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FORMULATION AND EVALUTION OF HERBAL FACE MASK

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Abstract:

Herbal cosmetics have gained significant popularity in recent years due to their natural origin, minimal side effects, and therapeutic benefits. Among these, herbal face masks are widely used for maintaining healthy and radiant skin. The present study focuses on the formulation and evaluation of a herbal face mask using naturally available ingredients with proven skin-enhancing properties.

The formulation of the herbal face mask was carried out using ingredients such as neem powder, turmeric, sandalwood, multani mitti, aloe vera, and rose petals. Each ingredient was selected based on its medicinal and cosmetic properties. Neem exhibits antibacterial activity, turmeric acts as an anti-inflammatory agent, sandalwood provides cooling and soothing effects, and multani mitti helps in oil absorption and skin cleansing. Aloe vera contributes to skin hydration, while rose petals enhance skin tone and fragrance.

Keywords

1.Herbal cosmetics, 2. Herbal face mask, 3. Natural ingredients, 4. Skin care, 5. Neem powder, 6. Turmeric,7. Sandalwood, 8. Multani mitti, 9. Aloe vera, 10. Rose petals.

Introduction

Herbal cosmetics have gained significant attention in recent years due to their safety, efficacy, and minimal side effects compared to synthetic products. A herbal face mask is a topical preparation made from natural ingredients such as plant powders, extracts, and essential oils, designed to cleanse, nourish, and rejuvenate the skin. (1) The evaluation of herbal face masks is an essential step to ensure their quality, safety, and effectiveness. Various parameters such as physicochemical properties (pH, moisture content, particle size), organoleptic characteristics (color, odor, texture), stability, irritability, and washability are assessed.(1). The application process of a face pack entails the use of a smooth powder, applied as pastes or liquids, which dries and strengthens into a film. This film is left on the skin for a specified period, typically ten to twenty-five minutes, allowing the water to evaporate. Post-evapora tion, the resulting film contracts, strengthens, and becomes easy to remove(2).

Materials and Methods

Herbal Ingredients Profile

- Neem powder
- Multani Mitti
- Turmeric Powder
- Aloe Vera
- Rose water
- Glycerine

1. Neem powder

Neem powder is a natural herbal product made from the dried leaves of the neem tree (*Azadirachta indica*).
It has been used for centuries in traditional Indian medicine, especially in Ayurveda.
Neem powder is known for its powerful antibacterial and antifungal properties.
It helps in treating various skin problems like acne, eczema, and rashes.
The powder is often used in face packs to improve skin health and glow.
It helps in reducing excess oil production on the skin.
Neem powder also works as a natural cleanser and detoxifier.
It can be used to treat dandruff and promote healthy hair growth.
The antifungal nature of neem helps in preventing scalp infections(3).

2. Multani Mitti

Multani mitti, also known as Fuller's Earth, is a natural clay widely used in face masks for its excellent cleansing and oil-absorbing properties. It has been a popular ingredient in traditional skincare routines, especially for people with oily and acne-prone skin.(4)

Multani mitti helps to remove excess oil (sebum) from the skin, preventing clogged pores and reducing the chances of acne and pimples. When used as a face mask, it deeply cleanses the skin by drawing out dirt, impurities, and toxins from the pores. This makes the skin feel fresh, clean, and rejuvenated.(5).

3. **Aloe Vera**

Aloe vera, scientifically known as Aloe vera, is a popular natural ingredient used in face masks due to its soothing, hydrating, and healing properties. It contains vitamins A, C, and E, which help nourish the skin and promote a healthy glow. Aloe vera gel is widely used in skincare because it is gentle and suitable for most skin types, including sensitive skin.One of the main benefits of aloe vera in face masks is its ability to deeply moisturize the skin without making it oily. This makes it especially useful for people with dry or combination skin. It also has anti-inflammatory properties that help reduce redness, irritation, and swelling, making it effective for soothing sunburns and acne-prone skin(6).

3. Turmeric powder

Turmeric powder, obtained from the rhizome of the plant *Curcuma longa*, is widely used in skincare, especially in face masks, due to its medicinal and cosmetic benefits. It has been an essential ingredient in traditional remedies and Ayurvedic practices for centuries.

