



# FORMULATION AND CHARACTERIZATION OF POLYHERBAL FACE PACK AS COSMETIC: A RESEARCH PAPER

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## ABSTRACT:

The current study's goal is to create and assess a cosmetic herbal face pack using natural components to promote radiant skin and prevent wrinkles, aging, redness, acne, and scars. The fact that herbal cosmetics are non-toxic is their primary advantage. Herbal face masks aid in clearing debris from skin pores and enhancing blood circulation. The primary constituents in this composition are Fuller's Earth, coffee powder, powdered sandal wood, powdered lemon peel, Turmeric powder, and Rice flour. Using sieve no. 120, the precise amount of components was weighed and processed into a fine powder. Subsequently, the components were uniformly blended using the serial dilution procedure in a geometric manner. The composition of the face pack was assessed based on a number of factors, including physicochemical parameters, an analysis of stability, and an irritation test.

**KEYWORDS:** Face pack, Natural, Formulation, Characterization, etc...

## INTRODUCTION:

Any object meant to be rubbed, poured, sprinkled, or applied to the human body in order to clean, beautify, enhance attractiveness, or change appearance is referred to as a cosmetic. The largest organ in the body, the skin reveals a person's overall health. The term "mukha lepa" in Ayurveda refers to the herbal paste used in facial therapy. This paste made of herbs is used to treat pigmentation, scars, markings, and acne on the face. All that a face pack is is a smooth powder that is applied to the face. These treatments, which come in liquid or paste form, are applied to the face, allowed to dry and solidify into a film that tightens, strengthens, and cleanses the skin. They are left for fifteen to twenty minutes on the skin and allow the water to evaporate, the resulting coating compresses, hardens, and becomes easily removable.

The skin, which makes up the majority of the body, is the primary indicator of an individual's health. Lipids, carbohydrates, and amino acids make up skin. A balanced diet promotes healthy, radiant skin. Numerous elements, including biological, hormonal, and environmental ones, might have an impact on skin. Environmental elements include UV radiation, dust, pollution, and climate change will exacerbate skin-related problems.

In reality, face packs are supplements with additional advantages. Different kinds of herbal face packs are utilized for different skin types. Herbal face packs have the advantage of reducing dark bags, wrinkles, acne, and pimples. It improves the skin's smoothness in addition to its fairness. The most effective and potent method for achieving the goal is Ayurveda.

Some essential vitamins that are required for healthy and radiant skin are included in the herbal face pack. These ingredients are also advantageous to our skin in a variety of ways. The facial packs' effects are transient, so for a regular glow, apply them two to three times a week.

### **Ayurvedic concept of Skin: -**

In actuality, "Ayurveda" refers to the knowledge (Veda) of life (Ayu). Ayurvedic medicine aims to lengthen life and enhance quality of life. Charaka and Sushruta Samhita, two of the oldest Ayurvedic compendia, contain descriptions of over 600 plants. Twak, or skin, is considered a Matruja Avyaya in Ayurveda, meaning that it comes from the mother or has maternal origins. It serves as a reflection of a person's health. The Vata, Pitta, and Kapha doshas serve as the foundation for Ayurvedic theories on skin conditions. Vata, Kapha, and combination skin types are the results of an imbalance in any one dosha.

**Vata Skin: -** It feels chilly to the touch, dry, thin, and finely powdered. It just becomes dehydrated and is more susceptible to the effects of arid weather. It causes wrinkles to appear more quickly than other skin types.

**Pitta Skin: -** It is medium in thickness, fair, soft, and warm. Compared to the other skin types, this one is more prone to freckles and moles. It is least tolerant of the sun and is photosensitive.

**Kapha Skin: -** It is more prone to wrinkles in later age than the Vata or Pitta types; it is thick, greasy, soft, and chilly to the touch. In addition to having a dull complexion, enlarged pores, excessive oil, blackheads, pimples, moist forms of eczema, and water retention, it is also more likely to deposit toxins beneath the skin due to its thickness and oiliness.

**Combination Skin: -** combines the qualities of two different skin types: Vata-Pita, which is sensitive and dry, Kapha-Pita, which is oily and sensitive, and Vata-Kapha, which is mostly dry with some oily areas.

### **Face Pack: -**

The face pack is a silky powder that is applied to the face. These preparations are applied to the face as pastes or liquids, then left to dry and solidify to form a film that tightens, fortifies, and cleanses the skin. In order to let all of the water to drain, they are typically kept on the skin for ten to twenty-five minutes. This allows the ensuing film to constrict, stiffen, and remove easily. While the colloidal and adsorption clays employed in these preparations remove oil and debris from the skin of the face, the warmth and tightening impact of the face pack gives the invigorating sense of a renewed face. Skin debris and accumulated dirt are finally eliminated together with the applied face pack.

