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Research Article

Formulation, Development, And Optimization Of Polyherbal Face Pack For Skin Ailments

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ABSTRACT

This work aims to formulate and evaluate an herbal face pack for radiant skin using natural herbal ingredients. Natural herbal ingredients like multani mitti, turmeric, sandalwood, aloe vera, gram flour, orange peel powder, neem powder, saffron, nutmeg powder, Masoor dal powder, and moong dal powder were purchased from the local market in the form of dried powder. All powdered natural ingredients were sieved using #120 mesh, accurately weighed, and geometrically mixed for uniform formulation and then evaluated for parameters including organoleptic, physicochemical, physical, phytochemical, and irritant along with stability test. The dried powder of the combined form had a thorough fluidity which is suitable for wrapping. Herbal face packs or masks are used to stimulate blood circulation, rejuvenate muscles, help maintain skin elasticity, and remove impurities from skin pores. In this study, it was concluded that all face pack formulations were found to have good physical parameters and no skin irritation, so we found that the packs have good properties, further optimization studies are required in this study to find useful benefits. face packs for human use as a cosmetic product.

INTRODUCTION

Nowadays, Acne, blackheads, pimples, and dark circles are common among youngsters and people who suffer from them. According to Ayurveda, Skin problems are normally due to impurities in blood. Accumulated toxins in the blood during improper food and lifestyle are causing skin-related diseases. Various herbs and medicines are described in Ayurveda for blood purification.

Herbs like Manjistha, Lodhra, Chandana, Haridra, etc. are good examples of blood purifiers.1 Cosmetics are commercially available products that are used to improve the appearance of the skin by action of cleansing, beautifying, and promoting attractiveness. From ancient times, different herbs have been used for cleaning, beautifying, and managing them. Face skin is the major part of the body, which indicates the health of an individual.

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It consists of materials such as amino acids, lipids carbohydrates, etc. So balanced nutrition is required for the skin to keep it clear glossy and healthy. In Ayurveda, the herbal paste is called "mukha lepa" used as a facial therapy. This herbal paste is smeared on the face to treat acne, pimples, scars, marks, and pigments. The face pack is a smooth powder that is used for facial application. These preparations are applied on the face in the form of liquid or pastes and allowed to dry and set to form film giving a tightening, strengthening, and cleansing effect to the skin. They are usually left on the skin for ten to twenty-five minutes to allow all the water to evaporate, the resulting film thus contracts and hardens and can easily be removed. The warmth and tightening effect produced by the application of a face pack produces the stimulating sensation of a rejuvenated face, while the colloidal and adsorption clays used in these preparations remove the dirt and grease from the skin of the face. When the applied face pack is eventually removed skin debris and deposited dirt gets removed with it. Face packs are additives that deliver some additional benefits. Different types of herbal face packs are used for different types of skin. Herbal face packs help to reduce wrinkles, pimples, acne, and dark circles. Also, increases the fairness and smoothness of skin. It also helps someone to boost their confidence. Ayurveda is the most useful and successful means for achieving this purpose these packs are available in various types and forms and are broadly classified into the following categories:

1. Plastic masks: wax-based, latex-based, or vinyl-based
2. Hydrocolloid masks: Gel masks
3. Argillaceous masks: Clay-based or earth-based

The present research article deals with the formulation and evaluation of an herbal face pack for glowing skin by using natural materials i.e.,

multani mitti, turmeric, sandalwood, saffron, gram flour, orange peel, Red lentils, Yellow lentils, Neem powder, Aloe vera powder, Nutmeg.

Benefits of Face Pack application²

1. Face packs usually remove dead cells from the skin.
2. These face masks provide a soothing and relaxing effect on the skin.
3. They help to restore the lost shine and glow of skin in a short period.
4. Regular use of natural face masks brings a glow to the skin and improves skin texture and complexion.
5. The harmful effects of pollution and harsh climates can be effectively combated with the judicious use of face packs.
6. They help to prevent premature aging of the skin.
7. The formation of wrinkles, fine lines, and sagging of the skin can be effectively controlled by using natural face packs.

Ideal features and characteristics of a facial mask

- It must be a smooth paste or gel without flocculation or granulated particles.
- Must not have an "earthy" or questionable smell.
- It should form a tight layer that can be easily removed with a gentle wash.
- It should produce a definite sensation of tension or therapeutic tingling or warming.
- It should produce a noticeable change in the sensation of the skin.
- It should produce a significant and remarkable cleaning of the skin.
- Must be non-toxic, dermatologically harmless, and properly preserved.

