

# Formulation and Evaluation of Polyherbal Face Pack for Healthy Skin

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**Abstract** - Now a day, human skin has become more sentient for faster aging, atopic dermatitis, acne and many more skin related problems, which mainly arise due to increased pollution, allergy, microbe's etc. This venture has been taken to prepare an herbal face pack which is consummate for all skin types. In present study, the four different formulations were prepared which was made up of natural materials i.e. aloe vera, turmeric, lodhra, sandal wood, amla, gram flour, nutmeg, manjistha, liquorice and multanimitti. After preparation, different parameters were evaluated in order to meet up the quality standards. The organoleptic evaluation of prepared formulations showed that the face pack is smooth and slight smelling powder. The pH of all formulations observed near to neutral range. During irritancy test, no one formulation expresses any type of irritation and hence the results proved that all face pack formulations including F1, F2, F3 and F4 are suitable for its intended use.

**Index Terms** - Herbal, Face pack, Formulation, Evaluation.

## I. INTRODUCTION

The health of an individual is indicated by face skin, which is a major part of the body. To keep skin clear glossy and healthy, a balanced nutrition of materials such as amino acids, lipids, and carbohydrates etc. are required. For facial application, the smooth powder known as face pack is used. These preparations are applied on the face in the form of liquid or paste and allowed to dry and set to form film which provides tightening, strengthening and cleansing effect to the skin. To evaporate all the water from face pack leave it for ten to twenty-five minutes, the resulting film thus contracts and hardens and can easily be removed. By application of face pack, the warmth and tightening effect is produced which simultaneously produces the stimulating sensation of a rejuvenated face while in these preparations the dirt and grease from the facial

skin can be removed by using the colloidal and adsorption clay. When the applied face pack is eventually removed, skin debris and deposited dirt gets removed with it. Basically, face packs are additives delivering some additional privilege. Different types of herbal face packs are used for different types of skin. Herbal face packs are helps to reduce wrinkles, pimples, acne and dark circles. In addition, fairness and smoothness of skin can be increase by using herbal face pack. The Natural face packs carry some vital vitamins that are essential 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 intricate and pretty simple to use. They help us to increases the circulation of the blood within the veins of the face by proving its worthiness and also help in keep an eye on skin. For the regular glowing skin, facial packs should be used 2-3 times a week because their effects are generally temporary.

## II. MATERIALS AND METHODS

### A. MATERIALS

In the present study, all the natural materials used i.e. aloe vera, turmeric, lodhra, sandal wood, amla, gram flour, nutmeg, manjistha, liquorice and multanimitti were purchased from local market of Bhandara (M.S.). All these natural materials were dried and powdered for further use. The below mentioned are the details of the plant materials used for the formulation of face pack.

**Aloe Vera (Aloebarbadensis):-**

Aloe vera is the well known medicinal plant considered as a prized possessions for skin disorders. It imparts the sensation of freshness and gives nourishment to skin cells. It also acts as a good

moisturizer intended for a skin. In cosmetology, Aloe vera principally deals with the mess of pigmentation, skin eruption, itching, blisters, skin aging, sun burns and pimples. It contains almost 20 amino acids, minerals, vitamins, Polysaccharides and several other nutrients that make it a miracle beauty herb.

**Turmeric (Curuma longa):-**

Turmeric always have a very important role to renovate the skin. It delays the signs of aging like wrinkles and also possesses other properties like antibacterial, antiseptic and anti-inflammatory. It is well known blood purifier. Due to its antiseptic and antibacterial properties, it is effective in treatment of acne that fights pimples and breakouts to provide a youthful glow to skin. It also reduces the oil secretion by the sebaceous glands.

**Lodhra(Symplocosracemosa):-**

Lodhra nourishes the skin and benefits in acne, wrinkles and other health issues related with skin. It brightens skin colour, reduces skin irritation and benefits for acne, wrinkles and other skin related issues. Lodhra is useful in skin diseases requiring purification of the skin.

**Amla(Emblicaofficinalis):-**

Amla is the most rich source of Vitamin C. Amla exert its antioxidant effect and can protects the skin cells against free radical damage. Due to its antibacterial and astringent properties, it help to prevent different type of infections. Amla is used to treat skin disorders and premature aging. Amla has revitalizing effects, as it contains an elements which are very valuable in prevent aging and in maintaining strength in old age. It moisturizes the skin, cleanses the tissues of toxins, and supports immunity of the skin against bacterial infection. It helps to enhance glow and luster.

