



# FORMULATION AND EVALUATION OF POLYHERBAL FACE PACK

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## Abstract

This review focuses on formulating and examining a natural herbal face mask designed to enhance skin radiance while addressing various skin concerns such as redness, aging, tanning, acne, scars, and wrinkles. In this study, facial serum for sheet mask was formulated using a combination of natural ingredients which are known for their antimicrobial, anti-inflammatory and soothing properties.

Poly herbal face masks are used to stimulate blood circulation, rejuvenates the muscles and help to maintain the elasticity of the skin and remove dirt from skin pores. The advantage of poly herbal cosmetics are non toxic in nature and reduce the allergic reactions. Thus the investigation clearly concluded that the face mask have good properties to human skin.

Keywords : Polyherbal, Natural ingredients, Face pack , Cosmetics.

## INTRODUCTION

Herbs are now widely used as therapeutic agents because of their availability, affordability, and lack of toxicity. People are therefore confident in these natural remedies. Herbs have long been used by humans for self-management, hygiene, and aesthetic purposes. Beauty products with desirable physiological activity, such as those that improve, smooth, heal, or condition skin, are referred to as cosmetics [1]. In Ayurveda, the herbal paste is called "Mukha Lepa" used for as a facial therapy. This herbal paste smeared on face to treat acne, pimple, scars, marks, and pigments [2].

These packs are available in various types and forms and broadly classified into the following categories:

1. Plastic masks: Wax based, latex based, or vinyl based.
2. Hydrocolloid masks: Gel masks (ready to use).
3. Argillaceous masks: Clay based or earth based (ready to use or dry powder) [3].

Cosmetics encompass a wide array of materials intended for application on the human body to cleanse, beautify, and enhance attractiveness. Among the various parts of the body, the facial skin serves as a prominent indicator of an individual's overall health and well-being [4]

Cosmetics are readily available goods that are used to enhance the look of skin by purifying, enhancing, and enhancing beauty. One of the main body parts that shows a person's health is their face skin. [5]

The largest organ in our body, the skin is composed of several substances such as water, protein, fat, and minerals. Our skin will constantly alter over the course of our lives, for better or worse. Our skin turns over on its own about every 27 days. Thus, maintaining healthy skin requires regular skin care.

The skin is divided into four layers:

1. The stratum corneum
2. The dermis
3. Subcutaneous
4. The Epidermis[6]

The skin, sometimes referred to as the cutaneous membrane (ku -TA"-ne-us), is the largest organ in terms of weight and covers the exterior of the body. Adult skin spans an area of around 2 square meters (22 square feet) and weighs between 4.5 and 5 kilograms (10 and 11 lb), or roughly 7% of the total weight of the body. The thickness varies, ranging from 0.5 mm on the eyelids to 4.0 mm on the heels.

It is 1-2 mm thick throughout most of the body. The skin's pH ranges from 4 to 5.6. The epidermis, dermis, and hypodermis are the three functional layers that make up the skin.

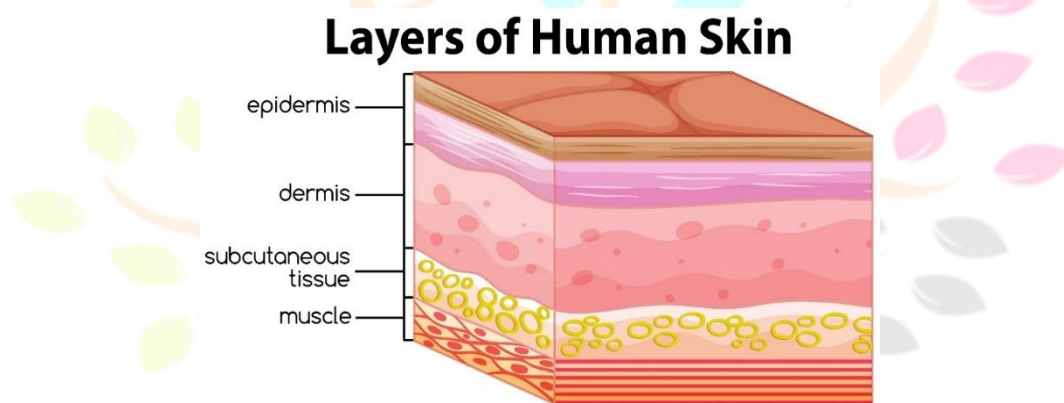


Fig no. 1 Layers of Human Skin

The Epidermis is Separated Into Five Layers:

