

## Development and Evaluation of Herbal Face Scrub Using Walnut Shell Powder as Exfoliating Agent

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### ABSTRACT

The goal of the study was to create a herbal facial scrub. Most of the time, our face is exposed to dirt, pollution and other impurities. The scrub is composed of a variety of natural ingredients that are safe to use, have fewer side effects, and possess antibacterial, antiseptic, antioxidant and hydrating properties. In this preparation, we have used the walnut shell as the main exfoliating agent and other natural ingredients such as sandalwood powder, turmeric powder, walnut shell powder, aloe vera gel, neem powder, tea tree oil, glycerin and rose water. The herbal face scrub can be prepared in a variety of ways, however, the most conventional method is the simple mixing method. The formulated product was assessed for various parameters. The outcome of this study provides evidence that natural exfoliating agents in herbal face scrub can be very effective in treating a variety of skin issues.

**Keywords:** Exfoliating agents, herbal scrub, antioxidant, anti-aging, herbal cosmetic.

### I. INTRODUCTION

Herbal cosmetics are beauty products that are formulated with a variety of herbal ingredients to deliver cosmetic benefits. These products are effective and safe to use. Generally, they are hypoallergenic, meaning they do not cause skin allergies like those caused by other potentially harmful products. A face scrub is a cosmetic product used to exfoliate the skin. It assists in the removal of impurities from the skin's surface, thereby decreasing the likelihood of pores becoming clogged and acne developing. The coarse particles present in facial scrubs are responsible for the exfoliation of the skin [1]. A facial scrub is an effective way to cleanse and remove dirt from the skin. It also helps to remove dead skin cells, resulting in a smoother and softer complexion. By incorporating a facial scrub into one's weekly skincare regimen, one can achieve healthy and radiant skin. There are three distinct skin types:

oily skin, sensitive skin, and dry skin [2]. For individuals with dry skin, the facial scrub must contain ingredients known to moisturize and hydrate the skin. For those with sensitive skin, a gentle scrub should be employed. For people with oily skin, exfoliation is recommended to reduce pimples, breakouts and regulate oiliness [3].

### Ideal properties of Herbal Face Scrub

- It should be gentle on the skin and non-sticky.
- It must be mild abrasive.
- It should assist in getting rid of dirt and dead skin.
- It should be non-irritant.
- It should contain small gritty particles [4].

### Benefits of using herbal face scrub

- Removes dead skin cells
- Removes flakes
- Softens the skin and make it more radiant
- Reduces acne scars
- Unclogs skin pores
- Provides the skin with a smoother texture
- Improves skin care product absorption
- Effective in reducing blackheads and whiteheads
- Removes tan [5]

### II. MATERIALS AND METHODS

These ingredients were collected from plants and local markets. The following herbal ingredients were used to prepare the scrub:

**Neem powder:** It has a range of beneficial properties for the skin, such as acting as a toner, reducing the appearance of blemishes and blackheads, balancing the oil production of the skin, and preventing sun damage. Additionally, its high levels of vitamin E and fatty Acids can help to tighten the skin, thus preventing signs of aging. Furthermore, its antibacterial and antiseptic properties may help to reduce irritation and provide

a cooling effect, making it an effective treatment for skin sensitivity. It also acts as a preservative [6]

**Turmeric powder:** Turmeric has been identified as the most effective ingredient in skin lightening and skin rejuvenation. It is a potent antioxidant that can help to reduce the appearance of dark spots, acne, hyperpigmentation, and other skin blemishes. Furthermore, its antimicrobial, anti-inflammatory, and antioxidant properties can help to address a variety of skin concerns, such as signs of aging, discoloration, and acne.

**Walnut shell powder:** By exfoliating the skin, walnut shell powder gently removes dry and dull skin cells to reveal smooth and healthy skin. It also helps even skin tone and makes skin look brighter and more radiant. Walnut shell powder is rich in antioxidants, which help to prevent damage to the skin and maintain its youthful appearance.

**Sandalwood powder:** The antibacterial properties present in sandalwood inhibit the growth of bacteria on the surface of the skin, making it highly effective in the treatment of acne. Sandalwood has anti-inflammatory properties that make it an excellent choice for treating sunburns and rashes. It is known to reduce skin irritation.

**Orange peel powder:** Orange peel powder is a powerful source of Vitamin C, which has been linked to the improvement of elasticity and collagen, both of which are essential for healthy skin. As a result, it can help to improve the appearance of the skin, resulting in a more youthful and radiant complexion.



**Fig 1. Walnut shell powder**

#### **PROCEDURE FOR PREPARATION OF HERBAL FACE SCRUB:**

The preparation of herbal face scrub was conducted in a laboratory under clean and hygienic conditions. Care was taken to avoid cross-contamination.

The formulation of the face scrub was done by the

**Aloe vera gel:** Aloe Vera gel is rich in vitamins C and E, as well as beta-carotene, which has anti-aging properties. Additionally, it contains antimicrobial and anti-inflammatory properties, as well as helps to reduce the appearance of blemishes and age lines [7].

