

# Innovative Formulation and Efficacy Evaluation of An Antibacterial Face Pack

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**Abstract:** *Discussing the benefits of herbal cosmetics compared to synthetic ones, particularly for addressing various skin issues. Utilizing natural ingredients like multani-mitti, turmeric, aloe vera, sandalwood, orange peel, neem, and rose petals powder in formulations for face packs can potentially offer safer and effective solutions. Evaluating these formulations for their properties and safety measures is a crucial step towards achieving radiant skin while minimizing adverse effects. Formulating a polyherbal face pack using natural ingredients is indeed becoming popular due to the perceived safety and fewer side effects compared to synthetic products. The assessment of organoleptic, Physicochemical, and microscopical characteristics is crucial for ensuring the quality and effectiveness of the product.*

**Keywords:** Herbal, Ingredients, Natural, Product Rejuvenates , Cosmetic, Face Pack

## I. INTRODUCTION

It is comprehensive overview of the growing popularity of skincare products and the benefits of using natural ingredients in cosmetics. It emphasizes the historical use of plants in cosmetic formulations, the risks associated with synthetic ingredients, and the shift towards natural remedies promoted by organizations like the World Health Organization. Additionally, it highlights the ethical considerations regarding animal testing and the potential adverse effects of synthetic beauty products on the skin. Overall, it underscores the advantages of opting for natural skincare solutions for their safety and effectiveness. Cosmetics are commercially available products that are used to improve the appearance of the skin by action of cleansing, beautifying, promoting attractiveness. 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 pastes and allowed to dry and set to form film giving tightening, strengthening and cleansing effect to the skin. Face packs are basically additives delivering some additional benefits. 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. Also increase the fairness and smoothness of skin. It also helps someone to boost their confidence. It's fascinating how different cultures have developed unique approaches to skincare. Ayurveda's emphasis on herbal pastes like "mukhalepa" highlights the natural remedies available for maintaining healthy skin. Face packs indeed offer various benefits, from removing debris to reducing skin issues and boosting confidence. Integrating Ayurvedic principles into skincare routines can be a holistic approach to achieving healthier skin



**Types of skin :**

- Dry skin
- Oily skin
- Combination skin
- Sensitive skin
- Normal skin
- Hyper pigmented skin

**BENEFITS**

**Benefits of Applying Face Pack**

- Nourishes the skin. Fruit face packs supply essential nutrients to skin.
- Helps to reduce, acne, pimple, scars and marks depending on its herbal ingredients.
- Face packs usually remove dead cells of skin
- These face masks provide a soothing and relaxing effect on skin.
- They help to restore the lost shine and glow of skin in short span of time.
- Regular use of natural face masks bring glow to skin, improve skin texture and complexion.

The harmful effects of pollution and harsh climates can be effectively combated with judicious Use of face packs  
They help to prevent premature aging of skin.

Formation of wrinkles, fine lines and sagging of skin can be effectively controlled by using Natural face packs.  
Natural face packs make the skin look young and healthy.



Present research article deals with the formulation And evaluation of herbal face pack for glowing skin by Using natural ingredient i.e., multanimitti, turmeric, almond ,sandalwood , rice flour, glycerine in the form of Dried powder. All ingredients authenticated at Botany department of PRMSS Anuradha College Of Pharmacy. The details of the natural ingredient used for the Formulation of herbal face pack are mentioned below.

**II. MATERIAL AND METHOD**

**Materials:**

1. Binder
2. Adsorbent
3. Humactant
4. Lightning agent
5. Colouring agent

**Multani Mitti :**

$(OH)_4 \cdot Si_8 \cdot O_{20} \cdot nH_2O$

Multani mitti helps skin by different ways like Diminishing pore sizes, removing blackheads and Whiteheads fading freckles, soothing sunburns, cleansing Skin, improving blood circulation, complexion, reducing Acne and blemishes and gives a glowing effect to a skin as they contain healthy nutrients.

Multani mitti is rich Magnesium chloride.