- a) Stratum corneum
- b) Stratum lucidum
- c) Stratum granulosum
- d) Stratum spinosum
- e) Stratum basale

These preparations are applied to the face as liquids or pastes, 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.[5]

### **BENEFITS OF FACE PACK :**

1. Provides skin nutrition. Fruit face masks provide skin with vital nutrients.
2. Depending on the herbal components used, it helps to lessen scars, marks, acne, and pimples.
3. Dead skin cells are typically removed with face masks.
4. The skin is soothed and relaxed by these face masks.
5. They assist in quickly restoring the skin's lost luster and sheen.
6. Using natural facial masks on a regular basis improves skin texture and complexity and gives skin a glow.
7. The appropriate usage of face masks can help mitigate the negative impacts of pollutants and extreme weather.
8. They aid in preventing skin aging too soon. [7] [8]

**IDEAL PROPERTIES OF THE FACE PACK:**

1. It should be non-toxic.
2. It should be non-irritating to the skin.
3. It should be stable both physically and chemically.
4. Its ingredients should be evenly distributed.
5. It should be very fine and should not have any gritty particles.
6. It should remove dirt, grease, and dust from the face.
7. It should form a smooth paste.
8. It should have a pleasant odour.
9. After the application, it should be easily removable.[9]

**PRECAUTIONS TO BE TAKEN WHILE APPLYING FACE PACK:**

1. Select the face pack based on the type of skin you have. Before using the face pack, speak with a skin specialist or natural therapist.
2. Do not keep the face pack on your face for longer than 15 to 20 minutes. If you keep it on for too long, you could get enlarged pores, wrinkles, and sagging skin.
3. Refrain from giving your face a rough scrub because this might cause dark stains and pimples. Avoid putting heat on your face while the face pack is on.
4. Use the face pack once every seven days. The dry face pack should not be peeled off or scratched since this could harm the skin underneath.
5. Mist your face with water and then take off the desiccated face pack. Once the mask has been taken off, gently glide an ice cube over your facial skin. This aids in closing open pores and firming the skin.
6. Avoid applying the face pack near the "eye area" as the skin surrounding the eyes is extremely delicate. The removal process of the face pack could potentially harm the skin around the eyes.[10]

**MATERIALS AND METHODS****MATERIALS**

1. Gram flour: The high content of Zinc in gram flour will help to fight infections that cause acne. It removes dead skin, astringent and protective. Gram flour widely used house remedies for facial and marriage haldi functions also. [11]
2. Saffron : Mainly consists of dried stigmas and upper parts of styles of plant known as *Crocus sativus*, belonging to the family Iridaceae. It is rich in carotenoid glycosides, mainly containing terpenoids. It lightens the skin tone and provides fair and glowing skin. [12]
3. Aloe vera: Aloe vera is an excellent moisturizer made for the skin. Aloe vera rejuvenates the skin, hydrates this and keeps the skin layer looking fresh all the time. Aloe vera has anti-microbial properties that make it ideal for acne and acne. Aloe vera powder contains several nutrients such as glycerine, sodium palmate, sodium carbonate, sodium palm kemelate, sorbitol, etc. [13]
4. Hibiscus : Hibiscus has phenolic compounds that protect your skin from environmental damage by scavenging free radicles in your skin. Hibiscus exfoliates your skin with the help of alpha-hydroxy acids (AHAs), making it a realistic option for a face pack. It also improves the texture of your skin and reduces blackheads and hyperpigmentation to a great extent. Hibiscus reduces inflammation caused by acne or other skin issues due to antioxidants called anthocyanocides.[14]
5. Turmeric : 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. The phytoconstituents, mainly terpenoids present in it helps to lighten the skin tone. Turmeric delays the signs of aging like wrinkles, improves skin elasticity. It cures pigmentation, uneven skin tone and dull skin.[15]
6. Multanimitti: MultaniMitti benefits skin in a variety of ways, including reducing pore size, eliminating blackheads and whiteheads, fading freckles, easing sunburns, and more. As they contain beneficial nutrients, they also cleanse the skin, enhance the complexion, reduce blemishes and acne, and give the skin a glowing appearance. Multanimitti is great for inflamed and irritated skin and will help to make your skin radiant. Magnesium chloride is abundant in Multanimitti. [16]
7. Tomato powder : Tomato has large amount of antioxidant and vitamin C. Since Tomato acts as a natural bleaching agent, it is widely used for face whitening. It helps in pimple and acne reduction has antiaging effect, reduces oiliness, blackheads and also help wake up the duldest of skin. Tomato may

