

## 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 Spirulina, ashwagandha, gram flour, neem powder, aloe vera powder, orange peel powder were collected and prepared in the form of dried powder. The powder of orange peel and aloe vera was prepared by shade drying commercially, all powdered natural ingredients were sieved using #44 mesh, weighed accurately and mixed geometrically for uniform formulation and then evaluated for parameters including morphological, physico-chemical, 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.

**Keyword:** Herbal face pack, Anti-aging, Anti-inflammatory, Skin Exfoliant, Antibacterial.

### 1. INTRODUCTION

Everybody wants to get fair and charming skin. Now a day, Acne, black head, pimples, dark circle are common among youngsters and person who suffers from it. 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, medicines are described in Ayurveda for blood purification. Herbs like Manjistha, Lodhra, Chandana, Haridra etc are good example of blood purifier. The herbal paste which is applied on face to treat acne, pimple, scars, marks and pigments are known as “mukha lepa” in ayurveda. The process of smearing this herbal mix on face is known as “mukha lepana”. This beauty therapy is popular as facial. The smooth powder which is used for facial application is “face pack”. A good herbal face pack must supply necessary nutrients to skin. It should penetrate the subcutaneous tissues in order to deliver the required nutrients. Different types of skin need different types of herbal face packs. [1]

There are various kinds of face packs described in Ayurveda which have nourishing, healing, cleaning, astringent and antiseptic properties. We can prepare face pack in home with basic ingredients found in house and kitchen. Herbal face packs are cheaper and have no side effects for getting fair skin naturally. From the ancient era people are using herbs for cleaning, beautifying and to manage them. Cosmetics are defined as the products used for the purposes of cleansing, beautifying, promoting attractiveness or alternating one's appearance. [2,3,4] 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 [5] 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. [6] 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. [7]

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. [8]

### **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. Face packs usually remove dead cells of skin.
4. These face masks provide a soothing and relaxing effect on skin.
5. They help to restore the lost shine and glow of skin in short span of time.
6. Regular use of natural face masks bring glow to skin, improve skin texture and complexion.
7. The harmful effects of pollution and harsh climates can be effectively combated with judicious use of face packs.
8. They help to prevent premature aging of skin.
9. Formation of wrinkles, fine lines and sagging of skin can be effectively controlled by using natural face packs.
10. 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. [9,10]

### **Precautions to be Taken While Applying**

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 enlargement of open pores.
3. Apply face pack once in a week. Don't try to peel or scratch the dried face pack. This may harm underlying skin.
4. 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.
5. 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.
6. 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. [11,12,13]

### **MATERIALS AND METHODS:**

The materials used in the present study were dried and powdered for further use. The below are the details of the plant materials study. The details of the plant material used for the formulation of the face pack are mentioned below.

## Materials:

### 1. Spirulina



Figure 1: spirulina

- **Synonym:** Blue green algae.
- **Biological source:** Spirulina is produced from pure cultures of the photosynthetic prokaryotic cyanobacteria *Arthrospira*.
- **Family:** Oscillatoriaceae.
- **Plant part used:** Dried biomass of *Arthrospira platensis*.
- **Chemical constituents:** Phenolic acid, Flavonoid gamma-linoleic acid,  $\beta$  carotene, Phycocyanin, chlorophyll, Saponin, triterpenoid, and steroid.
- **Uses:** Spirulina offers several benefits to the skin; it can help decrease inflammation, improve tone, encourage cell turnover, and more. Even skin tone and texture - it contains vitamin B<sub>12</sub>, vitamin A, vitamin E, phosphorus, and iron – all the elements that are vital for the health of the skin. It helps you get rid of existing acne and prevents the development of new ones. Spirulina helps your skin heal faster and encourages the skin cells renewal process. It clears up your skin, brightens your complexion and gives your skin that youthful dewy glow. spirulina face mask benefits your skin by protecting it from free radicals. It contains powerful antioxidants that keep your skin healthy and prevent premature aging signs.

### 2. Ashwagandha



Figure 2: Ashwagandha

- **Synonym:** Balya, vajikari, vajigandha, varahakarni, turangagandha, hayagandha, kushthagandhi.
- **Biological source:** It consists of root of *withania somnifera*.
- **Family:** Solanaceae.
- **Plant part used:** Root of ashwagandha.

- **Chemical constituents:** Withanolide, withaferin A, Tropine.
- **Uses:** Ashwagandha has effective antimicrobial, antioxidant and anti-inflammatory properties that help to protect and heal your skin from different forms of infections, damages, and reactions. It can be used on types all of skin. With rich bio-active components such as withanolides, alkaloids, and saponins, ashwagandha provides deep cleansing, moisturizing and calming effects on your skin. Studies found that the extracts of ashwagandha can significantly control the prevalence and reoccurrence of skin cancer. It also helps to boost the collagen in skin.