Turmeric contains an active compound called curcumin, which has strong anti-inflammatory and antibacterial properties. When used in a face mask, turmeric helps reduce acne by fighting acne-causing bacteria and calming inflamed skin. It is also effective in reducing redness, swelling, and irritation, making it suitable for sensitive and problematic skin(7).

One of the major benefits of turmeric powder in face masks is its ability to brighten the skin. It helps improve complexion and gives a natural glow by reducing dullness and uneven skin tone. Turmeric is also known to help in reducing hyperpigmentation, dark spots, and blemishes over time(8).

4. Rose water

Rose water is a natural skincare ingredient made by distilling rose petals with steam. It is widely used in face masks because of its soothing, hydrating, and refreshing properties. Rose water is suitable for all skin types, including sensitive skin, as it helps maintain the skin's natural pH balance(9).

Rose water also has mild antibacterial and anti-inflammatory properties, which help reduce acne, redness, and skin irritation. It tightens pores and acts as a natural toner, giving the skin a firm and youthful appearance. Additionally, its antioxidant properties help protect the skin from damage caused by free radicals and environmental pollution(10).

5. Glycerine

Glycerine (also known as glycerol) is a colorless, odorless liquid widely used in skincare, especially in face masks, due to its excellent moisturizing properties. Chemically, glycerine is a humectant, which means it attracts water from the environment and deeper layers of the skin to the outer surface. This helps keep the skin hydrated, soft, and smooth(11).

When used in face masks, glycerine plays an important role in maintaining skin moisture balance. It prevents dryness and flakiness, making it highly beneficial for people with dry and sensitive skin. Glycerine also forms a protective barrier on the skin, which helps to lock in moisture and protect against environmental pollutants(12). Glycerine is often mixed with natural ingredients such as honey, rose water, aloe vera, or lemon juice to create effective face masks. For example, a simple face mask can be prepared by mixing glycerine with rose water and applying it to the face for 15–20 minutes. This helps to hydrate the skin and improve its overall texture(13).

6. Liquorice powder

Liquorice powder, derived from the root of *Glycyrrhiza glabra*, is widely used in face masks for its skin-brightening and soothing properties. It is a popular ingredient in herbal and Ayurvedic skincare due to its ability to improve complexion and reduce pigmentation(14). One of the main benefits of liquorice powder in face masks is its ability to lighten dark spots and hyperpigmentation. It contains an active compound called glabridin, which inhibits the enzyme responsible for melanin production. This helps in achieving a more even skin tone. Regular use of liquorice-based face masks can gradually reduce tanning and blemishes(15). Liquorice powder also has anti-inflammatory properties that help calm irritated or sensitive skin. It is useful for people suffering from redness, sunburn, or mild skin conditions. When applied as a face mask, it soothes the skin and provides a cooling effect(16).

Method of Preparation

Formulation of Herbal Face Pack

. The dried materials are then finely powdered using a grinder and passed through a sieve to obtain uniform particle size(17). These powders are mixed homogeneously and stored in an airtight container to prevent moisture contamination. For application, the powder mixture is combined with suitable liquid media such as rose water, milk, or plain water to form a smooth paste, which is then applied evenly to the face and left for 10–20 minutes before rinsing(18). This herbal formulation helps in cleansing, reducing acne, controlling oil, and improving overall skin texture due to the synergistic effect of bioactive compounds present in the herbs. Proper

formulation ensures stability, efficacy, and user safety, making herbal face packs a popular natural cosmetic preparation(19).

Table 1. Ingredients for Herbal Face Pack

↗ Sl. No.	Ingredients (In powder form)	Quantity 10g
1	Neem	2g
2	Multani mitti	3g
3	Turmeric powder	4g
4	Aloe vera	3g
5	Papaya	2g
6	Liquorice	2g
7	Rose water	Q.S

↗

The procedure of face pack application

Figure : formulated face pack

Method of Evaluation of Herbal Face Mask

1. Organoleptic Evaluation

This involves assessing the physical appearance using sensory organs.

Procedure:

- Take a small quantity of the herbal face mask.
- Observe:
  - Colour
  - Odor
  - Texture
  - Appearance (smooth/coarse)
- Record observations.

2. Physicochemical Evaluation

a) pH Determination

Procedure:

- Prepare 1% solution of face mask in distilled water.
- Use a calibrated digital pH meter.
- Record pH value.