MATERIALS AND METHODS

This research work deals with the formulation and evaluation of an herbal face pack for glowing skin using natural ingredients i.e. multani mitti, turmeric, sandalwood, aloe vera, gram flour, orange peel powder, neem powder, saffron,



nutmeg powder, Masoor he gave powder and used in the formulation of the herbal face pack are
moog gave powder. They were purchased at the given below.
local market. The details of the natural ingredients

Table 1: Ingredients of Herbal Face Pack

Sr. No.	Common Name	Category
1	Multani Mitti	Remove all the impurities and dead skin cells. It will help to make skin radiant and excellent for irritating skin, soothe the skin fresh radiant, and glowing skin.
2	Turmeric	Anti-bacterial, Anti-septic, improves skin color.
3	Sandalwood	Anti-tanning Property, Anti-aging Property, Skin Softening Effect, Pimple and Acne Treatment, Clear Complexion.
4	Aloe Vera	Antiseptic, Antioxidant, soothing effect to the skin. Moisturizing Agent.
5	Gram Flour	Tan removal, anti-bacterial, reduces redness and irritation
6	Orange Peel	Cell buildup around the pores enhances the shadows and makes the pores appear larger while dehydration adds a cellophane-like sheen to the skin, enhancing a rough texture and pore appearance.
7	Neem	Antibacterial, antifungal, antiseptic
8	Saffron	A soothing agent that improves the complexion and skin tone, Treats dry skin, Removes suntan, and treats acne.
9	Nutmeg	Treat Acne and spots Smoothing, cooling effect and improves fairness, reduces rashes, burns, and infections.
10	Masoor Dal	Antioxidant, Anticancer, Hypolipidemic, Antidiabetic.
11	Moong Dal	Anti-inflammatory, Antioxidant, Antimicrobial.

Method of Preparation

The powdered dried natural ingredients were sieved using #120 mesh, weighed accurately, and mixed geometrically for uniform formulation

mentioned in Table 2. The prepared face pack was then stored in an air-tight container for evaluation of various parameters.³

Table 2: Composition of Herbal Face Pack

Sr. No.	Name of Ingredients	Scientific Name	Quantity of sample for 100g
1	Multani Mitti	Calcium Bentonite	10
2	Turmeric	Curcuma Longa L.	10
3	Sandalwood	Santalum album L.	10
4	Aloe Vera	Aloe barbadensis	10
5	Gram Flour	Cicer arietinum L.	10
6	Orange Peel	Citrus reticulate	10
7	Neem	Azadirachta indica A.Juss.	10
8	Saffron	Crocus sativus L.	5
9	Nutmeg	Myristica fragrans Houtt.	5
10	Masoor Dal	Lens culinaris	10
11	Moong Dal	Vigna radiate L.	10



Fig.1: Formulated Face Pack

Procedure for application of face pack

The pack should be applied daily on a wet face, forming a paste of it in water with optimum thickness. It should be applied evenly on the face with the help of a brush. It should be left for 15 minutes for complete drying. Then it should be removed with the help of a wet sponge.⁴

EVALUATION OF FACE PACK

The following evaluation parameters were performed to ensure the superiority of the prepared face pack:

Organoleptic Evaluation

It refers to the evaluation of the herbal face pack by its color, odor, appearance, texture, etc.

Physicochemical evaluation

Different physicochemical parameters were evaluated as follows.

1. pH

Computation of the pH was done by using a digital pH meter which was initially calibrated at pH 7 and 9.2 with appropriate buffer solution. The test sample consisting of 10 percent (w/v) dispersion of the product in water was poured into a glass beaker and pH was determined directly without any dilution within 5-10 minutes.

2. Loss on Drying

Insufficient drying may lead to possible enzymatic deterioration of active principles hence determination of moisture content is an important parameter for the herbal drugs. Weigh accurately

about 3 gm of powder drug in a petri dish place in a hot air oven and measure the weight after 30 minutes up to standard weight.

3. Ash value

Enumeration of ash value is carried out to determine the inorganic contents that are characteristic of an herb. In the previously ignited and weighed crucible dish, about 2 gm of face pack powder was taken and the temperature was elevated by gradual increment in the heat but not exceeding red color. After complete burning, the ash is cooled and weighed.

Physical evaluation

The particle size was tested by microscopy method. The flow property of the dried powder of combined form was evaluated by performing the Angle of Repose by funnel method, bulk density, and tapped density by Tapping Method.

1. Angle of Repose

The required amount of dried powder is placed in a cylindrical tube open at both ends on a horizontal surface. Then the funnel should be raised to form a heap. The height and radius of the heap are noted and recorded. For the above method, the angle of repose (θ) can be calculated by using the formula,

$$\theta = \tan^{-1} (h/r)$$

Where, θ - Angle of repose,

h - Height of the heap,

r - Radius of the base.

2. Bulk Density

It is the ratio of a given mass of powder and its bulk volume. It is determined by transferring an accurately weighed amount of powder sample to the graduated cylinder with the aid of a funnel. The initial volume was noted. The ratio of weight of the volume it occupied was calculated by using the formula, Bulk density = mass of powder/volume of powder.

