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# PREPARATION AND EVALUATION OF POLYHERBAL FACE PACK

**Issue-1** 

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## ABSTRACT

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 prepare an herbal face pack ideal for all skin types. The four different formulations were prepared in present study, made up of natural materials i.e. aloe vera, sandal wood, lemon peel, amla, gram flour and nutmeg. After preparation, different parameters were evaluated in order to meet up the quality standards. The organoleptic evaluation of prepared formulations showed that the pack is smooth and slight smelling powder. The pH of all formulations observed near to neutral range. During irritancy test, formulations F3 showed mild irritation while F1, F2 and F4 do not shows any irritation. The results proved that the face pack formulations F1, F2 and F4 are suitable for its intended use.

Keywords – Herbal, Formulation, Evaluation, Antioxidant, Face pack.

## 1. INTRODUCTION

Face skin is a major part of the body, which indicates the health of an individual. It is consisting of materials such as amino acids, lipids, and carbohydrates etc. so that a balanced nutrition is required for the skin to keep it clear glossy and healthy.<sup>1</sup>

Face pack is the smooth powder which is used for facial application. These preparations are applied on the face in the form of liquid or paste and allowed to dry and set to form film giving tightening, strengthening and cleansing effect to the skin. 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 application of 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 basically additives delivering some additional benefits. Different types of herbal face packs are helps to reduce wrinkles, pimples, acne and dark circles. It also increases the fairness and smoothness of skin.<sup>2</sup> The Natural face packs 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

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within the veins of the face. Effects of the facial packs are generally temporary and for the regular glow it should be used 2-3 times a week.<sup>3</sup>

### 2. MATERIALS AND METHODS

All the natural materials used in the present study i.e. Aloe vera, sandal wood, lemon peel, amla. gram flour and nutmeg were purchased from local market of Bhandara (M.S.). All these 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.

### 2.1 Aloe Vera (Aloe barbadensis)

Aloe Vera is utilized as a decorative plant as well as for herbal medication. Aloe vera valuable for skin disorders. It imparts the sensation of freshness and gives nourishment to skin cells. It is also good moisturizer intended for a skin. In cosmetology, Aloe vera especially deals with the problem 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.<sup>4</sup>

#### 2.2 Lemon Peel (Citrus Limon L.)

Lemon peels exhibited a broad spectrum of antibacterial activity and comparable efficacy to the synthetic antioxidants. The plant is a potential source of vitamin C, and the oil is used in various preparations to reduce skin itching, for skin nourishment and the pulp left after extraction of the juice is reported to be used for the treatment of pimples and wrinkles and to soften the skin.<sup>5</sup> Rubefacient action sorts out cellulose and helps to reduce acne.<sup>6</sup>

#### 2.3 Amla (Emblica officinalis)

Amla is the most concentrated form of Vitamin C. Amla protects cells against free radical damage and provides antioxidant protection. Amla has antibacterial and astringent properties that help to prevent infection. Amla is used to treat skin disorders and premature aging. Indian gooseberry has revitalizing effects, as it contains an element which is 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.<sup>7</sup>

#### 2.4 Sandalwood (Santalum alba)

There is a wide range of medicinal properties of sandalwood that makes it the best and most reliable home remedies for face. 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 one of the best clear skin remedies that can be used to sooth harsh sunburns and clear skin tanning. The toning effect of sandalwood helps in shrinking skin pores that provides an even skin texture and prevents sagging and aging of skin. It tightens the drooping skin tissues in order to provide a supplement and youthful appearance to the skin.<sup>8</sup>

#### 2.5 Gram Flour (Cicer arietinum)

Gram flour has been used extensively since the olden times 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 grinded chickpeas. It is very beneficial for

skin as well as hair. It is used to decrease tanning of the skin and also reduces the oiliness of skin; thus proving as a good antipimple agent. It lightens the skin tone, therefore used as an instant fairness agent.<sup>9</sup>

## 2.6 Nutmeg (Mystrica fragnans)

Nutmeg belongs with antioxidant, antimicrobial and anti-inflammatory activity.<sup>10</sup> Nutritionally, nutmeg is rich in energy, carbohydrates, proteins, minerals, and dietary fiber. It is particularly rich in vitamins A, C and E.<sup>11</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.<sup>2</sup>

