

**FORMULATION AND EVALUATION OF COSMETIC HERBAL FACE PACK FOR GLOWING SKIN****Dhananjay Chandrakant Abhang\*, Priya Arun Walke and Shubham Vasant Gholap**

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**ABSTRACT**

Natural remedies are more popular because it is belief that they are safe and have fewer side effects than synthetic treatments. There is a growing demand for herbal preparations in the commercial world. Therefore, the main aim of our work is to develop and evaluate facial cosmetics for radiant skin using natural ingredients. Four different formulas with different variations include ingredients like multani mitti, turmeric, aloe vera powder, starch, methi powder, coffee powder, hibiscus powder, rose powder and red gram; were prepared and named F1 to F4. All preparations were evaluated according to variables such as organoleptic properties, physicochemical parameters, stability as well as irritation and microbial load tests. Among all formulations, F4 has been shown to be physically harmless, does not irritate the skin, maintains its consistency even in a stable environment, and is also microbiologically stable.

**KEYWORDS:** Skin, Face pack, Ayurveda, Natural ingredients, Formulation, Evaluation.**INTRODUCTION**

Everyone wants to have fair and attractive skin. Nowadays, pimples, acne and blackheads are frequently encountered in young people and those who have blackhead problems. According to Ayurveda, most skin problems are caused by impurities in the blood. Poor diet and lifestyle cause accumulation of toxins in the blood and skin diseases. Ayurveda describes various herbs and medicines for purifying the blood. Herbs such as Manjistha, Lodhra, Chandana, Haridra etc are good examples of blood purifiers. Herbal pastes used on the face to treat acne, pimples, scars, marks and pigments called "mukha Leap" in Ayurveda. The process of applying the herbal mixture to the face is called "mukha lepana". This beauty treatment is as popular as the facial. It is a smooth powder which is used for facial application is "face pack". A good herbal facial should provide essential nutrients to the skin. It must penetrate the subcutaneous tissue to provide necessary nutrients. Different skin types require different types of herbal masks. Face pack are smooth powders applied to the face. These preparations are applied to the face in liquid or paste form, dry and solidify into a film that tightens, strengthens and cleanses the skin. Most are left on the skin for ten to twenty-five minutes to allow all moisture to evaporate so that the resulting film shrinks, hardens, and can be easily removed. Face packs are basic additives with a few additional benefits. Herbal face mask helps reduce wrinkles, pimples, acne and dark

circles. It can also make the skin white and smooth. Face pack mentioned in Ayurveda can help women to get rid of wrinkles, dark circles, pimples and acne. Herbal face pack makes the skin white and smooth. We can get the maximum benefits of herbal face pack by using them according to our skin type. These face pack make the skin glow and are the best Ayurvedic treatments for fair skin.<sup>[1]</sup>

Face pack is one of the oldest and most beautiful ways to cleanse your skin. Ayurveda describes many face packs with stimulating, healing, cleansing, astringent and antiseptic properties. The herbal face pack contains enough herbal ingredients to give a glowing effect to the skin. The face pack is used to moisturize, cleanse, tone and rejuvenate the skin. In addition, face pack are suitable for all skin types and ages. Another reason to use a face pack is to help relax. What better way to pamper and care for your skin than with a rejuvenating facial?<sup>[2]</sup> Masks (or other masks that cover the mouth and nose) are one of the best measures to help reduce the spread of disease. Masks help prevent the spread of disease by blocking airways containing bacteria. Antimicrobial activity can be defined as a collective term for all active ingredients [agents] that inhibit bacterial growth, prevent microbial colonization and possibly eradicate diseases. Since ancient times, people have known how to use plants to meet the needs of healthy and beautiful skin. Skin problems are often caused by foreign substances in

the blood. Therefore, consuming the wrong food will cause skin diseases. The beauty of the skin depends mainly on personal health, nutrition, safety and care. It can cause wrinkles, sunburn and freckles. Turmeric is an herbal herb called "mukhalepa" in Ayurveda, which is used to treat facial acne, acne scars, scars and pigmentation. The process of applying the herbal mixture to the face is called "mukhalepa". Therefore, beauty care is as popular as facial. A smooth powder for facial application.<sup>[3]</sup>

## 2. RATIONALE OF WORK

To promote the herbal face pack having enough potential phytoconstituents that give efficient glowing effect on skin.

## 3. AIM AND OBJECTIVES

**Aim:** To formulate and evaluate Polyherbal face pack.

### Objectives

1. To procure & identify the selected ingredients
2. To carry out pharmacogenetic studies &

### Preliminary screening

Macroscopy study

Microscopy study

Microchemical tests

3. To prepare & evaluate trial batches of Polyherbal face pack.

4. To characterize and evaluate the optimized batch.

## MATERIALS AND METHODS

### Materials

1. Fenugreek powder
2. Starch powder
3. Aloe powder
4. Coffee powder
5. Turmeric
6. Hibiscus powder
7. Rose powder
8. Red gram

### 1] Methi powder

**Synonym:** Fenugreek powder.

**Biological Source:** (*Trigonellafoenum-graecum*) is an annual herb from the Fabaceae family with three small obovate to oblong leaves. It is grown worldwide as a semi-arid crop. Its seeds and leaves form the basis of the cuisine of the Indian subcontinent and have been used as a culinary ingredient since ancient times.

