



# FORMULATION AND EVALUATION OF HERBAL FACE PACK FOR GLOWING SKIN

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## ABSTRACT

The aim of this work is to formulate and evaluate an herbal face pack for glowing skin by using natural herbal ingredients. The natural herbal ingredients such as multani mitti, turmeric, sandalwood, saffron, milk powder, rice flour, orange peel were purchased from local market in the form of dried powder. The powder of banana peel was prepared by shade drying commercially, all powdered natural ingredients were sieved using #120 mesh, weighed accurately and mixed geometrically for uniform formulation and then evaluated for parameters including morphological, physicochemical, physical, phytochemical, irritancy along with stability examination.

Thus, in the present work, we formulated a herbal face pack which can be easily made with the easily available ingredients. After evaluation, we found good properties for the face packs, free from skin irritation and maintained its consistency even after stability storage conditions. Results of the study scientifically verified that herbal face pack having enough potential to give efficient glowing effect on skin. The overall study is useful to substantiate product claims due its useful benefits on the human beings.

**KEYWORDS:** Skin, Herbal face pack, Formulation, Evaluation.

## INTRODUCTION

Since the ancient era, people are aware of the use of plants for the essential needs of a healthy and beautiful skin. Cosmetics are products used to clean, beautify and promote attractive appearance. Skin of the face is the major part of the body, which is a mirror, reflecting the health of an individual. A balanced nutrition containing amino acids, lipids and carbohydrates are required for the skin to keep it clear, glossy and healthy. In ancient times, women were very conscious about their beauty and took special care of their specific skin types. Even today, people especially in rural areas, and hilly regions go for the natural remedies like plants extracts for various cosmetics purposes like neem, aloe vera, tulsi, orange peel, rose *etc.* Herbal cosmetics are the products which are used to purify and beautify the skin.

The main advantage of using herbal cosmetic is that it is pure and does not have any side effects on the human body. People have rough skin and when they don't take sufficient care, then the skin turns dark due to overexposure to the sun, other pollutants etc. In this article we have formulated herbal face pack to whiten, lighten and brighten the skin naturally for men and women. This face pack has natural skin lightening property and can be easily prepared at home. Face packs with natural constituents are rich in vital vitamins that are essential for the health and glow of the skin. These substances have been proven to be beneficial for skin in many ways. Natural facial packs are easy to use. They increase the circulation of the blood within the veins of the face, thereby increasing the liveliness of the skin. A good herbal face pack must supply necessary nutrients to the skin, available in the form of free-flowing powder applied facially for the external purpose. It should penetrate deep down the subcutaneous tissues to deliver the required nutrients. Every type of skin is specific for the requirement of skin pack.

Nowadays different types of packs are available separately for the oily, normal and dry skin. Face packs are used to increase the fairness and smoothness of the skin. It reduces wrinkles, pimples, acne and dark circles of the skin. Face packs which are recommended for oily skin prone to acne, blackheads, usually control the rate of sebum discharge from sebaceous glands and fight the harmful bacteria present inside acne lesion. The leftover marks of skin can be reduced by incorporation of fine powders of sandalwood, rose-petals and dried orange peels. Herbal face packs are nowadays being used on a large scale, due to the various benefits of them over chemical based packs. They are non-toxic, non-allergic and non-habit forming.

They are natural in every aspect, having larger shelf life. They have no added preservatives. They can be easily formulated and stored over a larger span of time. Present research article deals with the formulation and evaluation of herbal face pack for glowing skin by using natural materials i.e., multani mitti, turmeric, sandalwood, saffron, milk powder, rice flour, orange peel, banana peel.



Fig 1: Face Pack

## AIM AND OBJECTIVE

**Aim:** - Preparation of Herbal Face Pack for Glowing Skin.

### OBJECTIVE

- As due to increased pollution, allergy, microbe's etc. human skin has become more sensitive and prone to faster aging. An attempt has been made to synthesize a pack ideal for all skin types. After the synthesis, all the parameters have been calculated in order to meet up the quality standards.
- To formulate and evaluate a cosmetic preparation poly herbal face pack made from herbal ingredients.
- Herbal face packs or masks are used to stimulate blood circulation, rejuvenates and help to maintain the elasticity of the skin and remove dirt from skin pores.
- To **moisturize, cleanse, tone and rejuvenate your skin**. Masks are designed for each skin and age type.