sooth skin inflammation, stimulate collagen production and helps in removing dead skin cells. Tomatoes also helps to shrink large pores and brightens up skin complexion, it contains salicylic acid a common ingredient in acne products. It cleans and exfoliates the skin to remove dead skin cells that can clog pores and white heads or black heads.[17][18]

8. Green tea powder : One plant that has potential as a natural treatment for acne is green tea leaves (*Camellia sinensis* L.). Green tea (*Camellia sinensis* L.) are young shoots and leaves of the tea plant which are processed without going through a special fermentation process. The parts of tea leaves that contain antibacterial properties are phenolic or polyphenolic substances (catechins, tannins, flavonoids) and non phenolic substances (alkaloids and fluorine) which can inhibit and kill bacteria. Green tea contains flavonoids which are the result of plant secondary metabolism which are widely distributed in plants. Catechins as active substances in green tea leaves function as antibacterial *Staphylococcus aureus* which can inhibit the growth of acne.[19]
9. Rose petal powder : Rose petals have strong antibacterial qualities in addition to the health benefits of vitamins B, C, and K. It also contains a significant amount of antioxidants. It prevents fine lines and wrinkles. [20]

## PREPARATION OF NATURAL POWDERS :

1. Gram flour :This is a pulse flour produce from ground chickpea (also known as Bengal gram or garbanzo). this flour can be manufacture either from raw or roasted chickpeas. The raw variety is slightly bitter, while the roasted variety is more flavourful.[21]
2. Saffron extract :Dried saffron is grinded by ball-mill grinder or routine grinding method, dried powder saffron was extracted three times, first with distilled water 70% of total solvent, second extraction with ethyl alcohol 50% (v/v), and 20% of total solvent, and finally extraction ethyl alcohol 70% (v/v), 10% of total solvent, the rate of saffron mass and total solvent is 1:100. All the extractions carry out with a stirrer (500 -1000 r/min) for 1 hr. as we have expected with quantitative analyses for each step, the solution becomes rich in crocin, crocetin and safranal. finally, the solvent has been evaporated and powder is collected.[22]
3. Pure Aloe vera gel : By hand filleting method  
In order to avoid contaminating the internal fillet with the yellow sap, the lower portion i.e. 25 mm of leaf base( the white part attached to the large rosette stem of plant ),the tapering point (50 -100 mm) of the leaf top,and the short, sharp spines located along the leaf margins are removed by the sharp knife. The mucilage layer beyond the green rind avoiding the vascular bundles and the top rind is also removed with the help of knife. The bottom rind is also removed. Finally ,the pure aloe-vera gel has been collected.[23]
4. Hibiscus extract :  
The Hibiscus flowers were washed, cut into small pieces, then put in the dryer for 48 hours at 45°C. The dried Hibiscus flowers are made into powder using a pollinator. Then the Hibiscus flower extract powder was macerated using 70% ethanol, stirred until homogeneous, allowed standing for 24 hours, then the extract was filtered through a Buchner filter funnel lined with filter paper to remove any impurity. The hibiscus flower pulp was mixed with ethanol, stirred and allowed to stand for 24 hours for the second filtration. The process of mixing the solution with ethanol was repeated once again and filtered. Then the filtrate was evaporated using an evaporator at a temperature of 700°C [14]
5. Turmeric extract :  
Method 1 :In order to extract turmeric oil, researchers have used steam distillation, hydro distillation, and extraction using hexane. Hexane was fused with the oils succeeding curcumin extraction and heated to 60 C thrice for 60 min. The solvent was removed, which result in successful turmeric oil extraction.  
Method 2: Modified steam distillation using a modified Clevenger apparatus to extract essential oil from turmeric rhizomes.
  - Distilled water in Flask 1 is heated to 100°C using a heating mantle.
  - The steam passes through the stuffed bed containing sliced turmeric rhizomes.
  - The turmeric rhizomes absorb heat, causing their cells to crack and release volatile components (essential oil).
  - Steam and volatile oils are carried through the condenser and mixed with the condensate.
  - The mixture is collected in Flask 2.
  - The oil, being lighter than water, forms the top layer in the oil collector.