**Chemical constituents:** Fenugreek seeds include flavonoids, alkaloids, coumarins, vitamins, and saponins; the most prevalent alkaloid is trigonelline and coumarins include cinnamic acid and scopoletin.<sup>[4]</sup>

**Uses:** Improves Skin Health, It also reduces acne, pimples and bestows a smooth and glowing skin. The

natural oils present in fenugreek powder hydrates and moisturize the skin and make it supple and soft.<sup>[18]</sup>

**Table 1: Taxonomical classification of methi plant.**

Kingdom	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots.
Clade:	Rosids
Order:	Fabales
Family:	Fabaceae
Subfamily:	Faboideae
Genus:	<i>Trigonella</i>
Species:	<i>T. foenum-graecum</i>



### 2] Starch powder

**Synonym:** Amylum.

**Biological source:** Starch consist of polysaccharide granules obtained from the grains of *maize zea mays L.* or of wheat *Family-Graminae*.

**Chemical constituent:** Amylopectin, Amylose.

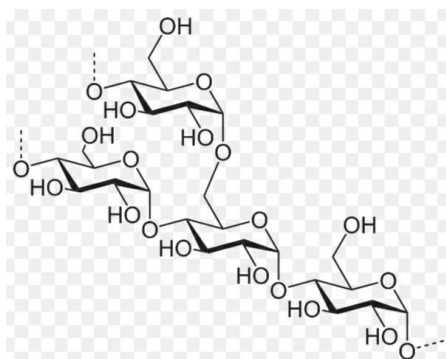
Starch or amyum is a polymeric carbohydrate containing many sugars connected by glycosidic bonds. This polysaccharide is produced by most green plants and is used to store energy. It is the most abundant carbohydrate in the human diet worldwide and is abundant in staple foods such as rice, potatoes, maize (kernels), wheat and yams (cassava). Pure starch is a white, tasteless, odorless powder that is insoluble in cold water or alcohol. It consists of two types of molecules: linear and helical amylose and branched amylopectin. Depending on the plant, starch typically contains 20 to 25% amylose and 75 to 80% amylopectin by weight. Glycogen is the animal's energy store and is a branch of amylopectin.<sup>[5]</sup>

### Uses

Cornstarch is beneficial for acneprone skin because it absorbs excess oil from the skin, which can lead to breakouts. Using cornstarch helps remove dirt, dust, oil, grime, etc. from your pores. It prevents breakage by helping to remove foreign materials.<sup>[19]</sup>



**Fig. 2: Starch powder.**



**Amylopectin**

### 3] Aloe Vera Powder

**Synonym:** Aloe.

**Biological Source:** Aloe is the dried latex of Aloe Barbadensis leaves.

**Chemical Composition:** Anthracene (11-40%), Isobabolin, Babolin or Aloe glycoside Aloe Vera is a succulent plant of the Aloe genus. There are nearly 500 species of aloe, classified in many ways and thought to be endemic to many parts of the world. It is an evergreen plant in the Arabian Peninsula but grows in tropical, subtropical and dry climates worldwide. It is grown for commercial products, especially cosmetics, which have been used for hundreds of years. These species are attractive for decoration and complement as houseplants.<sup>[4]</sup>

#### Uses

1. Relieve heat
2. Moisturize the skin.
- 3 Promote wound healing.
- 4 Prevents skin aging.
- 5 Reduces bacteria and acne.
- 6 Do the spots on your face.<sup>[20]</sup>

**Table 2: Taxonomical classification of Aloe vera.**

<b>Kingdom:</b>	<b>Plantae</b>
<i>Clade:</i>	Tracheophytes
<i>Clade:</i>	Angiosperms
<i>Clade:</i>	Monocots
<b>Order:</b>	Asparagales
<b>Family:</b>	Asphodelaceae
<b>Subfamily:</b>	Asphodeloideae