**Sandalwood (Santalum alba):-**

Multiple medicinal properties of sandalwood make it as a best and most reliable home remedies for face. Sandalwood has powerful antimicrobial properties that work effectively in fighting the bacteria and fungi and prevent the breakout of pimples and acne. Its paste is one of the best skin remedies used to sooth harsh sunburns and clear skin tanning. In shrinking skin pores, the toning effect of sandalwood provides an even skin texture and prevents sagging and aging of

skin. It provide a supplement and youthful appearance to the skin by tightening the drooping skin tissues.

**Gram Flour (Cicerarietinum):-**

Since the olden times, gram flour has been used extensively for its beauty enhancing benefits. It mainly acts as a tonic for the skin as it helps to clean and exfoliate it. Gram flour is nothing but pulse flour obtained from ground chickpeas. It is very advantageous for skin as well as for hairs. It is known for good anti- pimple agent as it can bring down tanning of the skin and also reduces the oiliness of skin. It lightens the skin tone, therefore used as an instant fairness agent.

**Nutmeg (Mystricafragnans):-**

Nutmeg belongs with antioxidant, antimicrobial and anti-inflammatory activity. Nutritionally, nutmeg is rich in energy, carbohydrates, proteins, minerals, and dietary fiber. It is particularly rich in vitamins A, C and E.11 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.

**Manjistha(RubiaCordifolia):-**

Manjistha holds the reputation of a very good skincare herb. Used externally and internally, it helps one to gain luster and glow of the skin and aids to remove pimples, freckles and discoloration. Its paste should be applied in various skin disorders like itching, black spots on the face, pimples, leucoderma etc.

**Liquorice(Glycyrrhiza glabra):-**

It contains anti-inflammatory and antimicrobial properties. It is used to treat skin problems like eczema and acne. It is rich source in antioxidants, also lightening the facial skin. and anti-aging benefits.

**Multani Mitti(Fuller's Earth):-**

Multani mitti helps to detach the impurities in the form of dead skin cells. The skin become radiant with its use. It has been proven best remedy for the irritation-prone skin. Its soothing action serene the skin, cures the inflammation caused due to elevated phlogistic agents. It is perfect for oily skin. It removes the dirt and excess of oil by acting as a perfect adsorbent. It provides fresh, radiant and glowing skin.

**B. METHODS**

### B. 1 METHOD OF PREPARATION

In this formulative study, four different formulations named as F1, F2, F3 and F4 were prepared with varying concentrations of all natural ingredients. The concentration of each ingredient was mentioned in table 1. The powdered ingredients were sieved using #20 mesh, weighed accurately by using digital balance and mix geometrically for uniform mixing. This was then stored in an airtight container, labeled and used for further evaluation studies.

### B.2 Procedure of Face Pack Application

Take prepared face pack powder in a bowl as per the requirement and add sufficient water to make paste. 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 minutes and then wash with cold water.

### B.3 Method of Evaluation

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

#### A. Organoleptic Evaluation

The evaluation of organoleptic parameters such as colour, appearance and texture were carried out. Colour and texture was evaluated visually and by touch sensation respectively. For odour evaluation, a team of five odour sensitive persons were selected.

#### B. Physicochemical Evaluation

Different physicochemical parameters were evaluated as follows.

##### i) pH

Computation of the pH was done by using 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 gets poured into a glass beaker and pH was determined directly without any dilution within 5-10 minutes.

##### ii) Loss on Draying

Insufficient drying may lead to possible enzymatic deterioration of active principles hence determination of moisture content is important parameter for the herbal drugs. Weigh accurately about 3 gm of powder drug in petri dish and placed in hot air oven and

measure the weight after 30 minutes up to standard weight.

##### iii) Ash value

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

### 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

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

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

Where,

$\theta$ - Angle of repose,

h - Height of the heap,

r - Radius of the base.

#### ii) Bulk Density

It is the ratio of 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 formula, Bulk density = mass of powder/volume of powder.

#### iii) Tapped Density

It is measured by transferring a known quantity (10 gm) of powder into a graduated cylinder and tapping it for 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 mass of the powder to the tapped volume.

$$\text{Tapped density} = \text{mass of powder/tapped volume}$$

#### 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 an area of 1 sq. 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 and edema was checked if any, for regular intervals up to 24 hrs and reported.