Ideal Range:

- pH 5–7 (skin-friendly)

b) Moisture Content

Procedure:

- Weigh a known quantity of sample.
- Dry in hot air oven at 105°C.
- Reweigh after constant weight is achieved.

Formula:

Moisture Content (%) =

$$\frac{Initial\ eight - Final\ eight}{Initial\ eight} \times 100$$

c) Ash Value

Procedure:

- Incinerate sample in a silica crucible at 500–600°C.
- Cool and weigh.

Purpose:

Determines inorganic content.

3. Particle Size Analysis

Procedure:

- Use sieve analysis method.
- Pass powder through standard sieves.
- Determine uniformity.

Purpose:

Ensures smooth application on skin.

4. Spread ability Test

Procedure:

- Place sample between two glass slides.
- Apply weight on upper slide.
- Measure time required to spread.

Formula:

$$S = \frac{M \times L}{T}$$

Where:

- S = Spreadability
- M = Weight tied
- L = Length moved
- T = Time taken

5. Irritancy Test

Procedure:

- Apply a small amount on dorsal surface of hand.
- Leave for 24 hours.
- Observe for:
  - Redness
  - Itching
  - Swelling

Purpose:

To ensure safety for skin.

6. Washability Test

Procedure:

- Apply mask on skin.
- Allow to dry.
- Wash with water.

- Observe ease of removal.

Purpose:

Consumer convenience.

7. Stability Study

Procedure:

- Store product at different conditions:
  - Room temperature
  - 40°C ± 2°C
  - Refrigerated condition
- Observe for 1–3 months:
  - Colour change
  - Odor change
  - Phase separation

Purpose:

To ensure shelf-life and stability.

8. Microbial Load Test

Procedure:

- Perform total viable count using agar plates.
- Incubate and count colonies.
- Organoleptic evaluation
- Herbal face pack was evaluated for organoleptic parameters displayed in the Table 2. The colour of prepared formulation was brown. The odour of prepared formulation was pleasant and good acceptable which is necessary to cosmetic formulations. Organoleptic evaluation of a herbal face mask involves the assessment of its physical characteristics using the sense organs to ensure quality, uniformity, and consumer acceptability. In this method, a small quantity of the prepared herbal face mask is visually and sensorially examined for parameters such as color, Odor, texture, appearance, and feel. The colour should be natural and uniform without any discoloration, while the Odor should be pleasant and characteristic of the herbal ingredients without any foul smell. The texture is evaluated by touch to determine whether the powder or paste is smooth, fine, and free from coarse particles or lumps. The appearance is checked for homogeneity and absence of foreign matter.
- Make-Up & Cosmetics

Table 2. Organoleptic Evaluation

↗ Sl. No.	Parameter	Observation
1	Colour	Brown

2	Odour	Pleasant
3	Appearance	Smooth, fine
4	Texture	Fine
5	Smoothness	Smooth

- Herbal face pack was evaluated for powder property. showed in Table 3. Rheological findings defensible the flow properties of herbal face pack. It was found to be free flowing and non- sticky in nature.

Table 3. Rheological Evaluation

↗ Sl. No.	Parameter	Observation
1	Bulk density	0.45g/ml
2	Tapped density	0.58g/ml
3	Angle of repose	31^0
4	Hausner's ratio	1.28
5	Carr's index	22.41%
6	Particle size	22.66

- **Observation**
- During the evaluation of the herbal face mask, various parameters were observed to assess its quality and suitability for skin application. The formulation showed a pleasant color, characteristic odor, and smooth texture, indicating good organoleptic properties. The pH of the prepared solution was found to be within the acceptable range of skin compatibility (approximately 5–7), suggesting that it is non-irritating to the skin. The moisture content was minimal, which indicates better stability and reduced chances of microbial growth. The ash value was within permissible limits, confirming low inorganic impurities. Particle size analysis revealed a fine and uniform powder, ensuring smooth application and good spreadability. The bulk density and tapped density values indicated good flow properties of the powder. The spreadability test showed that the mask spreads easily on the skin, forming a uniform layer. No signs of irritation, redness, or itching were observed during the irritancy test, confirming its safety. Overall, the herbal face mask was found to be stable, safe, and suitable for cosmetic use.

- **Result**

The formulation showed acceptable color, odor, and texture. The pH was found to be within the skin-friendly range. No irritation was observed. The formulation remained stable during the study period.

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