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## Preparation and Evaluation of Polyherbal Face Pack as a Cosmetic



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### ABSTRACT

Herbal products are largely prepared in the recent time. From herbal preparation gets good responses. The objective of this work is to formulate and evaluate a cosmetic herbal face pack for glowing skin by using natural ingredients with varying concentrations, four different formulations containing ingredients such as Multani mitti, turmeric, aloe vera, sandalwood, orange peel, neem, and nutmeg. Four different formulations were prepared with varying concentrations of all ingredients named F1 to F4. The concentration of each ingredient was mentioned in Table No. 2. The accurate quantity of ingredients was weighed and ground into fine powder by using sieve 120. Then all ingredients were mixed geometrically by the serial dilution method for uniform mixing. Formulations were prepared named as F1 to F4. All prepared formulations were evaluated by different parameters like organoleptic properties, physicochemical parameters, stability along with irritancy test, and microbial load. Among all formulation, F2 was found to be potent in physical parameters, free from skin irritation, and maintained its consistency even after stability storage conditions and also having microbiological stability. Herbal ingredients opened the way to formulate cosmetics without any harmful effects. Herbal face packs are considered as sustaining and productive way to advance the appearance of skin.



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## INTRODUCTION

Cosmetics are commercially available products that are used to improve the appearance of the skin by the action of cleansing, beautifying, promoting attractiveness. From ancient times, different herbs are used for cleansing, beautifying, and to manage them. Face skin is a major part of the body, which indicates the health of an individual [1-2]. It consists of content such as amino acids, lipids, and carbohydrates, etc. So that balanced nutrition is required for the skin to keep it clear glossy and healthy [3]. In Ayurveda, the herbal paste is called “mukhalepa” used as a facial therapy. This herbal paste is smeared on the face to treat acne, pimple, scars, marks, and pigments [4].

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 tightening, strengthening, and cleansing effect to the skin [15]. 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 the 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 delivering 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, increase the fairness and smoothness of the skin. It also helps someone to boost their confidence. Ayurveda is the most useful and successful means for achieving this purpose [6].

We can derive the maximum benefits of herbal face packs by using them according to our skin type. Ayurvedic face packs increase skin glow and are the best Ayurveda treatment to increase fairness. Face packs are helpful for preventive, promotive, and curative of any skin problems [7]. The Natural face packs do contain some vital vitamins that are required for the health and glow of our skin. These substances also prove to be beneficial for our skin in many ways. Natural Facial Packs are less complicated and pretty simple to use. They help us in looking after skin and also prove its worthiness by increasing the circulation of the blood within the veins of the face. [8]. Effects of the facial packs are generally temporary and for the regular glow it should be used 2-3 times a week.

### **Benefits of applying face pack**

- Nourishes the skin. Fruit face packs supply essential nutrients to the skin.
- Helps to reduce, acne, pimple, scars, and marks depending on its herbal ingredients. Usually face packs made of neem and tulsi help to reduce acne and pimple. Face packs which are recommended for acne, pimple, blackheads usually control the over-discharge of sebum from sebaceous glands and remove the harmful bacteria inside acne lesions. The scars and marks of the skin can be reduced by adding fine powder of sandal, rose petals, and orange lentils with an acne face pack.
- Face packs usually remove dead cells from the skin.
- These face masks provide a soothing and relaxing effect on the skin. They help to restore the lost shine and glow of skin in a short period.
- Regular use of natural face masks brings a glow to the skin, improves skin texture, and complexion.
- The harmful effects of pollution and harsh climates can be effectively combated with the judicious use of face packs.
- They help to prevent premature aging of the skin.
- The formation of wrinkles, fine lines, and sagging of the skin can be effectively controlled by using natural face packs.
- Natural face packs make the skin look young and healthy [9-10].

### **Precautions to be taken while applying face pack:**

Select the face pack according to your skin type. Take the opinion of a natural therapist or concerned skin expert before applying a face pack. The face pack should not be left on the face for more than 15 to 20 minutes. Keeping for a very long time may result in the formation of wrinkles, sagging of skin, and enlargement of open pores. Apply face pack once a week. Don't try to peel or scratch the dried face pack. This may harm underlying skin. Spray water (which is at room temperature) on the face before removing the dried face pack. After removing the mask, roll an ice cube on facial skin. This helps to close open pores and tightens skin. It also tones and soothes the skin. Do not scrub face vigorously. This may result

in an eruption of pimples and dark spots. Stay away from the heat when you have applied a face pack. Avoid applying face pack near “eye zone”. The skin around the eye is very delicate. The process of removing the face pack may damage the skin around the eyes.