3. Tapped Density

It is measured by transferring a known quantity (10 gm) of powder into a graduated cylinder and tapping it a specific number of times. The initial

volume was noted. The graduated cylinder was tapped continuously for a period of 10-15 min. The density can be determined as the ratio of the mass of the powder to the tapped volume.

Tapped density = mass of powder/tapped volume

4. Hausner's ratio

It indicates the flow property of the powder. The ratio of tapped density to the bulk density of the powder is called Hausner's ratio.^{5,6}

Hausner ratio= Tapped density\ Bulk density

Phytochemical evaluation

The aqueous extract of the herbal face pack was evaluated for the presence of different phytoconstituents as per the standard procedures.

1. 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, erythematic, and edema were checked if any for regular intervals up to 24 hrs. and reported.

2. Stability studies

Stability testing of the prepared formulation was conducted by storing it at different temperature conditions for the period of one month. The packed glass vials of formulation were stored at different temperature conditions like room temperature and 40oC and were evaluated for physical parameters like color, odor, pH, consistency, and feel.⁷

RESULT AND DISCUSSION

The following evaluation parameters were performed to ensure the superiority of the prepared face pack.

Organoleptic Evaluation

Herbal face pack was evaluated for organoleptic parameters shown in Table 3. The color of the formulation was Brown. The odor of prepared formulations was pleasant and acceptable which is desirable for cosmetic formulations. Texture and smoothness were acceptable as per the requirement of cosmetic formulations.⁸

Table 3: Organoleptic Evaluation

Sr. No	Parameter	Observation
1.	Color	Slight brownish
2.	Odor	Pleasant
3.	Appearance	Smooth, fine
4.	Texture	fine
5.	Smoothness	smooth

Physicochemical Evaluation

Herbal face pack was evaluated for physicochemical parameters shown in Table 4. The pH of the formulation was found close to neutral. The ash content and moisture content were within the limit. The particle size of formulations was found in the range of 24.3±2.5µm.

Table 4: Physicochemical Evaluation

Sr. No	Parameter	Observation
1.	pH	6.92
2.	Loss on Drying	2.9
3.	Ash content	89 ± 0.352
4.	Particle size (µm)	24.3±2.5

Phytochemical Evaluation

The herbal face pack was evaluated for phytochemical parameters shown in Table 5. It was found to be a presence of phytoconstituents such as carbohydrates, alkaloids, glycosides, tannins, and volatile oil which act as good nourisher for the skin.⁹

Table 5: Phytochemical evaluation

Sr. No	Phytoconstituents	Observation
1.	Carbohydrates	+
2.	Alkaloids	+
3.	Glycosides	+
4.	Tannins	+
5.	Volatile oil	+

Physical Evaluation

The herbal face pack was evaluated for physical parameters (powder property) shown in Table 6. Rheological findings justified the flow (powder) properties of the herbal face pack. It was found to be free-flowing and non-sticky in nature.

Table 6: Evaluation of flow properties

Sr. No.	Parameter	Observation
1	Tapped density	1.326gm/ml
2	Bulk density	1.09gm/ml
3	Angle of repose	32.510
4	Hausner's ratio	1.232



5	Carr's index	22.93%
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Irritancy Test

The results of the irritancy test are shown in Table 7. The formulation showed the absence of irritation, redness, and swelling during irritancy studies. This formulation is safe to use on the skin.^{10,11}

Table 7: Irritancy Test

Sr. No.	Parameter	Observation
1.	Irritation	No
2.	Redness	No
3.	Swelling	No

Stability Studies

The results of stability are shown in Table 8. No change in color, odor, texture, and smoothness was observed at mentioned conditions of stability except pH. The stability studies showed a slight change in the pH of the formulation at 40°C.¹²

Table 8: Stability Test

Sr. No	Parameter	Room Temperature	40°C
1.	Color	No Change	No Change
2.	Odor	No Change	No Change
3.	PH	6.92 ± 0.12	6.87 ± 0.13
4.	Texture	Fine	Fine
5.	Smoothness	Smooth	Smooth

CONCLUSION

Natural remedies are more acceptable in the belief that they are safer with fewer side effects than synthetic ones. Growing demand for herbal preparations on the world market. Herbal face packs are used to stimulate blood circulation, rejuvenate muscles, help maintain skin elasticity, and remove impurities from skin pores. It is a good attempt to make an herbal face pack containing natural herbal ingredients like Multani mitti, turmeric, sandalwood, Aloe vera, gram flour, orange peel powder, Neem powder, saffron, nutmeg powder, Masoor dal powder, and moong dal. After evaluation, we found good properties of facial wraps that do not cause skin irritation and retain their consistency even after stable storage conditions. The herbal face pack has been found to have enough potential to provide an effective

glowing effect on the skin. The overall study is useful for substantiating product claims for its beneficial benefits to humans.

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