- After 5-6 hours of operation, the essential oil is collected from the top layer in the collector.
  - The turmeric oil is separated as the top layer in the collector, while water-soluble components accumulate during the process. [24]
6. Multanimitti: Multanimitti is essentially a clay consisting of Aluminium Silicate with other impurities in minimal proportions. The composition may vary according to the area from where it is mined. Earliest reference from India was made about Jodhpur (Kapurdi) clay consisting of :
- SiO<sub>2</sub> 47%  
Al<sub>2</sub>O<sub>3</sub> 23.3%  
Fe<sub>2</sub>O<sub>3</sub> 6.95%  
CaO 2.9%  
MgO traces [25]
7. Tomato powder : The tomato slices were initially pre-heated in tray drier to the required temperature (70°C and 80°C). The weighed sample is spread out, generally quite thin on trays in which a way that the hot air moves evenly through all particles of sample. Heating may be by an air current sweeping across the trays, by conduction from heated trays or heated shelves on which the trays lie, or by radiation from heated surfaces. Most tray dryers are heated by air, which removes the moist vapours. [26]
8. Green tea powder : Preparation of 70% Ethanol Extract of Green Tea Leaves
- Simplisia of tea leaves (*Camellia sinensis* L.) extracted by maceration method using solvent ethanol 70%. is as follows: Put 10 parts of simplicia or a mixture of simplicia with a suitable fine degree into a vessel, pour it with 75 parts of the extract, cover it, leave it for 5 days protected from light while stirring frequently, then sprinkle it and squeeze it. Wash the dregs with sufficient solvent in a closed vessel, until 100 parts are obtained. Leave in a cool place, protected from light for 2 days. Elap pour or strain. The macerate was then evaporated using a rotary evaporator at a temperature of 40 – 50°C until a thick extract was obtained. [19]
9. Rose petal powder : Collect fresh rose petals wash with water for 2-3 times. Dry these petals in shade for one to two hours and then churn them with sugar in mixer. This will make a paste put this paste in a plate for drying it takes about 6-7hrs for drying. Make a powder. [27]

| Sr.no | Ingredients                                                                                                | Figure                                                                               | category                                            |
|-------|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------|
| 1.    | Common name - Gram flour<br>Scientific name – <i>Cicer arietinum</i> l.<br>Family name - <i>Fabaceae</i>   |  | Astringent<br>Anti-acne                             |
| 2.    | Common name - Saffron<br>Scientific name - <i>crocus sativus</i><br>Family name - <i>Iridaceae</i>         |  | Anti inflammatory<br>Anti-bacterial<br>Anti-oxidant |
| 3.    | Common name- Aloe vera<br>Scientific name - <i>Aloe barbadense</i> miller<br>Family name- <i>Liliaceae</i> |  | Antibacterial<br>Antiseptic                         |