Genus:	<i>Aloe</i>
Species:	<i>A. vera</i>



**Fig. 3: Aloe powder.**

### 4] Coffee powder

**Synonyms:** Coffee Powder.

**Biological Source:** Dried seeds of Arabica coffee.

**Chemical Constituents:** Caffeine, Tannins, Fats, Carbohydrates and Proteins Coffee is a beverage brewed from roasted coffee beans (the fruit of some flowering plants of the genus Coffeaa). The seeds are separated from the coffee cherries to obtain a stable product: no green coffee. The seeds are then roasted, a process that transforms them into the product: The coffee is roasted, ground to a good quality, and usually soaked in hot water before filtering to make a cup of coffee. Coffee is dark, bitter, slightly acidic and has a stimulating effect on the human body, mainly due to its caffeine content. It is one of the most popular drinks in the world and can be prepared and served in many ways (such as espresso, French press, latte or freshly brewed coffee). It's usually hot coffee, but iced or iced coffee is also available. Sugar, sugar substitutes, milk or sugar are often used to reduce bitterness or increase flavor. It can be eaten with other desserts such as coffee cake or donuts. Businesses that sell fresh coffee drinks are called cafes or coffeehouses. The two most common types of coffee are C. Arabica and Robusta coffee. Coffee trees are grown in more than 70 countries, primarily in America, Southeast Asia, the Indian subcontinent and the equatorial region of Africa. Brazil is the leader in coffee bean production, accounting for 35% of global production as of 2018. Coffee is an important agricultural export product for many countries. It is one of the most important products exported by developing countries. Unroasted green coffee is the largest agricultural product and one of the most traded products after oil. Even though coffee sales reach billions of dollars, the people who grow it live in extreme poverty. Critics also noted the coffee industry's negative impact on the environment and the clearing of land for coffee cultivation and water use. Environmental costs and farmers paying different prices are leading to the expansion of fair trade and organic coffee shops.<sup>[7]</sup>

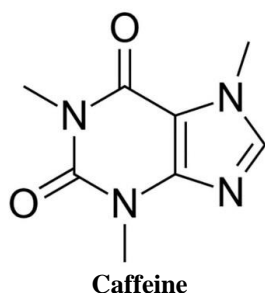
#### Uses

- Reduces cellulite and dark circles.
- Reduces swelling and acne
- Exfoliation
- Rejuvenates aging skin

Natural UV protection  
 Anti-cancer  
 Reduces eye puffiness  
 Tightens skin  
 Increases skin elasticity.<sup>[21]</sup>



Fig. 4: Coffee powder.



### 5]. Turmeric

**Synonyms:** *Curcuma longa*.

**Biological resources:** *Curcuma longa* is a flowering plant, *Curcuma longa*, Zingiberaceae, *Curcuma* family.

**Chemical Composition:** Curcumin, curcumin, demethoxycurcumin.

Its rhizomes are used in cooking. The plant is an annual herb native to the Indian subcontinent and Southeast Asia, requiring temperatures of 20 to 30 °C (68 to 86 °F) and annual rainfall to thrive. The rhizomes of the plant are harvested every year, some for display for the next season and some for food. The rhizome is used fresh or boiled in water and dried, then ground into a dark orange-yellow powder, it is often used as a coloring and flavoring agent in the cuisine of many Asian countries, especially in curries and dyeings, its product being curcumin., the importance of turmeric. Turmeric powder has a hot, bitter, black pepper-like taste and a ground mustard aroma. Curcumin, a yellow compound produced from the turmeric plant, is approved as a dietary supplement by the World Health Organization, the European Parliament, and the US Food and Drug Administration. Although turmeric or curcumin has long been used in Ayurvedic medicine (also known as haridra), there is no good evidence that the use of turmeric or curcumin is effective in treatment.<sup>[8]</sup>

### Uses

Help brighten dark places.  
 Helps heal skin wounds.  
 Helps improve some aspects of the skin.  
 Helps reduce stains.  
 Helps disappear scars on the skin.  
 Anti-aging properties.  
 Moisturizes dry skin.  
 Helps heal the skin.  
 Help prevent damage the environment.<sup>[22]</sup>



Fig. 5: Turmeric powder.

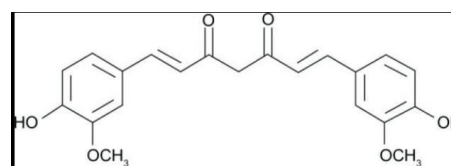


Table 3: Taxonomical classification of Turmeric.

Kingdom	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Monocots
Clade:	Commelinids
Order:	Zingiberales
Family:	Zingiberaceae
Genus:	<i>Curcuma</i>
Species:	<i>C. longa</i>

### 6]. Hibiscus powder

**Synonyms:** Rose Mallow.

**Biological source:** Hibiscus is a flowering plant of the Malvaceae family.

**Chemical Constituents:** Citric acid, hibiscus acid, L-ascorbic acid, beta-carotene.

The genus is very large and includes hundreds of species in tropical, subtropical and tropical regions worldwide. Members of the species are known for their large, elaborate flowers and are often referred to as "mallows" or, less commonly, rose mallows. Other names include hardy hibiscus, rose of Sharon, and tropical hibiscus. The genus includes annual and perennial plants, as well as trees and small trees. The genus name is derived from the Greek name ἰβίσκος (ibískos) given by Pedanius Dioscorides to *Althaea officinalis* (AD 40-90). Many species are widely grown as ornamental plants,

especially hibiscus and hibiscus chinensis. Tea made from hibiscus flowers is known by many names around the world and can be drunk hot or cold. The drink is known for its red color, sour taste and vitamin C content.<sup>[9]</sup>

#### Use

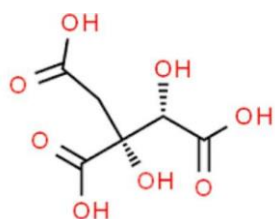
Hibiscus is a food rich in protein, calcium, copper, iron, magnesium, manganese, potassium, zinc, vitamins A, B6, C, E and K. Plus niacin, thiamine, riboflavin, antioxidants, alpha hydroxy acids, beta hydroxy acids, malic acid and many other compounds that are good for your skin.<sup>[23]</sup>



Fig. 6: Hibiscus.