## LITERATURE REVIEW

**J. Prathyusha, N. S. Yamani (2019)**

Cosmetics play a vital role for everyone to have a joyful and sanguine life. In present scenario herbal cosmeceuticals have more demand because they have no side effects. People having oily skin suffer from acne, whiteheads and blackheads quite often so scrubbing become more essential. In our present study we formulated 3 different formulations F1, F2, F3 in gel form for oily skin by using turmeric, aloe vera, cinnamon, potato starch, activated charcoal powder, honey, green tea, lemon juice, onion, walnut shell, coconut oil, beet root juice powder, sodium lauryl sulphate, water and evaluated by using various parameters such as physical appearance, viscosity, pH, Spreadability, irritability, washability, stability studies and got fruitful results with all the tests.

**Vidya Keshav Kakad (2022)**

Many of the marketed products when applied on the skin cause dryness of skin after its long-term use which results less life of skin problems of acne and redness. Solution for this problem is use of scrub which consist all herbal ingredients which increases cleansing, softening, moisturizing, fairness of skin. The use of natural ingredients to fight against acne, wrinkle and also to control secretion of oil is known as natural or herbal cosmetics. Herbal cosmeceuticals usually contain the plant parts which possess antimicrobial, antioxidant and anti-aging properties. Herbal cosmetics are the safest product to use routine with no side effects and cosmaceuticals are the product which influences the biological function of skin.

**Millikan, Larry E. Cosmetology (2012)**

Exfoliation is the process of removal of removing the old, dead skin cells that cling to the skin's outermost surface. The two types of exfoliation are mechanical and chemical. People's opportunities for seeking dermatological assistance for a myriad of conditions, including acne, rosacea, striae, photodamage, and skin cancers have increased in recent years. Skin exfoliation improves the quality and tone of skin by assisting in the removal of dead skin cells from the surface. Herbal Exfoliant produces soft, supple, re-energized skin and prevents premature skin aging.

**Chanchal D. and Saraf S. (2009)**

The main objective of present study was to prepare a polyherbal scrub incorporated into gel. The use of natural ingredients to fight against acne, wrinkle and also to control secretion of oil is known as natural or herbal cosmetics. Herbal cosmeceuticals usually contain the plant parts which possess antimicrobial, antioxidant and anti-aging properties. Herbal cosmetics are the safest product to use routine with no side effects and cosmeceuticals are the product which influences the biological function of skin. In this preparation Green apple, cinnamon, Millet, Sandalwood, Neem, Turmeric and honey is used as active ingredients and incorporated into the gel which is prepared with carbopol of different grades. Other ingredients like propylene glycol, Triethanolamine; methyl parahydroxy benzoate was added along with sodium lauryl sulfate into the gel. The prepared gel was evaluated for various parameters such as appearance, pH, viscosity, Spreadability, washability, irritability and found to be satisfied with all required characterizations. Thus, the developed formulation can be used as an effective scrub for using it to bear a healthy and glowing skin.

**MATERIALS AND METHODS**

Present research article deals with the formulation and evaluation of herbal face pack for glowing skin by using natural ingredient i.e.,

Multani mitti, turmeric, sandalwood, saffron, milk powder, rice flour and orange peel. They were purchased from local market in the form of dried powder. The powder of banana peel was prepared by shade drying commercially.

All ingredients authenticated at Botany department of Aditya Institute of Pharmaceuticals, Beed. The details of the natural ingredient used for the formulation of herbal face pack are mentioned below.

### **Ingredients of formulations**

- **Multani Mitti**

Multani mitti helps skin by different ways like diminishing pore sizes, removing blackheads and whiteheads fading freckles, soothing sunburns, cleansing skin, improving blood circulation, complexion, reducing acne and blemishes and gives a glowing effect to a skin as they contain healthy nutrients. Multani mitti is rich magnesium chloride.



Fig. 2: Multani mitti

- **Turmeric**

Turmeric has been used in this preparation due to its blood purifying property and helps in wound healing, because of its antiseptic action. It cures the skin diseases occurring due to blood impurities. It is a very good anti-inflammatory and anti-allergic agent. The phytoconstituents, mainly terpenoids present in it helps to lighten the skin tone. Turmeric delays the signs of aging like wrinkles, improves skin elasticity. It cures pigmentation, uneven skin tone and dull skin.





Fig. 3 Turmeric Powder

- **Sandal wood**

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.



Fig. 5 Sandal wood

- **Neem (Azadirachta indica)**

Neem is anti-inflammatory, antiseptic and highly beneficial for oily and acne prone skin 14. An anti-acne effect is due to antimicrobial, anti-inflammatory and anti-oxidant activities of different chemical constituents.