### 3. Gram Flour



**Figure 3: Gram Flour**

- **Synonym:** Chickpea flour.
- **Biological source:** Milled from dried Chickpeas.
- **Family:** Cicer arietinum L.
- **Plant part used:** Brown chickpeas.
- **Chemical constituents:** Protein, Fat, Carbohydrates.
- **Uses:**  
The high content of zinc in gram flour will help to fight infections that cause acne. It removes dead skin, astringent and protective. The gram flour face pack has exfoliating properties and acts as a cleanser. Using gram flour scrub, you will have beautifully clean skin free whiteheads and blackheads. Prevents premature ageing of the skin.

### 4. Neem powder



**Figure 4. Neem powder**

- **Synonyms:** Neem tree, Azadirachta indica, margosa, nim tree.
- **Biological Source:** It consists of dried powder of the leaves of the plant Azadirachta Indica.

➤ **Family:** Meliaceae.

➤ **Plant part used:** Neem tree leaves.

➤ **Chemical constituents:** Nimbin, Nimbidiin, Nimbandiol.

➤ **Uses:**

The benefits of neem leaves powder include reducing acne, scars, blackheads, and whiteheads. Organic neem powder is also beneficial in smoothening the skin, reducing oiliness, and whitening the skin. Face masks, face packs, and such are also regarded as popular uses of neem powder for the face. Neem is a medicinal plant having anti-inflammatory and healing properties. Thus, it can make your skin healthy. Neem is a common ingredient in many skin care products. It is known for its antibacterial and healing properties. If you want a solution for your acne breakouts that isn't harsh to your skin, then neem can be one. Antioxidant-rich neem leaves soothe rashes and irritations on the skin.

## 5. Aloe-vera



**Figure 5. Aloe vera**

Aloe vera is a cactus-like plant that grows in desert regions around the world. Its leaves produce a gel that is rich in vitamins A, C, E, and B<sub>12</sub>.

➤ **Synonyms:** Aloe barbadensis Mill., Aloe indica Royle, Aloe perfoliata L. var. vera and Aloe vulgaris Lam.

➤ **Biological Source:** Dried latex of leaves.

➤ **Family:** Liliaceae.

➤ **Plant part used:** Aloe Vera leaves.

➤ **Chemical constituents:** Anthraquinones, chromones, anthrones, phenolic compounds, flavonoids, tannins, steroids.

➤ **Uses:**

Using aloe vera on the face has benefits because:

- Its anti-inflammatory properties can reduce pain, swelling, and soreness of wounds or injuries.
- It supports the production and release of collagen.
- It can wound healing time and limits scarring.
- It reduces the healing time of first-degree and second-degree burns.
- It is effective in treating fungal and bacterial infections.
- It has an antioxidant effect that can help repair sun damage and slow down the aging process of the skin.
- It protects the skin from the damaging effects of radiation therapy.
- It contains 98% water, which helps moisturize, soothe, and hydrate the skin.
- It helps to make the skin more flexible.
- It has a cooling effect on rashes or sunburns.



## 6. Orange Peel

- **Synonym:** Orange rind.
- **Biological source:** It consists of fresh and dried outer part of the pericarp of citrus aurantium Linn.
- **Family:** citrus sinensis.
- **Plant part used:** orange peel.
- **Chemical constituents:** Pectin, cellulose, hemicellulose, limonene, carotenoids.
- **Uses:** 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.



**Figure No 6. Orange peel**

## 2. Experimental Work:

### 2.1 Formulation Table:

| Sr. NO. | Ingredients | Scientific Name         | F1   | F2   | F3   |
|---------|-------------|-------------------------|------|------|------|
| 1       | Spirulina   | Arthrospira Platensis   | 20gm | 18gm | 19gm |
| 2       | Ashwagandha | Withania Somnifera      | 20gm | 17gm | 18gm |
| 3       | Gram Flour  | Cicer Arietinum L.      | 20gm | 16gm | 17gm |
| 4       | Neem Powder | Azadirachta Indica      | 15gm | 17gm | 15gm |
| 5       | Aloevera    | Aloe Barbadensis        | 15gm | 17gm | 16gm |
| 6       | Orange Peel | Citrus Aurantium Dulcis | 10gm | 15gm | 15gm |

**Table 1: Formulation of herbal face pack.**

### 2.1.1 Methodology of preparation

- First all the ingredients were dried and grind up using household mixer.
- Then passed through a mesh size 44.

- Then powder ingredients weighed according to the requirement and used for further formulation.
- Then physically combine the powder in mortar and pestle were used.
- Final formulation sieved through sieve number 60 and stored in air tight container.

### **How to use:**

The pack should be used every day on a damp face after making a thick paste of it with water. It needs to be spread evenly all over the face using a brush. To ensure complete drying, it needs to be left for 15 minutes. A wet sponge should then be used to remove it.