## MATERIALS AND METHODS

The materials used in the present purchased from the local market, powdered for further use. Below are the details of the plant materials study [11].

Neem leaves, Rose petals powder, Green tea powder, Turmeric powder, Aloe Vera powder, Sandalwood powder, Liquorice powder, Orange peel powder, Camphor powder, Bentonite.

**Table No. 1: Plants name Medicinal use**

Sr. No.	Plants Name	Use
1	<b>Neem leaves</b> <i>Azadirachta Indica</i> A.Juss., Meliaceae	Antibacterial, antifungal, antiseptic
2	<b>Rose petals powder</b> <i>Rosa canina</i> L. Rosaceae	Rose petal is rich in anti-bacterial properties along with the positive effects of Vitamin K, C, and B. It also has a good amount of antioxidants. You can also get radiant and glowing skin with the help of rose petals.
3	<b>Green Tea powder</b> <i>Camellia sinens</i> L. Theaceae	Many scientists believe that free radicals contribute to the aging process as well as the development of several health problems. Polyphenols present in green tea helps in anti-aging. Makes your skin looks younger and better.
4	<b>Turmeric Powder</b> <i>Curcuma longa</i> L., Zingiberaceae	Antibacterial, antifungal, also adds glow to the skin.
5	<b>Aloe Vera powder</b> <i>Aloe Vera</i> (L.) Burm. f., Asphodelaceae	Moisturizing agent delivers smoothening property to the skin.
6	<b>Sandalwood powder</b> <i>Santalum album</i> L.	Anti-tanning Property, Anti-aging Property, Skin Softening Effect, Pimple and Acne Treatment, Clear

	Santalaceae	Complexion
7	<b>Liquorice</b> <i>Glycyrrhiza glabra</i> L. Leguminosae	Skin pigmentation control
8	<b>Orange peel</b> <i>Citrus limon</i> (L.) Osbeck., Rutaceae	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.
9	<b>Camphor</b> <i>Cinnamomum camphora</i> L. Lauraceae	To soothe irritations like itching and rashes, treat acne and skin infections, and reduce burn marks.
10	<b>Bentonite or Fuller's earth</b>	Fights acne and pimples, removes excess sebum and oil, deep cleanses skin removing dirt, sweat, and impurities. Evens out skin tone and brightens complexion, treats tanning and pigmentation, effective in treating sunburn, skin rashes, and infections (Multani mitti is an effective cooling agent). Can be used in cold compresses to treat skin inflammation and insect bites. Facilitates blood circulation, leading to radiant, glowing skin. Fights and helps in keeping away blackheads/whiteheads, blemishes, freckles, pimple/acne.

**Method of preparation:**

Four different formulations were prepared with varying concentrations of all ingredients named F1 to F4. The concentration of each ingredient was mentioned in Table No. 2. The accurate quantity of ingredients was weighed and ground into fine powder by using sieve 120. Then all ingredients were mixed geometrically by the serial dilution method for uniform mixing. Then the prepared face pack was packed into a self-sealable polyethylene bag, labeled, and used for further studies [12].

**Application of face pack on skin:**

Take prepared face pack powder in a bowl as per the requirement and add rose water to mix. Mix well and apply over the facial skin. Cover the acne and blemishes spots too. Kept as it is for complete drying for 20 to 25 min and then wash with cold water.



**Figure No. 1: Formulation of Face pack**

**Table No. 2: Formulation of face pack (Quantity taken for 100 grams)**

Sr. No.	Ingredients (common name)	F1 (in grams)	F2 (in grams)	F3 (in grams)	F4 (in grams)
1.	Neem leaves powder	15	10	10	10
2.	Rose petals powder	5	5	7.5	12
3.	Green tea powder	5	5	5	5
4.	Turmeric powder	2.5	5	7.5	15
5.	Aloe vera powder	30	20	20	20
6.	Sandalwood powder	10	15	10	10
7.	Liquorice powder	2.5	5	7.5	10
8.	Orange peel powder	15	10	7.5	3
9.	Camphor	5	5	5	5
10.	Bentonite powder	20	20	20	20

**EVALUATION OF FACE PACK:**

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

### **A. Organoleptic Evaluation**

The organoleptic parameters include its nature, color, odor, feel, and consistency which were evaluated manually for their physical properties [13].