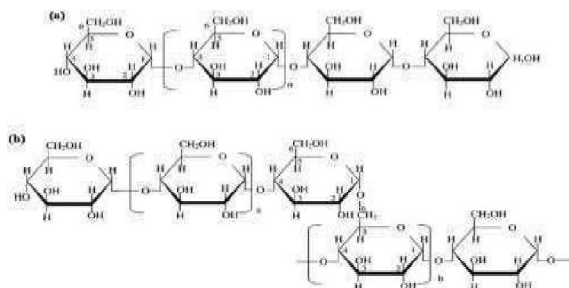


**USES:**

Multani mitti is use as a exfoliate that will help to remove impurities on skin. It remove dead skin cell

- It use in all skin type.
- It help to soften skin.
- It has natural oil absorbing property.
- It improve skin texture.
- It is use to hydrate skin.
- It also slow down the sign of aging.

**Rice Powder :**



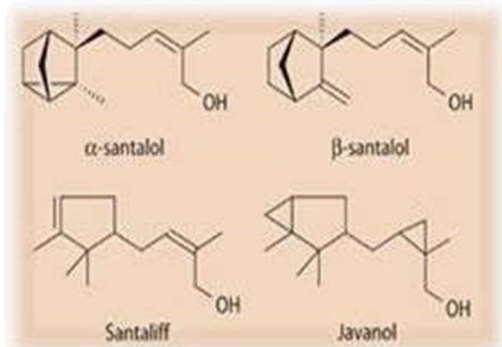
Rice powder has a very soft texture which helps to exfoliate the skin well, and also to remove excessive oil from face. It Smoothly removes all the dryness and makes skin polished. It act as an anti-acne agent too

Rice Flour has been used for Centuries as a natural beauty aid by Asian women. It's natural anti ageing and oil absorbing properties, makes them good. For oily or acne-prone and dull mature skin. It's also a good anti inflammatory and skin whitening agent that soothes Sunburned skin and makes skin smooth and fairer.

**USES:**

- Rice powder is use to moisture skin .
- It makes skin smoother.
- Rice powder is use as anti aging.
- It repara all type of skin.
- It absorbs excess oil.
- It promote skin lightning.
- It minimize pore appearance

**Sandalwood :**

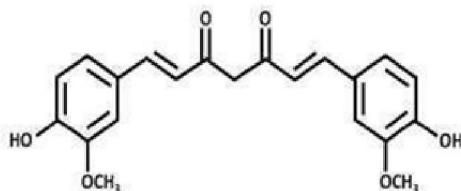


Anti-tanning and anti-aging properties are found In sandalwood. It also has toning, emollient, and Antibacterial effects, as well as cooling, astringent, Relaxing, and therapeutic characteristics.

**USES:**

- Sandalwood promotes healthy, smooth skin.
- It reduces the appearance of scars and blemishes.
- Sandalwood heals dry skin.
- It reduce aging and wrinkles
- It reduces tanning and pigmentation.

**Turmeric**

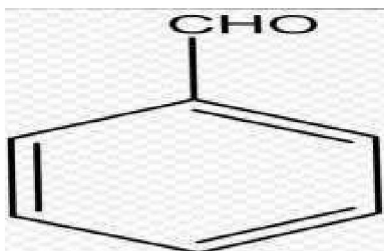


Turmeric is mainly used to rejuvenate the skin. It delays the signs of aging like wrinkles and also possesses other properties like antibacterial, antiseptic and anti-inflammatory. It is best blood purifier. It is effective in treatment of acne due to its antiseptic and antibacterial properties that fight pimples and breakouts to provide a youthful glow to your skin. It also reduces the oil secretion by the sebaceous glands.

**USES:**

- Turmeric is mainly use to improve skin brightness and tone .
- Turmeric is the best source of blood purifier.
- It is useful in treatment of acne due to its antiseptic and antibacterial properties. It also slow down skin aging. Turmeric add natural glow on skin.