|    |                                                                                                                |                                                                                      |                                                   |
|----|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------|
| 4. | Common name-Hibiscus<br>Scientific name – <i>hibiscus rosa sinensis</i> l.<br>Family name - <i>Malvaceae</i>   |     | Anti-aging<br>Exfoliation<br>Collagen production  |
| 5. | Common name – Turmeric<br>Scientific name – <i>curcuma longa</i><br>Family name - <i>zingiberaceae</i>         |    | Anti-aging<br>Anti-microbial<br>Anti-inflammatory |
| 6. | Common name - Multanimitti<br>Scientific name – <i>solumfullonum</i><br>Family name - <i>montmorillonite</i>   |    | Anti-tanning                                      |
| 7. | Common name - Tomato powder<br>Scientific name – <i>solanumlycopersicum</i><br>Family name - <i>solanaceae</i> |    | Anti-oxidant                                      |
| 8. | Common name - Green tea powder<br>Scientific name – <i>camellia sinensis</i><br>Family name - <i>theaceae</i>  |   | Detoxifying agent                                 |
| 9. | Common name - Rose petal powder<br>Scientific name – <i>Rosa rubiginosa</i><br>Family name - <i>rosaceae</i>   |  | Skin tonner                                       |

## METHODS OF PREPARATION

- Sieve the powdered dried natural ingredients:
  - Use a #120 mesh sieve to sift the powdered dried natural ingredients.
- Weigh the ingredients:
  - Accurately weigh each of the ingredients after sieving.
- Mix the ingredients:
  - Mix the weighed ingredients geometrically to ensure a uniform formulation.
- Store the face pack:
  - Transfer the prepared face pack into an airtight container to prevent moisture and contamination.
- Evaluation:
  - Store the container for further evaluation of various parameters (e.g., stability, texture, or effectiveness).[28]

## PROCEDURE OF FACE PACK APPLICATION :

Take prepared face pack powder in a bowl as per the requirement and add rose water. Mix well to form a paste with optimum thickness. It should be applied evenly on the face with the help of a brush. Cover the acne and blemishes spots. Keep as it is for complete dryness for 20-25 minutes. Then it should be washed with cold water.[29]

## EVALUATION OF FACE MASK:

### ❖ Organoleptic evaluation:

1. The organoleptic factors, including nature, color, odor, feel, and consistency, were personally assessed for their physical characteristics [30][31]
2. The external characteristics of the formulation were examined based on the method described by Siddiqui et al. [32]

### ❖ Physical Evaluation:

1. Microscopy method is used to test the particle size of the powder. Angle of Repose by Funnel method, Bulk Density and Tapped Density by Tapping Method are the tests which are performed to evaluate the flow property of the powder. [33]
2. Particle Size: Control of Size and the size range of Particles is of a profound importance in Pharmacy Clinically, the particle size of a drug can affect its release from dosage forms. The successful formulation of Biphasic liquid dosage form such as emulsion, suspension and Solid dosage form such as tablets, both dosage forms Physical stability and Pharmacological response depends on the particle size. [18]
3. Sieving method: This method is the simplest and most widely used method of determining particles size and size distribution. In this method utilizes a series of standard sieves calibrated by the national bureau of standards. According to the method of USP a definite mass of sample is placed on the proper sieve in a mechanical shaker. The powder is shaken for a definite period of time and the material that passes through one sieve and fine itsieve is collected, weighed and then calculated the particle size.[18]
4. Angle of repose:

The friction forces in a loose powder can be measured by the angle of repose. It is an indicative of the flow properties of the powder. It is defined as maximum angle possible between the surface of the pile of powder and the horizontal plane. [34][35]The powder mixture was allowed to flow through the funnel fixed to a stand at definite height (h).The angle of response was then calculated by measuring the height and radius of the heap of powder formed. Care was taken to see that the powder particles slip and roll over each other through the sides of the funnel. Relationship between angle of repose and powder flow property.

$$\tan \theta = \frac{h}{r}$$

Where,  $\theta$  = angle of repose h= height of the cone r= radius of the base

### 5. Bulk density (Db):

It is the ratio of total mass of powder to the bulk volume of powder. It was measured by pouring the weight powder (Passed through standard sieve #20) into a measuring cylinder and initial weight was noted. This initial volume is called the bulk volume. From this the bulk density is calculated according to the formula mentioned below it is expressed in g/ml and is given by,

$$Db = \frac{M}{v_b}$$

where, M= the mass of powder Vb = the bulk Volume of the powder . [34][35]