**Glycerin:** Glycerin has humectant properties, which enable the skin to retain moisture, improve hydration, reduce dryness and revitalize the surface of the skin. Additionally, glycerin is a skin emollient, which can soften the skin and is beneficial in the alleviation of rough or dry spots caused by psoriasis and eczema.

**Tea tree oil:** Tea tree oil has been found to possess potent anti-inflammatory and antimicrobial properties, which have been demonstrated to be highly effective against acne. It also acts as a preservative [8].

**Rose water:** Rose water is a great natural toner for the skin. It helps to balance the skin's pH and makes the skin feel refreshed. It has anti-inflammatory and cooling properties making it an effective ingredient for reducing redness and irritation. It acts as a perfume [9].

#### **Preparation of Walnut shell powder:**

- Walnuts were collected from the market. The nuts were cleaned of any dust or impurities.
- The outer layer shells were then opened and detached from the nuts, followed by drying. After that, it was powdered.
- The powder was passed through the sieve to obtain uniform-sized particles.

following procedure:

- The ingredients were taken and dried in the shade.
- It was then cut into smaller pieces.
- The ingredients were then ground into fine powder.
- The components were weighed according to the formula specified in each of the three

- formulations.
- The weighed powders were mixed and three different formulations were developed.
- The formulated face scrub was then packaged
- in the container and labelled as F1, F2 and F3.
- After that, the various evaluation tests were done.



**Fig 2. Formulation of face scrub**

**Table 1: Formulation of Herbal Face Scrub**

Sr. No.	Ingredients	Formulation 1	Formulation 2	Formulation 3
1	Neem powder	1.5g	1.5g	2.5g
2	Aloe vera gel	2.5g	3g	2g
3	Walnut shell powder	5g	4g	3g
4	Sandalwood powder	3g	2.5g	3.5g
5	Glycerin	3ml	3.5ml	3ml
6	Orange peel powder	2g	3g	3g
7	Turmeric powder	2g	1g	1g
8	Tea tree oil	1ml	1.5ml	2ml
9	Rose water	Q.S.	Q.S.	Q.S.

**EVALUATION OF HERBAL FACE SCRUB**

The prepared face scrub was assessed for its organoleptic properties, grittiness, pH, washability and spread ability and was found to be satisfactory. The formulated scrub works well to promote healthy and glowing skin.

**A. Organoleptic Properties:**

1. Colour
2. Odour
3. Consistency

**B. Spread ability:** Two slides were taken and scrub was applied to one of the glass slides. A second glass slide was then placed on top of the scrub and 20g weight was applied to it. The amount of time it took to spread the scrub and how much of

the area it covered was measured. Spread ability was calculated by using the following formula:

$$S = \frac{m \times l}{t}$$

where,  
 S = Spread ability  
 m = Weight placed on the slide  
 l = Length of glass slide  
 t = Time taken in seconds<sup>[10]</sup>.

**Grittiness:** This test is primarily used to detect the presence of gritty particles in the formulation by applying the scrub to the skin.

**Wash ability:** This test was done by applying scrub to the skin and washing it with water after a few minutes. The formulation was found to be washable with water.

**pH:** A digital pH meter was used to determine the pH of the prepared scrub.

**III. RESULTS AND DISCUSSIONS**

**Table 2: Evaluation of face scrub**

Sr. No	Parameters	F1	F2	F3
1	Colour	Yellow	Greenish yellow	Yellowish green
2	Odour	Pleasant	Pleasant	Pleasant
3	Consistency	Good	Good	Good

4	Spreadability	Easily Spreadable	Easily Spreadable	Easily Spreadable
5	pH	6.8	6.1	6.7
6	Grittiness	Small gritty particles	Small gritty particles	Small gritty particles
7	Washability	Easily washable	Easily washable	Easily washable
8	Effectiveness	Smooth and glowing skin	Smooth and glowing skin	Smooth and glowing skin

The evaluation test was performed for all three formulations F1, F2 and F3. The ingredients used were herbal, so there were no side effects. Formulation F2 was more effective as compared to F1 and F2. It had a greenish-yellow color and a pleasant odour. The texture was good and gritty, and it could be washed with regular water. The pH was found to be 6.1, which means it is good for the skin. It can be used on all skin types.

#### IV. CONCLUSION

The goal of this study was to develop a natural face scrub that is both effective and stable, employing herbal medicinal substances as active ingredients. The prepared face scrub contains natural exfoliants that exfoliate the skin and remove tan. The herbal face scrub contains anti-bacterial and anti-microbial components such as, neem powder, tea tree oil and turmeric which provide clear and healthy skin. Compared to synthetic scrubs, the use of herbal scrubs has been found to be more advantageous. These scrubs contain natural ingredients with no adverse effects and provide an instant glow. The results of this research suggest a promising formulation of a herbal face scrub that is both safe and effective in exfoliation.

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