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Herbo Glow: Formulation and Evaluation of a Botanical Face Pack

Research Article

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Abstract

Aim/Objectives: The main goal of this research was to create and test a herbal face pack that would improve the health and appearance of the skin by utilising all-natural components. The goal of the research is to create a face pack out of all-natural herbs as a substitute for manufactured cosmetics. Materials: As for the contents, we formulated it using a blend of popular herbal herbs that are well recognised for their beneficial effects on the skin. The skin-nourishing, antibacterial, and brightening characteristics of turmeric, neem, sandalwood, orange peel, and rose petals were among them. Multani mitti, also known as Fuller's Earth, was one of them. Methods: A fine face pack formulation was created by drying, powdering, and blending the chosen herbs in the suitable amounts. Testing for organoleptic properties, particle size, pH, smoothness, spreadability, grittiness, and stability were all part of the physicochemical assessment of the finished product. Furthermore, patch testing was used to assess irritancy in the participants. Results: The physical properties of the herbal face pack were found to be desirable, including a fine texture, an appropriate pH, decent spreadability, and the absence of grittiness. After 30 days, the product's physical and chemical properties had not changed. While testing on volunteers, we did not find any indications of skin irritation or negative consequences. Discussions: The findings indicate that the herbal face pack offers the intended cosmetic advantages, such nourishing the skin, enhancing its radiance, and washing it, without the hazards of synthetic ingredients. Using only pure herbal powders guarantees that the composition is safe, biocompatible, and effective. Conclusion: In conclusion, the results show that it is possible to create and test a cosmetic face pack that is completely herbal. To keep skin healthy and radiant, the mixture provides an alternative to synthetic cosmetic face packs that is safe, natural, and effective.

Keywords: Herbal Face Pack, Natural Ingredients, Skin Nourishment, Cosmetic Formulation, Glowing Skin.

Introduction

Cosmetics are described as items designed for washing, beautifying, or augmenting one's look. Although synthetic cosmetics prevail in the market, apprehensions over chemical-induced skin irritation, chronic toxicity, and environmental consequences have generated interest in herbal alternatives. Historically, herbs have been used in cosmetics for their natural bioactive chemicals, providing therapeutic advantages including anti-inflammatory, antibacterial, and antioxidant properties. Contemporary dermatological concerns, including acne, blackheads, pimples, and dark circles, are often ascribed to variables such as oxidative stress, microbial activity, and inadequate skin cleanliness (2).

Ayurvedic teachings assert that several skin illnesses originate from blood impurities, often caused by inadequate food and lifestyle choices. Herbs like as Manjistha (Rubia cordifolia) and Chandana (Santalum album) are conventionally acknowledged for their blood-purifying and skin-calming attributes. These botanical substances are the foundation of "mukhalepa" - an Ayurvedic facial treatment that employs the topical use of herbal pastes to address skin ailments and improve complexion (6).

This study's selection of herbal constituents was informed by both traditional Ayurvedic knowledge and their pharmacological significance. Ingredients were selected for their proven effectiveness in treating prevalent skin issues and their capacity to provide vital nutrients via transdermal absorption. The objective was to develop a face pack that nourishes the skin, improves microcirculation, and fosters a natural radiance without the negative effects of synthetic substances (8).

Herbal face packs operate via many mechanisms: cleaning skin pores, tightening tissues, absorbing excess oil, and delivering a calming and revitalising impact. Upon drying, these formulations create a film that compresses and eliminates collected debris and dead cells upon removal. Due to its transient effects, consistent application (2–3 times weekly) is advised for prolonged skin health and aesthetics. Consequently, the present formulation seeks to integrate scientifically substantiated herbs into a synergistic composition to provide a safe and effective option for regular skincare (8, 11, 12, 14).

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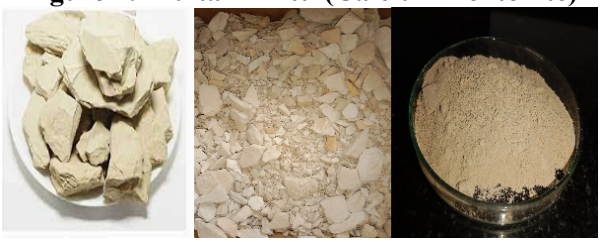
Materials and Methods

The crude drugs used in this study of our research were procured from the nearby local area. The entire ingredient used were cleaned, washed, dried and powdered finely for preparation of face pack. The following ingredients were used for preparation of this herbal face pack formulation.

Multani Mitti (Calcium Bentonite)

Multanimitti helps skin in different way like diminishing pore size, removing blackheads and whiteheads, soothing sunburns, cleaning skin, improving blood circulation, complexion, reducing acne and blemishes and gives a glowing effect to a skin as they contain healthy nutrients. Its cooling action soothes the skin, and give relief to inflammation caused by aggravated pitta. It removes dirt and dead skin cells accumulated and replace with fresh radiant and glowing skin.

Figure 1: Multani Mitti (Calcium Bentonite)



Neem (*Azadirachta Indica*)

Neem has antibacterial, anti-inflammatory, antiseptic and highly beneficial for acne prone skin and oily skin. An Antiacneproperty is due to the antioxidant, anti-inflammatory and anti-microbial activity of various phyto-constituents of neem.