Table 4: Taxonomical classification of Hibiscus.

<b>Kingdom:</b>	<b>Plantae</b>
<i>Clade:</i>	Tracheophytes
<i>Clade:</i>	Angiosperms
<i>Clade:</i>	Eudicots
<i>Clade:</i>	Rosids
<b>Order:</b>	Malvales
<b>Family:</b>	Malvaceae
<b>Subfamily:</b>	Malvoideae
<b>Tribe:</b>	Hibisceae
<b>Genus:</b>	<i>Hibiscus</i> L.
<b>Type species</b>	
<i>Hibiscus syriacus</i> L.	
<b>Species</b>	
679 species	
<b>Synonyms</b>	
<i>Bombycidendron</i> Zoll. & Moritzi	
<i>Bombycodendron</i> Hassk	
<i>Brockmania</i> W.Fitzg	
<i>Pariti</i> Adans	
<i>Wilhelminia</i> Hochr	



Hibiscic acid

#### 7]. Rose Powder

Synonyms: Rosettes.

**Biological Source:** Rose is a perennial woody flowering plant or flowers of the genus *Rosa* in the family Rosaceae.

**Chemical Constituents:** Rose petals, anthocyanins.

There are more than three hundred species and ten thousands of species.

It is a group of plants that can be straight, climbing or creeping shrubs, whose stems usually have sharp thorns. Its flowers vary in size and shape, are often large and showy, and range in color from white to yellow and red. The species is mostly native to Asia, with a few species found in Europe, North America and Northwest Africa. Species, varieties, and hybrids are all widely grown for their beauty and often aromatic aromas. Roses have cultural significance in many societies. Rose plants are available in many sizes, from compact little roses to climbers that can reach seven feet in height. The different species used to create many types of garden roses can be easily hybridized.<sup>[10]</sup>

#### Uses

The benefits of roses for the skin have been known for a long time. Rose powder acts as a natural moisturizer to prevent premature aging.

Increases collagen production and helps reduce redness.

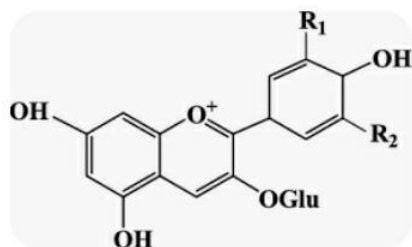
Rose powder helps eliminate uneven skin tone and reduces sebum production.<sup>[24]</sup>



Fig.7: Rose.

Table 5: Taxonomical classification of Rose.

<b>Kingdom:</b>	<b>Plantae</b>
<i>Clade:</i>	Tracheophytes
<i>Clade:</i>	Angiosperms
<i>Clade:</i>	Eudicots
<i>Clade:</i>	Rosids
<b>Order:</b>	Rosales
<b>Family:</b>	Rosaceae
<b>Subfamily:</b>	Rosoideae
<b>Tribe:</b>	Roseae
<b>Genus:</b>	<i>Rosa</i> L.
<b>Species</b>	
See List of <i>Rosa</i> species	
<b>Synonyms</b>	
<i>Hulthemia</i> Dumort.	
× <i>Hulthemosa</i> Juz. ( <i>Hulthemia</i> × <i>Rosa</i> )	



Anthocyanin

### 8] Red Gram

**Synonyms:** Pigeon pea.

**Biological source:** Pigeon pea (*Cajanuscajan*) is a perennial legume belonging to the Fabaceae family, native to the Old World.

**Chemical Constituent:** Carbohydrates, proteins, pigeon pea Asia, Southeast Asia, Africa and Latin America.

The scientific name of the genus *Cajanus* and species *cajan* derives from the Malay word *katjang*, meaning legume plant, referring to the bean of the plant. The scientific name of the genus *Cajanus* and the species *cajan* derives from the Malay word *katjang*, meaning legume, referring to the bean of the plant. planted.<sup>[11]</sup>

#### Uses

The nutrients in red lentils make them one of the best natural exfoliants and help remove dead skin, creating a smooth, dirt-free appearance. It also helps prevent acne and blackheads.<sup>[25]</sup>



Fig. 8: Red gram.

Table 6: Taxonomical classification of Red gram.

<b>Kingdom:</b>	<b>Plantae</b>
<i>Clade:</i>	Tracheophytes
<i>Clade:</i>	Angiosperms
<i>Clade:</i>	Eudicots
<i>Clade:</i>	Rosids
Order:	Fabales
Family:	Fabaceae
Subfamily:	Faboideae
Genus:	<i>Cajanus</i>
Species:	<i>C. cajan</i>
<b>Binomial name</b>	
<i>Cajanuscajan</i> (L.) Millsp.	