### **B. Physical Evaluation**

The particle size was tested by the microscopy method. The flow property of the dried powder of combined form was evaluated by performing Angle of Repose by funnel method, bulk density, and tapped density by Tapping Method [14].

### **C. Physicochemical Evaluation**

Ash content was performed using an incinerator, pH was found by using a pH meter, and loss on drying was also performed [15].

### **D. 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 if any for regular intervals up to 24 hrs and reported [16].

### **E. Stability studies**

Stability testing of the prepared formulation was conducted for formulation F2 by storing at different temperature conditions for one month. The packed glass vials of formulation were stored at different temperature conditions viz., Room temperature, 35°C, and 40°C and were evaluated for physical parameters like Color, Odor, pH, Consistency, and feel [17].

### **F. Determination of Microbial Load**

The prepared formulation was evaluated for the presence of gram-negative pathogens such as E.coli and Salmonella by performing gram-negative staining.

### **G. Chemical test**

Shinoda Test: Take few amount of extract and add few magnesium turnings and concentrated hydrochloric acid. final appearance of a red color indicates the presence of flavonoids [18].

### H. Microscopical features

The prepared formulation was evaluated for microscopical characters such as lignified fibers, fibers, sclerenchyma, and cells were found.

**Table No. 3: Organoleptic properties**

Sr. No.	Parameters	F1	F2	F3	F4
1	Appearance	Powder (free flowing)	Powder (free flowing)	Powder (free flowing)	Powder (free flowing)
2	Color	Slight Brownish	Creamish Yellow	Creamish Brown	Slight Yellow
3	Odour	Characteristic	Pleasant	Characteristic	Characteristic
4	Texture	Fine	Fine	Fine	Fine
5	Smoothness	Smooth	Smooth	Smooth	Smooth
6	Grittiness	Not gritty	Not gritty	Not gritty	Not gritty

**Table No. 4: Physicochemical evaluation**

Sr. No.	Parameters	F1	F2	F3	F4
1	Ash value	3.37gm	3.45gm	2.23gm	2.57gm
2	pH	7.1	7.4	6.9	7.0
3	Loss on drying	3.35	3.0	4.1	3.75

**Table No. 5: General powder characters**

Sr. No.	Parameters	F1	F2	F3	F4
1	Bulk density	0.476g/cc	0.434g/cc	0.416g/cc	0.454g/cc
2	Tapped density	0.588g/cc	0.500g/cc	0.500g/cc	0.500g/cc
3	True density	0.500g/cc	0.454g/cc	0.434g/cc	0.476g/cc



Table No. 6: Chemical test

Sr. No.	Parameters	F1	F2	F3	F4
1	Shinoda test	Presence of flavonoids	Presence of flavonoids	Presence of flavonoids	Presence of flavonoids

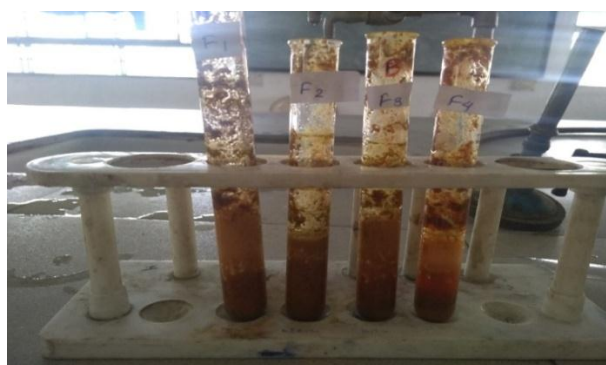


Figure No. 2: Result of Chemical test

Table No. 7: Microbial load

Sr. No.	Parameters	F1	F2	F3	F4
1.	Gram-negative pathogens	Absent	Absent	Absent	Absent



Figure No. 3: Microbial load

**Table No. 8: Microscopical features**

Sr. No.	Parameters	F1	F2	F3	F4
1	Lignified fibres, fibres, sclerenchyma, cells	Present	Present	Present	Present