Neem is very popular as a medicinal plant. And its leaves and extracts are commonly used for their antiseptic, anti-inflammatory, antioxidant, and healing properties. It is a great source of fatty acids, vitamins, and minerals that are all needed for healthy skin. Moreover, neem contains active constituents like nimbidin, nimbolide and azadirachtin that can help to get rid of many skin problems.

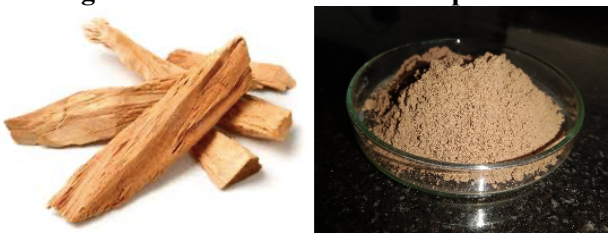
The anti-bacterial and anti-fungal properties of neem protect the skin and help in lightening the blemishes or scars left behind by acne or pimples.

Figure 2: Neem and its powder

Sandal wood (*Santalumalba*)

Sandalwood has an anti-tanning and anti-aging property. It also helps skin in many ways like toning effect, emollient, antibacterial properties, cooling astringent property, soothing and healing property. (12) Sandalwood protects the skin against the impact ofenvironmental pollution and keep the skin cool, fair and healthy. Sandalwood is helpful Ayurvedic herb withantimicrobial properties is used for healing various skin problems and removes scars.

Fig. 3: Sandal wood and coarse powder



Rose petals powder

Rose is rich with anti-bacterial potential. It also have good amount of antioxidants. Helpful to get a radiant and glowing skin. Dried rose petals or rose water is one of the age-old magic blessings for beauty and cosmetics as a very herbal and natural approach. Amazing anti-bacterial properties of rose petals can reduce skin irritations, and redness and help to reduce acne troubles. It's also having powerful antiseptic properties which is why many medicines have rose petal extractions. Its sweet-smelling rose scent actually has antidepressant and antianxiety properties, which can help as a mood enhancer and relax you from anxiety when you apply it as a mask on the face or hair.

It also helps to sleep better. It hydrates and moisturizes the skin, delivering a rejuvenated and radiant face and skin. It has anti-aging properties, which is able to decrease the glances of wrinkles upon daily usage. Rose petal powder is extremely safe to use with no threats, except if you are allergic to roses. (7)

Fig. 4: Dried rose petals powder

Table 1: Composition of the herbal face pack formulation, detailing the ingredients, their respective quantities for a 50 g batch, and associated dermatological activities (6)

Sr. No.	Name of Ingredients	Quantity (For 50gm)	Activity
1	Multanimitti powder	24gm	Complexion
2	Neem leaves powder	12gm	Antiacne, antimicrobial
3	Sandal wood powder	7gm	Anti-tanning, Soothing agent
4	Rose petals powder	7gm	Anti-aging agent

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Figure 5: Formulation ingredients

Method

Concentration of each ingredient was mentioned in Table 1. The accurate quantity of ingredients was weighed and ground into fine powder by using sieve no.120. Then all the ingredients were mixed uniformly. Then the prepared face pack was stored and labelled for further studies or tests.

Procedure for Face Pack Application

- Formulation was prepared according to Table no.1.
- Take prepared face pack powder in a bowl as per requirement, add water (rose water) to mix it well up-to forming a smooth paste.
- Apply this paste over a face skin which covers acne, blackheads and whiteheads.
- Keep it for 20-30 Min and then wash the face with cold water.

Evaluation (6, 11)

To evaluate the goodness of our prepared face pack we performed following evaluation parameter.

Organoleptic Evaluation

Physical Parameter of our face pack such as colour, odour, appearance and texture were checked visually.

Physical Evaluation

Total Ash

Place about 2 g of ground air dried material, accurately weighed, in a previously ignited and tared crucible (usually of platinum or silica). Spread the material in an oven layer and ignite it by gradually increasing the heat to 500-600 °C until itis white, indicating the absence of carbon. Cool in a dessicator and weigh. If carbon-free ash cannot be obtained in this manner, cool the crucible and moisten the residue with about 2 ml of water or a saturated solution of ammonium nitrateR. Dry on a water-bath, then on a hot-plate and ignite to constant weigh. Allow the residue to cool in a suitable dessicator for 30 min ad then weigh without delay. Calculate the content of total ash in mg per g of air-dried material.

Determination of Moisture Content

Weigh about 2 gm of powdered face pack into a weighed flat and thin porcelain dish. Dry it in Hot Air Oven at 100 °C-105°C, until two consecutive weighing do not differ by more than 0.5 mg. Cool in dessicator and weigh the loss in weight is usually recorded as moisture.

Particle Size

Particle size is a parameter, which affect various properties likespread ability, grittiness, etc., particle size was determined bysieving method by using I.P. Standard sieves by mechanicalshaking for 10 min.