Face packs are supplements that offer a few more advantages. For various skin types, different herbal face packs are employed. The use of herbal face packs can aid in the reduction of dark circles, wrinkles, and acne. Moreover, improve the skin's smoothness and fairness. It also aids in confidence building for others. The most practical and effective method for accomplishing this is Ayurveda.

Applying herbal face packs based on our skin type will help us get the most benefits from them. The finest Ayurvedic therapy for increasing fairness is an ayurvedic face pack, which also makes skin sparkle. Face masks are useful for treating, promoting, and preventing skin issues. Certain essential vitamins that are necessary for the health and radiance of our skin are present in the natural face packs. These chemicals additionally provide numerous benefits for our skin. Natural Facial Packs are quite easy to use and require little complexity. By improving blood circulation in the face's veins, they not only assist us in taking care of our skin but also demonstrate its value. The facial packs should be used two to three times a week to maintain a consistent glow, as their effects are typically transient.

### **Benefits of applying face pack: -**

- It replenishes the skin.
- The effectiveness of a herbal face pack in reducing acne, pimples, scars, and markings varies based on its ingredients.
- Its purpose is to stop the skin from aging too soon.
- Regular application of herbal face masks improves the complexion, texture, and luster of the skin.
- Natural face packs give the skin a youthful, healthy appearance.
- These masks for the face provide a calming and relaxing impact on the skin.
- The formation of wrinkles, fine lines, and sagging of the skin can be effectively controlled by using natural face packs.
- The harmful effects of pollution and harsh climates can be effectively combated with the judicious use of face packs.
- Face packs usually remove dead cells from the skin.

### **Precaution to be taken while applying face pack: -**

Choose the face pack based on the type of skin you have. Before using a face pack, get advice from a natural therapist or other concerned skin specialist. It is recommended that the face pack be removed after no more than 15 to 20 minutes of use. Extended storage may lead to the development of wrinkles, skin sagging, and increased size of open pores. Once a week, apply the face pack. Avoid attempting to remove or scuff the dehydrated face mask. This could damage the skin beneath. Before taking off the dry face pack, mist the skin with room-temperature water. Roll an ice cube over the skin of your face after taking off the mask. This tightens the skin and aids in sealing open pores. Additionally, it calms and tones the skin. Don't scrub your face too hard. This could cause black patches and zits to break out. Remain out of the heat after using a face pack. Keep face packs away from the "eye zone." The skin surrounding the eyes is extremely thin.

### **Material 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 Matti, turmeric, sandalwood, Aloe vera, Coffee powder, rice flour and Lemon powder. They were purchased from local market in the form of dried powder. All ingredients authenticated at Botany department of D. B. F. Dayanand college of Arts and Science Solapur. The details of the natural ingredient used for the formulation of herbal face pack are mentioned below.

## HERBS USED IN FORMULATION:

Plant profile name:

1. **Multani Miti**
2. **Turmeric**
3. **Aloe vera**
4. **Coffee Powder**
5. **Rice Flour**
6. **Sandalwood**
7. **Lemon Powder**

### 1. **Multani Miti (Fuller's earth): -**

Botanical Name: Calcium Bentonite



**Fig 1: Multani MItti**

Active constituents- Fuller's earth consists chiefly of hydrated aluminum silicates that contain metal ions such as magnesium, sodium, and calcium within their structure.

Uses- Remove all the impurities and dead Skin cells multanimitti will help to Make you skin radiant and excellent for irritate skin, soothes the skin fresh Radiant and glowing skin.

### 2. **Turmeric: -**

Botanical Name: *Curcuma Longa*

Family: Zingiberaceae

Genus: *Curcuma*

Species: *C. longa*

Order: Zingiberales



**Fig 2: Turmeric**

Active constituents-Nutritional analysis showed that turmeric contains fat, calcium, phosphorous, sodium, potassium, iron, thiamine, riboflavin, niacin, ascorbic acid, carbohydrates, dietary fiber, Scie sugars, and protein (Balakrishnan 2007). Turmeric is also a good source of the w-3 fatty acid and a-linolenic acid (2.5%; Goud, Polasa, and Krishnaswamy 1993).[Google scholar]

USES: 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.