**Figure No. 4: Microscopical features**

**Table No. 9: Stability studies**

**1. at room temperature**

Sr. No.	Parameters	F1	F2	F3	F4
1	Appearance	Powder (free flowing)	Powder (free flowing)	Powder (free flowing)	Powder (free flowing)
2	Color	Slight Brownish	Creamish Yellow	Creamish Brown	Slight Yellow
3	Odour	Characteristic	Pleasant	Characteristic	Characteristic
4	Texture	Fine	Fine	Fine	Fine
5	Smoothness	Smooth	Smooth	Smooth	Smooth
6	Grittiness	Not gritty	Not gritty	Not gritty	Not gritty

2. at  $35 \pm 0.5^{\circ}\text{C}$

Sr. No.	Parameters	F1	F2	F3	F4
1	Appearance	Powder (free flowing)	Powder (free flowing)	Powder (free flowing)	Powder (free flowing)
2	Color	Slight Brownish	Creamish Yellow	Creamish Brown	Slight Yellow
3	Odour	Characteristic	Pleasant	Characteristic	Characteristic
4	Texture	Fine	Fine	Fine	Fine
5	Smoothness	Smooth	Smooth	Smooth	Smooth
6	Grittiness	Not gritty	Not gritty	Not gritty	Not gritty

3. at  $40 \pm 0.5^{\circ}$

Sr. No.	Parameters	F1	F2	F3	F4
1	Appearance	Powder (free flowing)	Powder (free flowing)	Powder (free flowing)	Powder (free flowing)
2	Color	Slight Brownish	Creamish Yellow	Creamish Brown	Creamish Brown
3	Odour	Characteristic	Pleasant	Characteristic	Characteristic
4	Texture	Fine	Fine	Fine	Fine
5	Smoothness	Smooth	Smooth	Smooth	Smooth
6	Grittiness	Not gritty	Not gritty	Not gritty	Not gritty

## RESULTS AND DISCUSSION

### i. Physical parameters

The different formulations of the face pack were prepared and evaluated for physical parameters showed in Table No. 3. The flow property parameter showed free flowing properties. The colors of formulations were different due to variations in the composition of contents. Formulation F1 and F3 were slightly brownish in color and formulation F2 and F4

showed as slightly yellow. The odor of prepared formulations was good and well acceptable which is desirable as cosmetic formulations. The pH of all formulations lied near to neutral range i.e. in the range of 6 to 7 pH. (Table No. 4). The ash content and loss on drying was determined. (Table No. 4)

## **ii. Stability studies**

The stability studies showed a slight change in colour of formulation which was stored at 40°C and no changes were observed at room temperature and 35°C. The odour of formulation was not changed after one month of stability studies at 40°C, 35°C, and room temperature and there was no change in colour at other mentioned conditions of stability which were shown in Table No. 9.

## **iii. Determination of Microbial Load**

The microbial test for the presence of gram-negative pathogens such as E. coli, Salmonella, and pseudomonas absent per gram showed in Table No. 7.

The Formulation F2 was found to be good in physical parameters, free from skin irritation, and maintained its consistency even after stressed storage conditions. It is suggested that the prepared formulation was physicochemically and microbiologically stable, and possessed characteristics of a standard cosmeceuticals formulation for skincare.

## **CONCLUSION**

In the present scenario, people need a cure for various skin problems without side effects. Herbal ingredients opened the way to formulate cosmetics without any harmful effects. Herbal face packs are considered as sustaining and productive way to advance the appearance of skin. Thus in the present work, It is a very good attempt to formulate the herbal face pack containing naturally available ingredients like multani mitti, turmeric, aloe vera, sandalwood, orange peel, neem, and nutmeg. It is suggested that the prepared formulation was physicochemically and microbiologically stable, and possessed characteristics of a standard cosmeceuticals formulation for skincare.

We found good properties for the face packs on human skin as a cosmetic product. Herbal face packs or masks are used to stimulate blood circulation, rejuvenates the muscles and help to maintain the elasticity of the skin, and remove dirt from skin pores. The advantage of herbal cosmetics is their nontoxic nature, reduction of allergic reactions, and time-tested

usefulness of many ingredients. This face pack is beneficial, economical, and passed all evaluation parameters.

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