Carbohydrate

### 9] Multani Soil

**Synonyms:** Bentonite Clay.

Fulling Earth is a clay material that can decolorize oil or other liquids without the use of harsh chemicals. Floating soil is usually made of palygorskite (attapulgit) or bentonite.

**Chemical constituents-**Montmorillonite, Kaolinite & attapulgit.

#### Uses

Multani mitti or full earth is used as a natural cleanser and astringent and provides many benefits to the skin such as: Reduces oil.

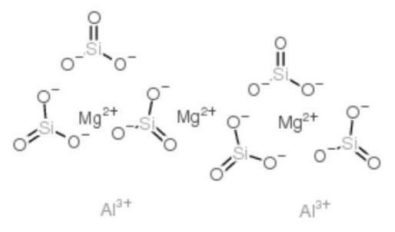
Resolves acne

Evens and brightens skin tone

Reduces pigmentation.<sup>[26]</sup>



Fig. Multanimitti.



Attapulgit

#### Method

- The polyherbal face pack was formulated using simple mixing process
- Herbal face pack was formulated by adding required amount of herbal ingredient Methi powder, Multani soil, starch powder, aloe powder, coffee powder, turmeric,
- Hibiscus powder, Rose powder, Red gram

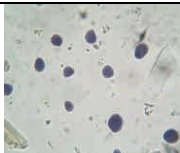

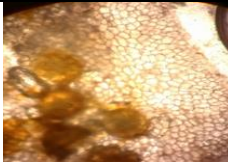

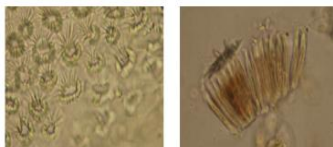
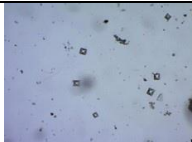

- This ingredients were procured from local market then passed through sieve mesh no 120 mixed geometrically & packed in air tight container for further evaluation
- This was then stoar in an air tight container for evaluation


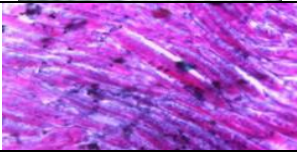
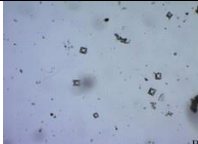
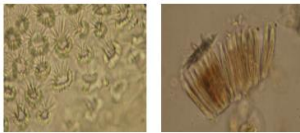


## EXPERIMENTALWORK

**Table 7: Ingredients selected for herbal facepack.**





Ingredients	Part used	Category
Fenugreek Powder	Seed	pigmentation
Starch Powder	-	bleaching agent and anti ageing
Aloe Powder.	leaves	moisturizer
Coffee Powder	Seed	smoothning
Turmeric Powder	rhizome	anti ageing Whitening
Hibiscus Powder	petals	photo protective
Rose Powder	petals	Cooling flavour
Red gram Powder	seed	skin whitening
Red gram Powder	seed	skin whitening
Multani soil Powder		remove blackheads & whiteheads

**Table 8: Powder analysis of ingredients selected for formulation.**

Starch powder		starch grains, lignified Cells Multani
Rose powder		pollen grains, phloem fibers, calcium oxalate crystals, oil globules, fibers
Hibiscus powder		calcium crystals, parenchymatous cells, pollen grains
Red gram		aleurone grain
Methi powder		aleurone grain, fibers Cell, parenchymatous Cell
Multani Soil		calcium oxalate crystals
Starch powder		starch grains, lignified Cells Multani

Aloe powder		starch, tannins, calcium oxalate, lignin, mucilage
Coffee powder		starch granules, calcium oxalate, oleo resins fibers
Multani Soil		calcium oxalate crystals
Methi powder		aleurone grain, fibers Cell, parenchymatous Cell
Starch powder		starch grains, lignified Cells Multani
Aloe powder		starch, tannins, calcium oxalate, lignin, mucilage

**Table 9: Formulation Four formulation prepared labeled as formulation- F1, F2 ,F3, F4 of polyherbal facepack. In 4 formulation we used same ingredients only differ in quantity.**

Ingredients	F1(g)	F2(g)	F3(g)	F4(g)	Category	Images
Fenugreek powder	10	10	10	10	Pigmentation	
Starch powder	10	10	10	10	bleaching agent	
Aloe powder	10	10	10	10	Mosituriser	
Coffee powder	05	05	05	05	Smoothing	



Turmeric powder	10	10	10	10	anti- ageing, whitening	
Hibiscus powder	10	15	05	20	photo protective	
Rose powder	30	10	15	05	cooling, flavouring	
Red gram powder	10	05	15	20	skin whitening	
Multani soil powder	05	25	20	10	remove blackheads & whiteheads	
Total	100	100	100	100		