### 3. Aloe Vera: -

Botanical Name: Aloe Barbadensis Miller  
Family: Aloaceae  
Genus: Aloe  
Species: A. vera  
Order: Asparagales



**Fig 3: Aloe Vera**

Uses: Antiseptic,  
Antioxidant,  
soothing effect to skin.  
Moisturizing Agent

#### 4. Coffee Powder: -

Botanical Name: - *Coffea Arabica*

Family: - Rubiaceae

Genus: *Coffea*

Species: *C. arabica*

Order: Gentianales



Fig 4: Coffee Powder

Uses: - Cellulite reduction. Calming effects, anti-aging benefits, vitamin B-3 for skin cancer, Reduced inflammation. Acne treatment, Dark circles, After-sun care

#### 5. Rice Flour: -

Botanical Name: *Oryza sativa*



Fig 5: Rice flour

Uses: - Rice flour can be applied to cure some forms of Skin ailments. In Indian subcontinent, rice water is duly Prescribed by Ayurvedic practitioners as in undigested Form. It aids the growth of useful bacteria for normal bowel Movements an effective ointment to cool off inflamed skin.

## 6. Sandalwood: -

Botanical name -Santalum Album

Family -santalaceae

Genus-Santalum



Fig 6: Sandalwood

Active constituents- Santalum album. 1,  $\alpha$ -santalol (54.2%); 2,  $\beta$ -santalol (19.2%); 3, epi- $\beta$ -santalol (5%); 4,  $\alpha$ -bergamotol (3.3%); 5,  $\alpha$ -santalene (0.5%); 6,  $\beta$ -santalene (1.1%); 7, epi- $\beta$ -santalene (0.7%); 8,  $\alpha$ -bergamotene (0.2%); and others, farnesol,  $\alpha$ -bisabolol etc.

Uses- Sandalwood has an anti-tanning and anti-aging Property. Sandalwood protects the skin against the Impact of environmental pollution and keep the skin Cool, fair and healthy. Sandalwoodhelpful Ayurvedic Herb with antimicrobial properties is used for healing Various skin problems and removes scars.

## 7. Lemon Powder: -

Botanical Name: Citrus limon

Family: Rutaceae



Fig 7: Lemon powder

Uses: Improves fairness, Antibacterial, Soothe sunburn, remove suntan, Exfoliates skin, Fight Acne. And reduces hyperpigmentation

### **Method Of Preparation:**

These are the following steps for the preparation: -

1. The precise amount of materials was weighed and sieved through #120 mesh.
2. For uniform mixing, all of the components were then mixed geometrically using the serial dilution method.
3. The ready-made face pack was then placed inside a polyethylene bag that sealed itself, and it was utilized to assess additional metrics.

**Table1: Formulation Table**

Sr no	Name Of Ingredient	Scientific name	Percentage
1.	Multani Mitti	<i>Calcium Bentonite</i>	30%
2.	Turmeric	<i>Curcuma Longa</i>	15%
3.	Aloe vera	<i>Aloe Barbadensis Miller</i>	10%
4.	Coffee Powder	<i>Coffea Arabica</i>	10%
5.	Rice Flour	<i>Oryza sativa</i>	15%
6.	Sandalwood	<i>Santalum Album</i>	10%
7.	Lemon Powder	<i>Santalum Album</i>	10%

**Fig 8 Evaluation of face pack: -****Procedure of Face Pack Application: -**

Put the face pack powder that has been produced in a bowl according to the directions and add enough water to make a paste. Blend thoroughly and smear onto the facial skin. After covering any acne and blemish patches and letting them completely dry for 20 to 25 minutes, wash them with cold water.

## Method of Evaluation: -

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

A. Organoleptic Evaluation: Organoleptic characteristics including color, texture, and appearance were assessed. Texture and color were assessed tactilely and visually, respectively. Five individuals who were sensitive to odors were chosen as a team for the smell evaluation.

B. Physicochemical Evaluation: Different physicochemical parameters were evaluated as follows.

i. pH:

Using the proper buffer solution and a digital pH meter that was initially calibrated at pH 7 and 9.2, the pH was calculated. The test sample, which consists of a 10 percent (w/v) product dispersion in water, is put into a glass beaker, and the pH is measured immediately—without dilution—within five to ten minutes.

ii. Loss on Draying:

Determining the moisture level of herbal medications is crucial since inadequate drying may result in the potential enzymatic degradation of the active ingredients. Precisely measure 3 grams of powdered medication in a petri dish, place it in a hot air oven, and then take a 30-minute weight reading to ensure it is at standard weight.

iii. Ash value:

The process of counting ash value is used to ascertain the inorganic contents that are typical of a herb. About 2 grams of face pack powder were added to a crucible dish that had already been lit and weighed. The temperature was then gradually raised, without going above the red point. Ash is cooled and weighed after it has burned completely.