### III. RESULTS AND DISCUSSION

The four different formulations were prepared by using different natural ingredients with varying concentrations as mentioned in Table 1. The observation of organoleptic evaluation was mentioned in Table 2. The color of all formulations was same with very slight difference as due to variation in composition of contents. In visual examination, all formulations including F1, F2, F3 and F4 were slightly brownish in color. The odor of prepared formulations was good acceptable which is desirable as cosmetic formulations. The different formulation evaluated for physicochemical parameters shown in the Table 3. The pH of all formulations observed near to neutral range i.e. in the range of 6 to 7. The ash content and moisture content were within limit. The general powder characteristics were evaluated to study flow property parameter displayed in Table 4. The parameters like Angle of repose, Bulk density, Tapped density and Hausner's ratio were observed which denoted the free flowing properties. The results of irritancy test were shown in Table 5. When these facepack formulations applied on the skin of left hand, they did not produce any type of redness, edema, inflammation and irritation. These formulations are safe to use for skin. Now a day, atmospheric pollutants are an important source of oxidative stress which causes free radical damage to skin. Apart from this microbial attack, sunburn, dirt particles, aging problem etc. also affect the facial skin. In present study, the four different formulations were prepared with varying concentrations of all ingredients are belongs with particular medicinal value. The ingredients like aloe vera, amla, turmeric, liquorice and nutmeg belong with antioxidant, antimicrobial and

anti-inflammatory activity as stated earlier. Gram flour helps to clean the skin and decrease tanning of the skin. Since tradition, lodhra, majistha and multanimitti are used for skin related issue and it get proved in various scientific studies. The powerful antimicrobial properties of sandalwood work effectively in fighting the bacteria and fungi and prevent the breakout of pimples and acne. Sandalwood paste is reported as a one of the best clear skin remedies that can be used to sooth harsh sunburns and clear skin tanning.

### IV. CONCLUSION

The herbal formulations always have attracted considerable attention worldwide as due to their belief for safer efficacy with fewer side effects than the harmful synthetic chemicals. The bioactive ingredients from plants include antioxidants, vitamins, essential oils, tannins, alkaloids, dyes, carbohydrates, and terpenoids, which are used as cosmetics for care of skin, body, and its other parts. It is a very good attempt to establish the herbal face pack containing different powdered materials. In present study, four different formulations were prepared and subjected for different evaluation. These formulations providing satisfactory result and improve the skin health without any side effects. This beneficial effect might be due to the antioxidant, anti-inflammatory, antimicrobial and sun protective properties of the different ingredients.

Table 1: Formulation of face pack.

Name of ingredients	Scientific Name	Quantity of sample for 50 g			
		F1	F2	F3	F4
Aloe Vera	<i>Aloe barbadensis</i>	2	4	8	10
Lodhra	<i>Symplocos racemosa</i>	6	8	10	4
Turmeric	<i>Curuma longa</i>	1	1	1	1
Amla	<i>Emblica officinalis</i>	8	10	2	6
Sandalwood	<i>Santalum alba</i>	10	6	4	2
Gram flour	<i>Cicer arietinum</i>	5	5	5	5
Nutmeg	<i>Myristica fragrans</i>	4	2	6	8
Manjistha	<i>Rubia Cordifolia</i>	3	4	5	6
Liquorice	<i>(Glycyrrhiza glabra)</i>	6	5	4	3
Multani Mitti	Fuller's Earth	5	5	5	5

Table 2: Organoleptic Properties

Parameters	Observation			
	F1	F2	F3	F4
Appearance	Powder	Powder	Powder	Powder
Color	Brownish	Brownish	Brownish	Brownish
Odour	Slight	Slight	Slight	Slight
Texture	Fine	Fine	Fine	Fine
Smoothness	Smooth	Smooth	Smooth	Smooth

Table 3: Physicochemical Evaluation

Parameter	Observation			
	F1	F2	F3	F4
pH	6.78±0.12	6.96 ± 0.24	6.54 ± 0.22	6.60±0.18
Moisture content	4.9	5.1	5.4	5.2
Ash value	1.34	1.43	1.53	1.96

Table 4: General Powder Characteristics

Parameters	Observation			
	F1	F2	F3	F4
Angle of repose(°)	36.12	36.44	37.12	36.98
Bulk density (g/cm <sup>3</sup> )	0.32	0.34	0.35	0.37
Tapped density(g/cm <sup>3</sup> )	0.46	0.47	0.52	0.51
Hausner's ratio	1.43	1.38	1.48	1.37

Table 5: Irritancy Test

Evaluation	F1	F2	F3	F4	Observation
Irritancy	Nil	Nil	Nil	Nil	No irritation
Erythema	Nil	Nil	Nil	Nil	No irritation
Edema	Nil	Nil	Nil	Nil	No irritation

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