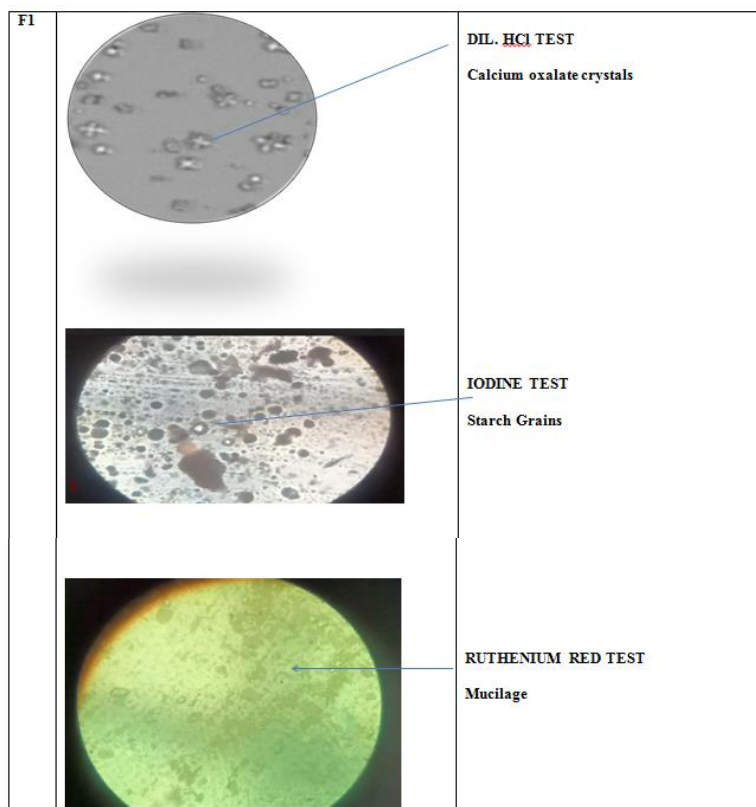


Fig. 10: Phytochemical screening of F1 formulation.

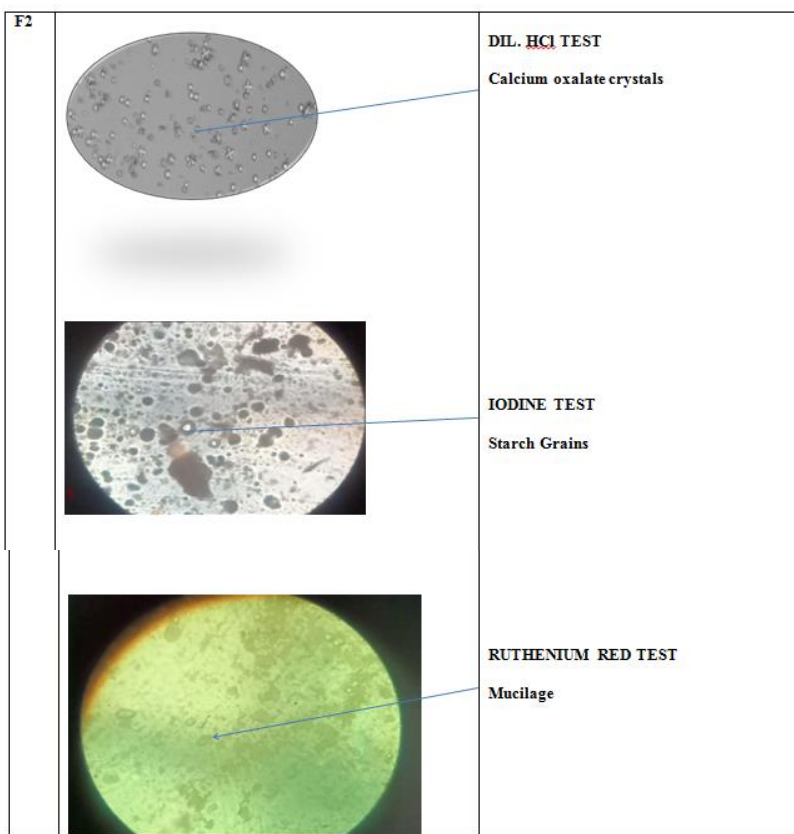


Fig. 11: Phytochemical screening of F2 formulation.