## 2.7 Method of preparation

Four different formulations were prepared with varying concentrations of all ingredients named as Fl to F4. Concentration of each ingredient was mentioned in table 1. The powered 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.<sup>12</sup>

Sr No	Name of ingredients	Scientific Nama	Quantity of sample for 35g				
51. NO.		Scientific Name	F1	F2	F3	F4	
1	Aloe Vera	Aloe barbadensis	2	4	8	10	
2	Lemon peel	Citrus Limon L	6	8	10	4	
3	Amla	Emblica officinalis	8	10	2	6	
4	Sandalwood	Santalum alba	10	6	4	2	
5	Gram flour	Cicer arientinum	5	5	5	5	
6	Nutmeg	Mystrica fragnans	4	2	6	8	

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## 2.8 Procedure of Face Pack Application

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

## 2.8.1 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.<sup>13</sup>

## **B.** Physicochemical Evaluation <sup>13,14</sup>

## i) pH

The pH was measured 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 shall be poured into a glass beaker and pH determined directly without any dilution within 5-10 minutes.

### ii) Loss on Draying

Moisture content is important for the plant drugs because insufficient drying may lead to possible enzymatic deterioration of active principles. 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

Ash value is calculated to determine the inorganic contents which are characteristic for an herb. About 2 gm of powder drug was taken in crucible dish previously ignited and weighed. Temperature was increased by gradually increasing the heat not exceeding to red color. After complete burning, ash is cooled and weighed.

### **C. General Powder characteristics**

Physical parameters like Angle of repose, Bulk density, Tapped density and Hausner's ratio were observed and calculated for the formulation.<sup>9</sup>

### 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.

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.

#### Hausner's ratio = Tapped density/Bulk density

#### **D.** Irritancy test

Mark an area (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.<sup>15</sup>

Cr. No.	Parameters	Observation					
51. NO.		F1	F2	F3	F4		
1	Appearance	Powder (Free flowing)	Powder (Free flowing)	Powder (Free flowing)	Powder (Free flowing)		
2	Color	Brownish	Slightly green brown	Brownish	Brownish		
3	Odour	Slight	Slight	Slight	Slight		
4	Texture	Fine	Fine	Fine	Fine		
5	Smoothness	Smooth	Smooth	Smooth	Smooth		

#### **Table 2: Organoleptic Properties**

### **Table 3: Physicochemical Evaluation**

Sr. No.	Parameters	Observation					
		F1	F2	F3	F4		
1	pН	6.50 ± 0.1	6.30 ± 0.22	6.72 ± 0.21	6.40 ± 0.18		
2	Moisture content	4.4	5.2	5.7	5.4		
3	Ash value	1.33	1.53	1.63	2.20		

#### **Table 4: General Powder Characteristics**

Sr No	Daramatara	Observation				
51. NO.	Parameters	F1	F2	F3	F4	
1	Angle of repose	36.02	36.32	37.04	36.93	
2	Bulk density	0.31	0.32	0.33	0.37	
3	Tapped density	0.47	0.45	0.51	0.50	
4	Hausner's ratio	1.51	1.40	1.54	1.35	

#### **Table 5: Irritancy Test**

Sr. No.	Evaluation	F1	F2	F3	F4	Observation
1	Irritancy	Nil	Nil	+	Nil	No irritation
2	Erythema	Nil	Nil	Nil	Nil	No irritation
3	Edema	Nil	Nil	Nil	Nil	No irritation

## **3. RESULTS AND DISCUSSION**

The results of organoleptic evaluation were displayed in Table 2. The colors of formulations were different due to variation in composition of contents. Formulation F1, F2 and F4 were slightly brown in color while formulation F3 expresses slight green brownish. 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. The formulations F3 showed mild irritation may be due to the presence of lemon peel. The formulations prepared by lowering the concentration of lemon peel i.e. F1, F2 and F4 do not shows redness, edema, inflammation and irritation during irritancy studies. 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, sunbum, 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. The ingredients like *aloe vera*, amla, lemon peel 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. The powerful

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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.

### 4. CONCLUSION

Herbal formulations are more acceptable in the belief that they are safer with fewer side effects than the synthetic ones. Herbs have growing demand in the world market. 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 appearance of the skin without any side effects. This beneficial effect might be due to the antioxidant, anti-inflammatory, antimicrobial and sun protective properties of the different ingredients.

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