Fig. 6 Neem Powder

- **Nutmeg (*Myristica fragrans*)**

Nutmeg is widely used for its analgesic, anti-inflammatory, antiseptic and anti-bacterial property<sup>14</sup>. It helps in reducing wrinkles, fine lines and other signs of aging. It also helps in reducing acne scars and to make them less noticeable.



Fig. 7 Nutmeg

- **Orange peel**

Orange peel is a covering of citrus fruit which contains different nutritional source such as vitamin C, calcium, potassium and magnesium. It prevents the skin from free radical damage, skin hydration and oxidative stress. Also it has instant glow property, prevent acne, blemishes, wrinkles and aging.



Fig. 8: Orange peel

## **METHODS OF PREPARATION**

Four different formulations were prepared with varying concentrations of all ingredients named as F1 to F4. Concentration of each ingredient was mentioned in Table 1. The accurate quantity ingredients were weighed and ground into fine powder by using sieve #120. Then the all ingredients were mixed geometrically by 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.

## Procedure of Face Pack Application

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.

## Methods of Evaluation

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

### Organoleptic Evaluation

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

### Physical Evaluation

The particle size was tested by 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.

### Physicochemical Evaluation

Ash content was performed using incinerator, pH was found by using pH meter and loss on drying was also performed.

### 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.

### Stability studies

Stability testing of prepared formulation was conducted for formulation F2 by storing at different temperature conditions for the period of one month. The packed glass vials of formulation 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.



Sr. No.	Name of Ingredients	Scientific Name	Quantity of sample for 100g			
			F1	F2	F3	F4
1	MultaniMitti	Calcium Bentonite	25	30	35	15
2	Turmeric	<i>Curuma longa</i>	20	5	10	20
3	Aloe Vera	<i>Aloe barbadensis</i>	10	15	10	20
4	Sandal wood	<i>Santalum alba</i>	25	25	20	25
5	Orange peel	<i>Citrus reticulata</i>	10	12	6	5
6	Neem	<i>Azadirachta indica</i>	3	8	15	10
7	Nutmeg	<i>Myristica fragrans</i>	7	5	4	5

**Table 1:** Composition of Herbal Face Pack

### Determination of Microbial Load

The prepared formulation was evaluated for Total Viable Count, presence of gram negative pathogens such as E. coli, Salmonella and Pseudomonas by BAC-Test.

Sr. No.	Parameters	Observation			
		F1	F2	F3	F4
1	Appearance	Powder (Free Flowing)	Powder (Free Flowing)	Powder (Free Flowing)	Powder (Free Flowing)
2	Color	Slight Yellow	Slight yellow	Greenish yellow	Slight Yellow
3	Odor	Slight	Slight	Slight	Slight
4	Texture	Fine	Fine	Fine	Fine
5	Smoothness	Smooth	Smooth	Smooth	Smooth

**Table 2:** Organoleptic Properties

Sr. No.	Parameters	Observation			
		F1	F2	F3	F4
1	Particle size ( $\mu\text{m}$ )	26.4 $\pm$ 5.44	22.5 $\pm$ 2.85	24.8 $\pm$ 4.36	25.2 $\pm$ 5.21
2	Ash content	93 $\pm$ 0.732	87 $\pm$ 0.859	92 $\pm$ 0.556	95 $\pm$ 0.462
3	pH	7.66 $\pm$ 0.13	6.65 $\pm$ 0.1	6.79 $\pm$ 0.16	6.88 $\pm$ 0.1
4	Loss on Drying	3.33	3	4	3.67

**Table 3:** Physical Parameter and Physicochemical Evaluation

Sr. No.	Evaluation	Formulations				Observation
		F1	F2	F3	F4	
1	Irritant	+	NIL	+	+	No Irritation
2	Erythema	NIL	NIL	NIL	NIL	No Irritation
3	Edema	NIL	NIL	NIL	NIL	No Irritation

Table 4: Irritancy Test

Sr. No.	Parameters	Observations (Formulations F2)		
		Room Temperature	35±0.5°C	40±0.5°C
1	Color	No change	No change	No change
2	Odour	No change	No change	Slightly Change
3	pH	6.65±0.17	6.65±0.11	6.72±0.21
4	Texture	Fine	Fine	Fine
5	Smoothness	Smooth	Smooth	Smooth

Table 5: Parameters of Stability studies of Formulation F2

Sr. No.	Test	Observation
1	Total viable count (CFU/g)	867
2	Gram negative pathogens, CFU/g (E. coli, Salmonella, Pseudomonas)	Absent

