a few drops of coconut oil/ assential oil.
- Meckoup the volume with the help of vehicle.
- Keep stirring after removing from water bath till 45 °C temperature is attained.
- Storage** - Airtight container & stored in cool dry Place.

IV. IDENTIFICATION TEST

Preliminary phytochemicals screening of *saccharum officinarum* (linn).stem-

The extracts obtained from successive solvent extraction were then subjected to various qualitative chemical tests to determine the presence of various phytoconstituents like Alkaloids, Carbohydrates, Proteins, Resins, Saponins, Starch, Flavonoids, Steroids, Glycosides, Tannins, Quinones and Phenolic Compounds Was Analysed by Following Methods.

1) Test for Alkaloids

- **Mayer's test:** Added few drops of Mayer's reagents to 1 ml of the acidic, aqueous extract of the powder.
- **Hager's test:** To 1 ml of alcoholic extract of powder and added few drops of Hangers reagent
- **Dragendroff's Test:** Dissolved few mg of alcoholic or aqueous extract of powder in 5 ml of distilled water, added 2 M HCl until an acid reaction occurs, then added 1 ml of Dragendroff's reagent.

2) Test for Carbohydrate

- **Anthrone's test:** To 2 ml of anthrone's test solution, added 0.5 ml of aqueous extract of powder. Fehling's Test: To 2 ml of aqueous extract of powder, added 1 ml of mix of equal parts of Fehling's solution. A and Fehling's solution B and boiled the content of the test tube for few minutes.
- **Molish's test:** To 2 ml of aqueous extract of the powder, added 2- drops of freshly prepared 20% alcoholic solutions of naphthol and Poured 2 ml of conc. Sulfuric acid so as to form a layer belowthe mixture

3) Test for protein-

- **Biuret test:** To 1 ml of hot aq. extract of sugarcane powder, added 5-8 drops of 10% w/v NaOH solution followed by 1 or 2 drops of 3% w/v CuSO₄ solutions.
- **Ninhydrin test:** The Ninhydrin reagent is 0.1% w/v solution of Ninhydrin in n-butanol. A little of this reagent was added to the test extract.
- **Millon's test:** Take little residue was taken with 2 ml of water add millon's reagent and mix withit, then boil for 1 min and cool under tap water. Add 5 drops of 1% sodium nitrite.

4) Test for Resins-

Dissolved 1 ml of extract in 1 ml of acetone and poured the solution into 5 ml distill water.

5) Test for Saponins-

Foam test: To 5 ml of aq. extract of Sugarcane powder, added few drops of sodium bicarbonate. Shaked vigorously and left it for few minutes.

6) Test for Starch-

Dissolved 0.015g of iodine and 0.075g of KI in 5 ml of distilled water and added 2-3 drops of anaq. extract of Sugarcane powder.

7) Test for Flavonoids-

Shinoda's test: To 0.5 ml of alcoholic extract of sugarcane powder, added 5-10 drops ofconcentrate HCl followed by small 0.5g of „Mg" metal. Alkaline Reagent Test: To the test solution added sodium hydroxide solution.

8) Test for Steroids-

Salkowski's reaction: Added 1 ml of concentrate Sulfuric acid to 2 ml of chloroform extract of the Sugarcane powder carefully, from the side of test tube.

V. EVALUATION PARAMETERS

The prepared gel was evaluated for appearance, pH, consistency, Spreadability, extrudability, viscosity, irritability, washability, grittiness, foamability.

Appearance-

The prepared scrub gel was evaluated for its odour and colour. The colour was found to be brown in colour and odour was found to be characteristic..

PH-pH of the prepared gel was evaluated. Small amount of the gel was applied on the pH paper and found to be 7.0

Consistency-

It was found to be semi solid with visual observation.

Spreadability-Small amount of the gel was placed on the glass slide and another glass slide was placed on the gel. A wooden weight was placed on it. The time required for the gel to spread and the area was measured. The amount and the area of gel on the glass slide represents the efficiency of spreadability.

Extrudability-

Small amount of gel was taken into a collapsible ointment tube. One end closed and the other end kept opened. Slight pressure was applied on the closed side. The time taken to extrude and the amount of gel extruded was noted.

Viscosity-

Brookfield viscometer was used to measure the viscosity of gel.

Irritability-

Small amount of the gel was applied on the skin and kept for few minutes and found to be non irritant.

Washability-

Little quantity of gel was applied over the skin and was washed with water. It was easily washable.

Grittiness-

Gel was found to have a few gritty particles.

Foamability-

Small amount of gel was shaken with water in a graduated measuring cylinder and the foam was measured.

Table for herbal facial scrub

SR.NO	PARAMETER	OBSERVATION
1	Colour	Brown
2	Odour	Characteristic
3	Consistency	Good
4	Ph	7.0
5	Viscosity	1.4580
6	Spreadability	6.72.cm/sec
7	Washability	Easily washable
8	Grittiness	Small gritty particles
9	Foam ability	Foam volume 100ml at 5 minutes
10	Irritability	Not irritant
11	Extrudability	Easily extruded

VI. CONCLUSION

The formulation and evaluation of a herbal facial scrub in this study reveal its promising potential as a skincare product. By incorporating natural ingredients such as turmeric, aloe vera, neem, tulsi, and others, this scrub offers a range of benefits, including deep cleansing, exfoliation, hydration, and the promotion of glowing skin. The key advantages of using this herbal scrub include its rejuvenating properties, ability to tackle flaky skin, and improvement of skin texture and appearance. It also supports the absorption of other skincare products and aids in maintaining healthy, glowing skin.

The study highlights the importance of using natural, plant-based ingredients that are gentle on the skin, compared to synthetic alternatives that may contain harmful chemicals. The evaluation tests conducted on the scrub, such as pH, consistency, spreadability, and irritability, show that it is safe, effective, and non-irritating for most skin types. The scrub also meets the desired criteria for washability, viscosity, and foamability.

Overall, the herbal facial scrub demonstrates a balance of effective exfoliation and skin nourishment, making it a suitable alternative to chemical-based products. However, as with any skincare regimen, proper usage and post-treatment moisturizing are essential to avoid potential disadvantages such as skin irritation or increased susceptibility to acne if overused. The findings suggest that herbal scrubs provide a natural, safe, and effective option for improving skin health and appearance.

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