6. Tapped density (Dt): It is the ratio of total mass of the powder to the tapped volume of the powder. Volume was measured by tapping for 750 times and the tapped volume was noted if the difference between these two volumes is less than 20%. If it more than 2%, tapping is

continued 1250 times and tapped volume was noted. Tapping was continued until the differences between successive volumes is less than 2% ( in a bulk density apparatus)it is expressed in g/ml and is given by

$$Dt = \frac{M}{Vt}$$

where, M= the mass of the powder Vt = the tapped volume of powder. [34][35]

7. Carr's index or % Compressibility:It indicates powder flow properties. It is expressed in percentage and is given by,

$$I = \frac{Dt - Db}{Dt} \times 100 .$$

where, Dt = the tapped density of the powder ,Db = the bulk density of the powder. [34][35]

8. Hausner's ratio: Hausner ratio is an indirect index of ease of powder flow. It is calculated by the following formula. [34][35]

$$\text{Hausner's ratio} = \frac{Dt}{Db}$$

#### ❖ Physicochemical analysis

Extractive value, ash value, pH, and moisture content were among the physicochemical parameters that were ascertained.[36]

1. Determining moisture content

The amount of moisture in plant drugs is crucial because insufficient drying could result in the active ingredients losing some of their potency due to enzymatic deterioration. Loss on drying was used to calculate moisture content (LOD).It aids in judging the product's purity and overall quality. [36][37]

$$\text{Moisture Content (\%)} = \frac{W2 - W3}{W2 - W1} \times 100$$

Where: W1 = Weight of the empty glass bottle

W2 = Weight of the empty glass bottle + sample before drying

W3 = Weight of the empty glass bottle + sample after drying

2. Determination of extractive value:

Additionally, it provides information about the nature of the chemical components. Less extractive value suggests the addition of exhausted material, adulteration, improper drying or storing techniques, or formulating[36][37]

3. Extractive value that is water soluble :

5gm of a precisely weighed sample should be macerated in 100ml of chloroform water for 24 hours in a stoppered flask. Shake often for the first six hours. Filter quickly through filter paper into a 50 ml cylinder, and then dry off 25 ml of the aqueous extract in a shallow dish with a flat bottom. Dry the residue thoroughly in an oven at 105 degrees before weighing after evaporating to dryness on a water bath. In a desiccator, keep it. To make the extract weight consistent, Using the airdried medication as a reference, get the percent weight to-weight of the water soluble extractive value. [36][37]

#### 4. Soluble extractive value in alcohol:

5 gm of a sample that has been precisely weighed and 100ml of 90% alcohol should be macerated for 24 hours in a 100ml stoppered flask. Shake often for the first six hours. In a 50 ml cylinder, quickly filter through filter paper and collect. 25 ml of alcoholic extract should be filtered and evaporated to dryness in a shallow flat-bottomed dish. Completely dry the leftover material at 105° and weigh after evaporating to dryness on a water bath. In a desiccator, keep it. Dry the extract to a consistent weight before figuring out the percentage of the drug's airdried weight that is soluble in alcohol [36][37]

#### 5. Ash Value-

It is also known as total ash. It is a crucial parameter in the assessment of pharmaceuticals and herbal drugs. The known weight of sample was allowed to burn or incinerate completely in a standard muffle furnace. The inorganic residue left in the form of ash consists of inorganic mineral components such as salts, metals, and other non-combustible materials was assessed further [36][37]

#### 6. Total Ash Value-

It is impossible to predict the drug identity or purity only from the ash content, but it can provide the insights into the quality of the sample. It was determined by accurately weighing 2 gm of sample into the crucible and weight was recorded. Muffle furnace was set at 550°C and place the crucible into it for 24 hours. Muffle furnace turned off and allowed to cool. The crucible was removed from the muffle furnace and ash sample was weighed and recorded as crucible plus ash sample (total weight). [36][37]

Weight of Ash (mg) = (weight of crucible + Ash) – (weight of crucible)

$$\text{Ash(\%)} = \frac{\text{Weight of ash(mg)}}{\text{Initial sample weight}} \times 100$$