Table 6: Microbial Load of Formulation F2

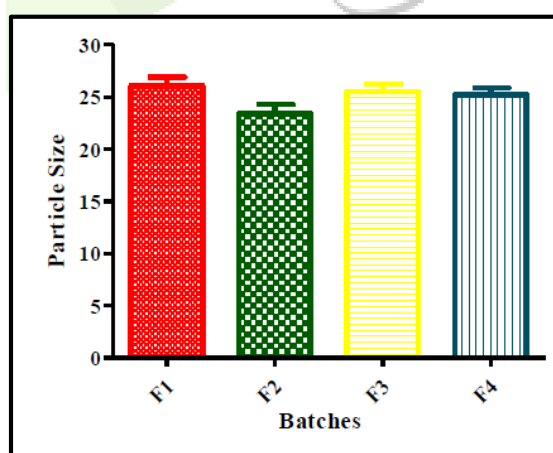


Figure 1: Particle Size of Formulations F1 to F4

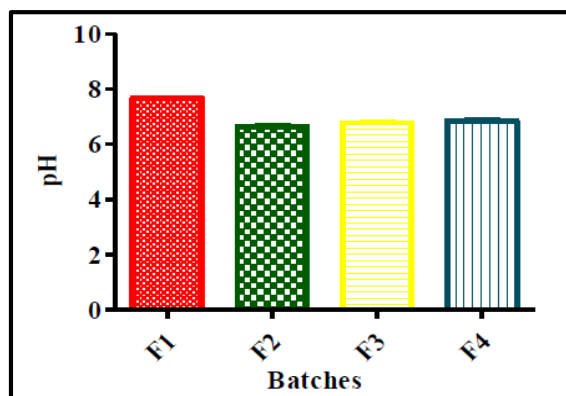
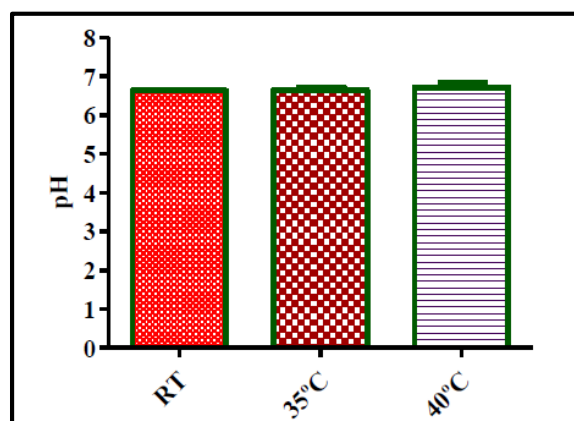


Figure 2: pH of Formulations F1 to F4



## BENEFITS AND PRECAUTIONS

### BENEFITS OF APPLYING FACE PACK

1. Nourishes the skin. Fruit face packs supply essential nutrients to skin.
2. Helps to reduce, acne, pimple, scars and marks depending on its herbal ingredients.
3. Ingredients.
4. Face packs usually remove dead cells of skin.
5. These face masks provide a soothing and relaxing effect on skin.
6. They help to restore the lost shine and glow of skin in short span of time.
7. Regular use of natural face masks bring glow to skin, improve skin texture and complexion.
8. The harmful effects of pollution and harsh climates can be effectively combated with judicious use of face packs.
9. They help to prevent premature aging of skin.
10. Formation of wrinkles, fine lines and sagging of skin can be effectively controlled by using natural face packs.
11. Natural face packs make the skin look young and healthy.

Face packs which are recommended for acne, pimple, black heads usually control the over discharge of sebum from sebaceous glands and remove the harmful bacteria inside acne lesion. The scars and marks of skin can be reduced by adding fine powder of sandal, rose petals and orange lentils with acne face pack.

## PRECAUTIONS TO BE TAKEN WHILE APPLYING FACE PACK

1. Select the face pack according to your skin type. Take opinion of natural therapist or concerned skin expert before applying face pack.
2. The face pack should not be left on face more than 15 to 20 minutes. Keeping for very long time may result in formation of wrinkles, sagging of skin and
3. Enlargement of open pores.
4. Apply face pack once in a week. Don't try to peel or scratch the dried face pack. This may harm underlying skin.
5. Spray water (which is at room temperature) on face before removing 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.
6. Do not scrub face vigorously. This may result in eruption of pimples and dark spots. Stay away from heat when you have applied face pack.
7. Avoid applying face pack near "eye zone". The skin around eye is very delicate. The process of removing face pack may damage skin around eyes.