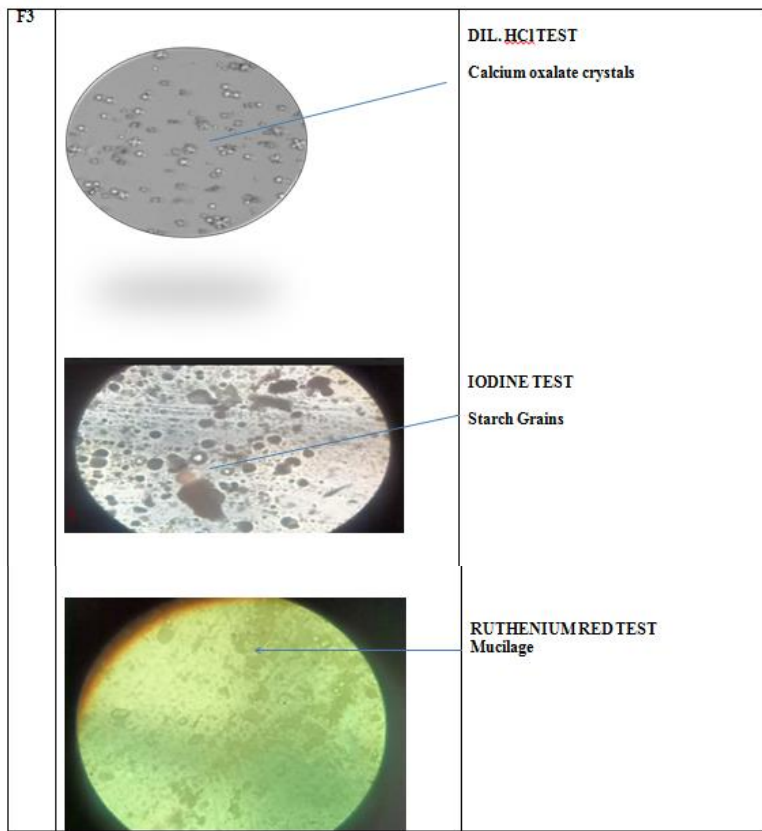


Fig. 12: Phytochemical screening of F3 formulation.

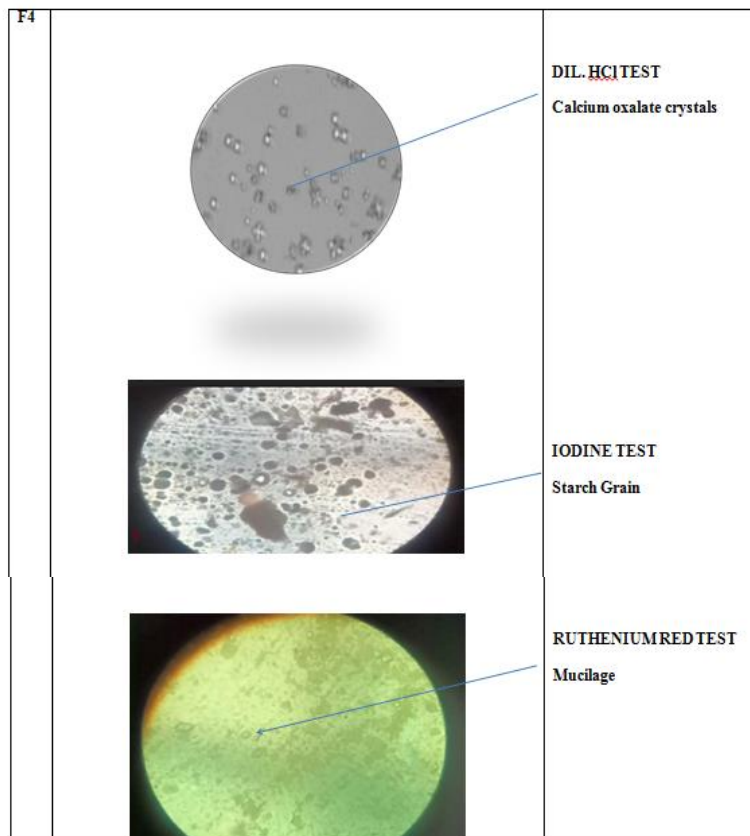


Fig.13: Phytochemical screening of F1 formulation.

### • Procedure of Face Pack Application

When required, put the facial mask powder in a bowl, add rose water and mix. Mix well and apply on facial skin. It can also cover acne and blemishes spot. Leave it for 20 to 25 minutes to dry completely, then wash it off with cold water.

### EVALUATIONS OF FORMULATIONS

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

#### Physical evaluation

- Physical parameters such as color, odor, appearance and texture were checked visually.<sup>[13]</sup>

#### Angle of repose

- It is defined as the maximum angle possible in between the surface of pile of powder to the horizontal flow.<sup>[14]</sup>

#### Determination of moisture content

- Weigh about 1.5 g of the powdered drug into a weighed flat and thin porcelain dish. Dry in the oven at 100°C or 105°C, until two consecutive weighing do not differ by more than 0.5 mg. Cool in desiccators and weigh. The loss in weight is usually recorded as moisture.<sup>[15]</sup>

#### Total ash

- Place about 2-4g of the ground air-dried material, accurately weighed, in a previously ignited and tared crucible (usually of platinum or silica). Spread the material in an even layer and ignite it by gradually increasing the heat to 500-600°C until it is white, indicating the absence of carbon.<sup>[16]</sup>
- Cool in a desiccator and weigh. If carbon-free ash cannot be obtained in this manner, cool the crucible and moisten the residue with about 2 ml of water or a saturated solution of ammonium nitrate R.
- Dry on a water-bath, then on a hot-plate and ignite to constant weight. Allow the residue to cool in a suitable desiccator for 30 minutes and then weigh without delay.