Angle of Repose

The angle of repose is used to quantify the flow properties of powder because it influences cohesion among the particles. The fixed funnel cone method employs the calculation of height (H) above the glass paper that is placed on a flat tabular surface. The powdered was carefully poured through the funnel till the peak of the conical heap just touched the tip of the funnel.

For the above method, the angle of repose (¢) can be calculated by using the formula.

$$¢ = \tan^{-1}(H/R)$$

Where, ¢ - Angle of repose, H - Height of the heap, R - Radius of the base

Bulk Density

Bulk Density is the ratio between the given mass of a powder and its bulk volume. Required amount of the powder is dried and filled in a 50 ml measuring cylinder up to 50 ml mark. Then the cylinder is dropped onto a hard wood surface from a height of 1 inch at 2 sec intervals. The volume of the powder is measured. Then, the powder is weighed. This is repeated to get average values. The Bulk Density is calculated by using the below given formula.

$$\text{Bulk Density} = \text{Mass/Volume}$$

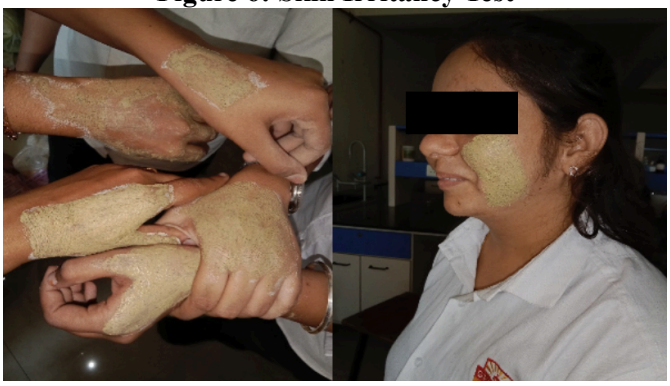
Tapped Density

Tapped density is an increased bulk density attained after mechanically tapping a container containing the powder sample. After observing the initial powder volume or mass, the measuring cylinder or vessel is mechanically tapped for 1min and volume or mass readings are taken until little further volume or mass change was observed. It was expressed ingrams per cubic centimetre (g/cm3).

Irritancy test

Mark an area (1sq.cm) on the left hand dorsal surface. Definite quantities of prepared face packs were applied to the specified area and time was noted. Irritancy, erythema & edema, was checked and reported.

Figure 6: Skin Irritancy Test



Stability studies

Stability testing of prepared formulation was conducted by storing at different temperature conditions for the period of one month. The packed glass vials of formulation stored at different temperature conditions using stability chamber viz., Room temperature, 35ºC and 40ºC and were evaluated for physical parameters like Colour, Odor, pH, Consistency and feel.20

Washability

This is the common method for checking the washability of the formulation were applied on the skin and then ease and extent of washing with water were checked manually by using 1 litre of water is used to remove all content of the formulation were applied on the surface.

Figure 7: Formulation (Herbal face pack)

Results and Discussion

The result of evaluation test carried out of a face pack which includes nature, colour, odour, taste, texture, ash values, mixture, contents and pH of dried powder provide information about organoleptic and physiochemical evaluation.

Table 2: Evaluation of Herbal Face Pack

Sr. No.	Evaluation Parameter	Observation
Organoleptic evaluation		
1	Appearance	Powder
2	Colour	Yellowish brown
3	Odour	Pleasant
4	Taste	Characteristic
5	Texture	Fine
Physicochemical evaluation		
1	Total ash	1.58 gm
2	Acid insoluble ash	0.21 gm
3	Moisture content (LOD)	0.38
4	pH	7.3
General powder characteristics		
1	Particle size by SEM (Scanning Electron Microscopy)	25 -30 µm
2	Angle of Repose	1.125^0
3	Bulk density	10 gm/ml
4	Tapped density	2.7 gm/ml
5	Grittiness	No gritty particles were found when mixed with water
6	Nature of face after wash	Soft and fresh, Clean from dirt.
Irritancy test		
1	Irritation	No irritation observed
2	Redness	No Redness observed
3	Swelling	No swelling observed

Conclusion

This study's findings indicate that the developed herbal face pack provides several skin advantages due to the bioactive phytochemicals included in the chosen components. The face pack demonstrated advantageous physicochemical characteristics, including a smooth texture, acceptable pH for facial skin, homogenous particle size, and excellent spreadability. No indications of irritation were noted during patch testing, demonstrating its safety for topical use. Anecdotal response from participants indicated improvements in skin smoothness, luminosity, and a decrease in acne severity with consistent use.

The discovered benefits, including antibacterial, anti-acne, and anti-wrinkle capabilities, may be scientifically linked to the active compounds found in the herbal components. Neem and turmeric are known for their antibacterial and anti-inflammatory properties, whilst Multani mitti aids in oil absorption and exfoliation. These results correspond with the known dermatological characteristics of the used herbs.

The research confirms that the formulated herbal face pack is cost-efficient, non-toxic, and beneficial in improving skin health by restoring shine, boosting texture, and preventing acne. The formulation satisfied all assessed criteria, indicating its viability as a safe and natural substitute for synthetic cosmetic items.

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