## 8. RESULT AND DISCUSSION

### Physical parameters

The different formulation of face pack was prepared and evaluated for physical parameters showed in the Table 2. The flow property parameter showed free flowing properties. The colors of formulations were different due to variation in composition of contents. Formulation F1, F2 and F4 were slightly yellow in color and formulation F3 showed as greenish yellow. The odor of prepared formulations was good acceptable which is desirable as cosmetic formulations. The particle size of formulations was in the range of  $22.5 \pm 2.85 \mu\text{m}$  to  $26.4 \pm 5.44 \mu\text{m}$  (Figure 1). The pH of all formulations lied near to neutral range i.e. in the range of 6 to 7 pH. (Figure 2). The ash content and moisture content was within limit (Table 3).

### Organoleptic Evaluation

Herbal face pack was evaluated for organoleptic parameters showed in the table 2. The colour of formulation was Brown. The odour of prepared formulations was pleasant and good acceptable which is desirable to cosmetic formulations. Texture and smoothness was acceptable as per requirement of cosmetic formulations.

S. No	Parameter	Observation
1.	Color	Brown Colour
2.	Odour	Pleasant
3.	Appearance	Smooth, fine
4.	Texture	fine
5.	Smoothness	smooth

**Table 2:** Organoleptic Evaluation

### Physical Evaluation and Physicochemical Evaluation

The particle size of formulations was in the range of  $22.3 \pm 2.25 \mu\text{m}$ . The pH of formulation lied near to neutral. The ash content and moisture content was within limit.

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

Sr. No.	Parameter	Observation
1	Tapped density	1.428gm/ml
2	Bulk density	1.08gm/ml
3	Angle of repose	$32.61^\circ$
4	Hausner's ratio	1.322
5	Carr's index	21.94%

**Table 3:** Physical Evaluation and Physicochemical Evaluation

### Irritancy Test

The results of irritancy test were shown in Table 4. The formulations F1, F3 and F4 showed mild irritation because of presence of turmeric powder. The formulations which was prepared by lowering the concentration of turmeric i.e. formulations F2 showed no redness, edema, Inflammation and irritation during irritancy studies. This formulation is safe to use for skin.

Sr. No.	Parameters	Observation
1	Irritant	No Irritation
2	Erythema	No Irritation
3	Edema	No Irritation

**Table 4:** Irritancy Test

### Stability studies

The stability studies showed a slight change in pH of formulation which was stored at  $40^\circ\text{C}$  and no changes were observed at room temperature and at  $35^\circ\text{C}$  there was no change in color and odor at other mentioned conditions of stability.

S. No	Parameter	Room temperature	400C
1.	Color	No change	No change
2.	Odour	No change	No change
3.	PH	6.92 ± 0.12	6.87 ± 0.13
4.	Texture	Fine	Fine
5.	Smoothness	Smooth	Smooth

**Table 5:** Stability Test

## DISCUSSION

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, reduce the allergic reactions and time tested usefulness of many ingredients. Formulation was creamish yellow in color and had semisolid consistency.

The formulation was found homogenous, easily washable and also had very slightly alkaline pH which were compatible with normal skin physiology. Angle of repose is a characteristic related to inter particulate friction or resistance to the movement between the particles. The flow property has been classified as per limit of Indian Pharmacopoeia in terms of the angle of repose. The results of all these parameters indicated that the dried powder of combined form possess good flow properties and good packing ability. Consequently, it exhibited good flow properties for formulation to achieve soft, fresh and clean formulation.

## CONCLUSION

Natural remedies are more acceptable in the belief that they are safer with fewer side effects than the synthetic ones. Herbal formulations have growing demand in the world market. Herbal face packs are used to stimulate blood circulation, rejuvenate the muscles and help to maintain the elasticity of the skin and remove dirt from skin pores. It is an our good attempt to formulate the herbal face pack containing natural herbal ingredients such as multani mitti, turmeric, sandal wood, saffron, milk powder, rice flour, orange peel and banana peel.

After evaluation, we found good properties for the face packs, free from skin irritation and maintained its consistency even after stability storage conditions. It has been revealed that herbal face pack having enough potential to give efficient glowing effect on skin. The overall study is useful to substantiate product claims due its useful benefits on the human beings. Herbal ingredients opened the way to formulate cosmetics without any harmful effect. Herbal face packs are considered as sustaining and productive way to advance the appearance of skin.



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