#### 7. Acid Insoluble Ash Value-

25 ml of hydrochloric acid was added to the crucible containing total ash, and it was covered with a watch glass. The mixture was gently boiled for 5 minutes. The watch glass was then rinsed with 5 ml of hot water and added into the crucible. The insoluble matter was collected on an ash-less filter paper and washed with hot water until it became neutral. The filter paper containing the insoluble matter was transferred to the original crucible and dried on a hot plate. The crucible with the sample was ignited to a constant weight and left to cool in a desiccator for 30 minutes. After cooling, the sample was weighed. The percentage of acid-insoluble ash was calculated in reference to the air-dried sample [36][37]

$$\text{Acid Insoluble Ash Value} = \frac{\text{Weight of Acid Insoluble Ash}}{\text{Weight of Air Dried Sample}} \times 100$$

#### 8. Water Soluble Ash Value-

25 ml of water was added to the crucible containing the total ash. The mixture was boiled for 5 minutes. The insoluble matter was collected on an ashless filter paper. The collected matter on the filter paper was washed with hot water. The filter paper with the insoluble matter was then subjected to ignition for 15 minutes at a temperature not exceeding 450°C. After the sample was cooled, it was weighed. The percentage of water-soluble ash was calculated in reference to the airdried sample [36][37]

$$\text{Water soluble Ash Value} = \frac{\text{Weight of water soluble Ash}}{\text{Weight of Air Dried Sample}} \times 100$$

#### 9. Determination of pH:-

It is the measurement of acidity or alkalinity of the product measured on a scale of 0-14. pH of formulated face pack in rose water was found.

The pH of the formulations was measured using a digital pH by diluting 0.1 gram of product in 50 ml of distilled water and kept for two hours. [38] [39]

## ❖ Irritancy test

Mark an area (1sq.cm) on the left hand dorsal surface. Definite quantities of prepared face packs were applied to the specified area and time was noted [40]. Irritancy, erythema, edema, was checked if any for regular intervals up to 24 hrs and reported.

## ❖ Stability studies

Stability testing of prepared formulation was conducted for formulation F2 by storing at different temperature conditions for the period of one month [41]. 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 Colour, Odor, pH, Consistency and feel. [42][43]

## ❖ Washability

The ease with which the formulation could be removed was assessed. After applying the face pack, the skin was closely examined to determine how effectively it could be washed off with regular tap water [44]

## ❖ Test of spreadability

The pack's spreadability was evaluated by carefully layering it between two glass slides (parallel plate method). A total of two slides were taken. Between the slides, the pack was placed. The upper slide was easily moved under a 20 g weight, whereas the 100 g weight was uniformly distributed across glass slides. The Spreadability in g.cm/s was calculated by measuring the time it took the higher slide to move over the lower slide. The experiment was carried out again with all of the herbal face packs that had been made. To calculate spreadability, the following formula was used. Where, S = Spread ability,

$$S = W \times \frac{L}{T}$$

W = weight tied to upper slide, L = length of slide, Time = Time taken by upper slide to slip. [45] [46]

## CONCLUSION

In conclusion, a safe, productive, and non-toxic remedy for a variety of skin issues is the application of herbal face packs prepared from natural components such as multanimitti, turmeric, aloe vera, sandalwood, orange peel, neem, and nutmeg [47]. By increasing blood circulation, reviving muscles, preserving skin suppleness, and cleaning pores, these compositions are stable, lower the risk of adverse responses, and enhance skin health. The study also emphasises the encouraging outcomes of a polyherbal fruit face mask with antibacterial qualities comparable to clindamycin, making it a good candidate for skincare, given the rising demand for herbal formulations worldwide due to their perceived safety and fewer side effects [48]. In addition, these face packs, which are composed of a range of herbal substances including banana peel, rice flour, milk powder, and saffron, provide advantages like increased skin elasticity, radiant results, and steady performance even when stored [49] [50]. All things considered, herbal face packs are a great option for safe, efficient, and reasonably priced skincare.

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