- Calculate the content of total ash in mg per g of air-dried materials.<sup>[17]</sup>

#### Particle size

Particle size is a parameter, which affect various properties like spread ability, grittiness etc., particle size was determined by sieving method by using I.P. Standard sieves by mechanical shaking for 10 min.<sup>[18]</sup>

#### Bulk density

Bulk Density is the ratio between the given mass of a powder and its bulk volume. Required amount of the powder is dried and filled in a 50 ml measuring cylinder up to 50 ml mark. Then the cylinder is dropped onto a hard wood surface from a height of 1 inch at 2second intervals. The volume of the powder is measured.

Then the powder is weighed. This is repeated to get average values. The Bulk Density is calculated by using the below given formula.<sup>[19]</sup>

$$\text{Bulk Density} = \text{Volume / Mass}$$

#### Tapped density

Tapped density is an increased bulk density attained after mechanically tapping a container containing the powder samples. After observing the initial powder volume or mass, the measuring cylinder or vessel is mechanically tapped for 1 min and volume or mass readings are taken until little further volume or mass change was observed. It was expressed in grams per cubic centimetre (g/cm<sup>3</sup>).<sup>[20]</sup>

## 6. RESULTS AND DISCUSSION

### Organoleptic Properties

Face pack was prepared and evaluated for organoleptic parameters shown. The flow property parameter showed free flowing properties. The colour of formulation was slight yellow. The odor of prepared formulations was good acceptable which is desirable as cosmetic formulations. Texture and Smoothness was good acceptable which is desirable as cosmetic formulations.

**Table 10: Organoleptic properties of formulation (F1, F2, F3, F4).**

Sr. No.	Parameters	F1	F2	F3	F4
1	Appearance	powder (Free flowing)	Powder (Free flowing)	powder (Free flowing)	powder (Free flowing)
2	Colour	slight brown	creamish brown	slight creamish	very slight brown
3	Odour	Slight	slight	Slight	slight
4	Texture	Fine	fine	Fine	Fine
5	Smoothness	Smooth	smooth	Smooth	smooth

**Table 11: Physical parameters and Physiochemical evaluations of formulation (F1, F2, F3, F4).**

Sr. No.	Parameters	Observations			
		F1	F2	F3	F4
1	Particle Size (mm)	28-32	25-32	27-33	30-34
2	Ash Content	9.67%	8.1%	9.0%	7.5%
3	pH	7.2	6.8	7.0	6.9

4	Loss on drying	0.33	0.29	0.31	0.34
5	Tapped density	0.63	0.77	0.72	0.71
6	Bulk density	0.48	0.56	0.56	0.53
7	Angle of repose	34 (GOOD)	32 (GOOD)	36 (GOOD)	36 (GOOD)

**Table 12: Irritancy Test of formulation (F1, F2, F3, F4).**

Sr. No.	Evalations	Observations				Irritancy
		F1	F2	F3	F4	
1	Irritant	NIL	NIL	NIL	NIL	No irritation
2	Erythema	NIL	NIL	NIL	NIL	No irritation
3	Edema	NIL	NIL	NIL	NIL	No irritation

### Stability studies

Stability testing of prepared formulation was conducted for formulation F4 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.

**Table 14: Parameters of Stability studies of Formulation F4.**

Sr. No.	Parameters	Observations (Formulations F4)		
		Room temperature	35±1°C	40±1°C
1	Colour	No change	No change	No change
2	Odour	No change	No change	Slightly change
3	pH	6.9	6.9	6.9
4	Texrure	Fine	Fine	Fine
5	Smoothness	Smooth	Smooth	Smooth



### DISCUSSION

The results of evaluation are displayed in Table 10, 11, 12, 13a, 13b, 13c, 13d for organoleptic and physicochemical and general powder evaluation. The study of appearance, color, odour, texture, smoothness, ash values, pH and loss on drying of was performed for formulation (F1, F2, F3, and F4). The appearance for all formulation was free flowing, odour was slight, and texture was fine and smooth. The loss on drying value for F1 was found to be 0.33%, for F2 was found to be 0.29%, for F3 was found to be 0.31%, and for F4 was found to be 0.34%. The formulation (F1, F2, F3, and F4) was evaluated for particle size, angle of repose, bulk density and tapped density before being formulated.

Values of particle size, angle of repose, bulk density and tapped density obtained for F1, F2, F3, F4 (25- 34mm), (32-36), (0.48 to 0.56 g/cc) and (0.63 to 0.77g/cc) respectively.ies. The powder had passable flow property which is suitable for a face pack. And it's easily washable with water. Antimicrobial evaluation was performed with two organisms *Staphylococcus aureus* and gram negative organism *Escherichia coli*. Zone of inhibition was found in all formulations were displayed in above Table.13a, 13b, 13c, 13d. Formulation F4 shows better zone of inhibition as compare to other formulation with reference to standard antibiotic tetracycline. So we can conclude that F4 formulation is good.



**Fig. 19: Formulation.**

## CONCLUSION

Natural treatments are more popular because they are safer and have fewer side effects than synthetic treatments. There is a growing demand for herbal preparations in the commercial world. Creating a herbal face mask containing different herbal powders is a good experiment. Therefore, in the current study, we found that the mask has good properties and further research is needed in this study to see the benefits of the herbal face pack for human use in cosmetics making.

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