C. General Powder characteristics

Different physical parameters like Angle of repose, Bulk density, tapped density and Hausner's ratio were observed and calculated for the formulation.

i) Angle of Repose:

A cylindrical tube with its ends open is filled with the necessary amount of dried powder and put on a horizontal surface. After then, the funnel ought to be lifted to create a mound. The heap's height and radius are measured and documented. The formula for calculating the angle of repose ( $\theta$ ) in the aforementioned method is

$$\theta = \tan(h/r).$$

Were,

$\theta$ - Angle of repose,

h - Height of the heap,

r - Radius of the base.

ii) Bulk Density:

It is the proportion between a powder's bulk volume and its specified mass. It is ascertained by using a funnel to transfer a precisely weighed quantity of powder sample to the graduated cylinder. The starting volume was recorded. The formula bulk density = mass of powder/volume of powder was used to determine the weight ratio of the volume it occupied.

iii) Tapped Density:

A graduated cylinder is filled with a known amount of powder (10 gm), and the cylinder is tapped a certain number of times to get the measurement. The starting volume was recorded. For ten to fifteen minutes, the graduated cylinder was tapped continually. The mass of the powder divided by the tapped volume yields the density.

Tapped density = mass of powder/tapped volume

iv) 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.

Hausners ratio= Tapped density\ Bulk density

D. Irritancy test:

Mark a 1 square centimeter spot on the dorsal surface of the left hand. A certain amount of ready-made face packs were applied to the designated region, and the application time was recorded. For up to 24 hours, irritability, erythema, and edema were recorded and monitored at regular intervals. anti-inflammatory properties, as previously mentioned. Gram flour lessens skin darkening and helps to cleanse the skin. Since ancient times, skin-related problems have been treated with lodhra, majistha, and multanimitti, as several scientific research have demonstrated. Sandalwood's potent antibacterial qualities successfully combat bacteria and fungus and stop acne and pimples from breaking out. One of the greatest treatments for clear skin that can be used to relieve severe sunburns and clear skin tanning is sandalwood paste.

E. Stability studies:

A month-long stability test of the obtained formulation was carried out by storing it at various temperatures. The formulation's packed glass vials were kept at room temperature and 40 oC, respectively, and its physical characteristics, such as color, smell, pH, consistency, and feel, were assessed.

## RESULT AND DISCUSSION:

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

### Organoleptic Evaluation:

The organoleptic parameters listed in Table 2 were assessed for the herbal face pack. It was noticed that the formulation had a brown color. Preparation formulations had a nice, well-accepted smell, which is ideal for cosmetic formulations. Smoothness and texture were appropriate given the demands of cosmetic formulas.

**Table 2: Organoleptic Evaluation**

Sr no	Parameters	Observation
1	Colour	Brown colour
2	Odour	Pleasant
3	Appearance	Smooth and fine
4	Texture	Fine
5	smoothness	Smooth

**Physicochemical Evaluation:**

The physicochemical properties for the herbal face pack were assessed and are displayed in Table 3. The preparation's pH was discovered to be almost neutral. The moisture content didn't exceed the threshold.

**Table 3: Physicochemical Evaluation:**

Sr no	Parameters	Observation
1	pH	7.1
2	Loss On Drying	2.5

**Physical Evaluation:**

The physical assessment (powder property) of the herbal pace pack was carried out, as indicated by table number 4. The herbal face pack's flow characteristics were discovered to be non-sticky and free-flowing.

**Table 4: Evaluation of flow properties.**

Sr no	Parameter	Observation
1	Bulk Density	0.30 g/ml
2	Tapped Density	0.36 g/ml
3	Angle of Repose	20.2
4	Hausner's Ratio	1.2
5	Carr's Index	16.66%

**Irritancy Test:**

In irritancy testing, the formulation exhibited no redness, swelling, or irritation. It is safe to use these formulations on skin.

**Table 5: Irritancy Test:**

Sr no	Parameters	Observation
1	Irritation	No
2	Redness	No
3	Swelling	No

**Stability Studies:**

Table 6 displayed the stability results. No changes in color, smell, texture, pH, or smoothness were noted under the specified circumstances.

**Table 6: Stability Test.**

Sr no	Parameters	Room Temperature	40°C
1	Colour	No Change	No Change
2	Odour	No Change	No Change
3	Texture	Fine	Fine
4	Smoothness	Smooth	Smooth
5	pH	7.1	7.1

**CONCLUSION:**

People nowadays seek a non-side effect solution for a variety of skin conditions. The use of herbal components in cosmetic formulations allowed for the development of safe formulas. Herbal face masks are regarded as a long-lasting and effective method of improving skin look. Therefore, the current study represents a very good attempt to formulate a herbal face pack using readily available natural materials such as rice flour, coffee, turmeric, aloe vera, sandalwood, and multani mitti.

As a cosmetic product, we observed that the face packs had favorable characteristics on human skin. Herbal face packs and masks are used to increase blood flow, revitalize the muscles, preserve skin elasticity, and clear impurities from pores. Herbal cosmetics have the advantage of being nontoxic, reducing allergic reactions, and having many substances that have been shown to be effective throughout time. This face pack is affordable, useful, and met all evaluation requirements.

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