### **Evaluation of face pack**

#### **Morphological evaluation**

It relates to the manual assessment of the physical qualities of the herbal face pack based on its color, odor, look, texture, etc. [14,15]

#### **Physical evaluation**

The sieving method was used to measure the particle size. The mixed powder's dried powder flow characteristics was assessed through the use of bulk density, tapped density, and angle of repose by funnel method. [16,17]

#### **Physicochemical evaluation**

The measurement of physicochemical parameters, such as pH and particle size, took place. [18,19,20]

#### **Irritancy test**

Mark a 1-square-centimeter spot on the left dorsal Surface. A specific number of prepared face packs were applied to the designated area, and the application time was recorded. Irritability, erythema, and edema were assessed and reported if present at regular intervals lasting up to 24 hours. [21,22]

#### **Stability study**

By keeping the created formulation at various temperatures for a month, stability testing was done on it. The packed glass vials of formulation were tested for physical characteristics such as color, odor, pH, consistency, and feel while being stored at different temperatures such as room temperature and 40°C. [23,24,25]

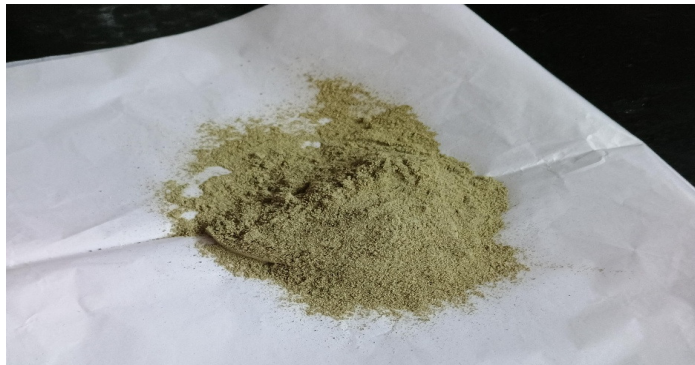
## **3. RESULT**

#### **Morphological evaluation**

A morphological evaluation of a herbal face pack is shown in the Table. Formulation was a light green color. The produced formulations' pleasant and well-acceptab flavor makes them ideal for cosmetic formulations. Smoothness and texture was suitable for cosmetic formulation requirements.

| <b>Appearance</b> | <b>Powder</b>  |
|-------------------|----------------|
| Color             | Slightly green |
| Odor              | Pleasant       |
| Texture           | Fine           |

Prepared face pack -



**Figure. Prepared Herbal Face Pack**

### Physical evaluation

The physical parameters of the herbal face pack were assessed, and the results are shown in the table. The flow (powder) characteristics of the herbal face pack were supported by rheological data. It was determined that it had a free-flowing, non-sticky character.

| Parameters      | F1          | F2        | F3          |
|-----------------|-------------|-----------|-------------|
| Tapped density  | 0.7407gm/ml | 0.80gm/ml | 0.7709gm/ml |
| Bulk density    | 0.5714gm/ml | 0.60gm/ml | 0.5813gm/ml |
| Angle of repose | 40.82       | 41        | 38.40       |
| Hausner's ratio | 1.2962      | 1.5       | 1.72        |
| Carr, s index   | 22.85%      | 23.40%    | 24.10%      |

### Physiochemical evaluation

The physical-chemical parameters for the herbal face pack were tested. The formulation's pH was found to be rather neutral. The range of formulations' particle sizes was found to be 25um.

|               |      |      |         |
|---------------|------|------|---------|
| pH            | 7.4  | 7.6  | 7.5     |
| Particle Size | 25um | 24um | 24.50um |

### Irritancy test

The table below displays the results of the irritancy test. During irritancy trials, the formulation displayed absence of irritation, redness, and edema. This formulation is skin safe for usage..

|            |    |
|------------|----|
| Irritation | No |
| Edema      | No |
| Swelling   | No |
| Redness    | No |

### Stability test

The stability results were displayed in Table. No change in color, smell, texture, or smoothness was noticed under the stability parameters stated. The stability research indicated that at normal temperature.

|         |           |
|---------|-----------|
| Color   | No change |
| pH      | No change |
| Odor    | No change |
| Texture | No change |



## **CONCLUSION:**

It has been discovered that herbal face packs have the ability to effectively give skin a glowing appearance. The present study successfully developed a novel herbal face pack formulation combining Spirulina, Ashwagandha, Neem, Orange Peel, Aloe Vera, and Gram Flour. The formulation demonstrated synergistic skin benefits, including antioxidant, anti-aging, skin soothing, brightening, hydration, and exfoliation properties. The optimized formulation showed excellent efficacy, stability, and safety profiles, making it a promising natural and sustainable solution for various skin concerns. Due to its beneficial effects on humans, the entire study is relevant to support product claims. The elements of natural medicines are more acceptable because they are less likely to cause side effects and are safer than synthetic ones. The demand for herbal formulations is rising on the global market. Herbal face packs are used to increase blood flow, revitalise muscles, preserve the flexibility of the skin, and clear out skin pores. We made a sincere effort to create a herbal face pack using all-natural herbal ingredients. These face pack are non-toxic, non-allergic, and have a larger shelf life. Herbal face packs have the potential to provide an efficient glowing effect on the skin. For regular glow, its recommended to use herbal face packs 2-3 times a week.

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