**Almond :**

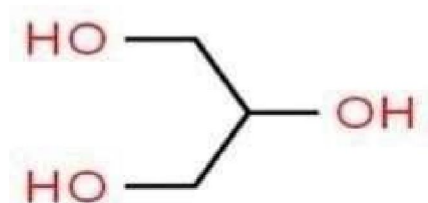


Sweet almond oil is used in the cosmetic industry, especially in dry skin creams and antiwrinkle and anti ageing products. It enhances the glow and fairness of the skin. It is used in over 280 cosmetic Formulations in concentrations up to 50% (4) Almond oil is one of the most popular oils used in aromatherapy and Massage therapy since it is suitable for any skin type. Since it contains large amounts of vitamins E and K, it helps skin regeneration and elasticity.

**USES:**

- Almond have exfoliating and cleansing property.
- It improve skin texture.
- It widely used for acne free glowing skin.
- It improve skin tone.
- It also use for moisturizing skin.
- It use as makeup remover.
- It use to reduce fine lines and wrinkles.

**Glycerine :**



Glycerin is a non-toxic, odorless and colorless alcoholic liquid usually found in animal fats and vegetable oils. A natural humectant or a skin-conditioner, glycerin keeps your skin hydrated, soft and supple. It also protects your skin from harmful environmental aggressors, while improving its texture.

**USES:**

- Glycerine improve skin barrier function.
- It can be use as a cleanser.
- It give smoother skin.
- Glycerine improve skin permeability.
- It has an anti aging effect.
- It moisturize skin deeply
- It reduce sign of aging.
- It has skin healing property.



**Methods :**

weigh accurately all the ingredients such as sandalwood powder, Rice powder, Almond powder Mix them together to form uniform mixture with the help of mortar and pestle .weigh accurately multanimitti , turmeric and triturate them together to form a uniform mixture. In this mixture add previous prepared drugs and triturate to form a uniform drug powder then add Glycerin in this mixture and again mix them together to form uniform mixture.

**III. EXPERIMENTAL WORK**

**Physical Parameter :** The different formulation of face pack was prepared and evaluated for Physical parameters showed in table 1. The appearance of F1, F2, F3 formulation was in the form of paste. The colour of formulation were brownish yellow in composition of F1, F2 and F3. The odour of prepared all formulation was good acceptable which is desirable as cosmetic formulations. The texture is fine in all composition of F1, F2, F3. All the formulations was smooth in nature. The particle size was in the range of  $22.5 \pm 2.85\mu\text{m}$  to  $26.4 \pm 5.44\mu\text{m}$  . The PH of all formulations lied near to natural range i.e. in the range of 6 to 7 PH.

Determining the PH of a face pack involves using PH strips or a digital PH meter. You can mix a small amount of the face pack with distilled water, then test the PH of the mixture. PH strips change color to indicate PH level, while a digital PH meter gives you an exact reading. This helps ensure the face pack is safe and compatible with your skin's PH.

**Irritancy Test :** The Irritation test can be used to determine if a material or chemical will cause irritation in the chemical. In An erythema test for a face pack involves applying a small amount of the product to a small area of the skin, usually on the forearm, to check for any signs of redness or irritation. This helps determine if the product is suitable for use on the face without causing adverse reactions. An edema test for a face pack involves applying a small amount of the product to a small area of the skin, typically on the forearm, to observe for any swelling or puffiness. This helps assess whether the product may cause fluid retention or allergic reactions when applied to the face. The formulation of F1, F2 showed mild irritation because of presence of turmeric powder. The formulation which was prepared by lowering the concentration of turmeric i.e. formulation F3 showed no redness, edema, inflammation and irritation during irritancy studies. This formulation is safe to use for skin

**Formulation Table of herbal face pack :**

Ingredient	F1	F2	F3
Riceflour	40 gm	45 gm	40 gm
Multani matti	30 gm	30 gm	30 gm
Turmeric	05 gm	05 gm	05 gm
Sandalwood	20 gm	15 gm	20 gm
Glycerine	05 ml	05 ml	05 ml
Almond Oil	Q.S	Q.S	Q.S

**Methods of Evaluation :**

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

**Organoleptic Evaluation-** The Organoleptic evaluation is also called as organoleptic or Physical observation which includes observing its color, odor, taste, smell and feeling which studies to evaluate its Physical character were. The organoleptic parameters include its nature, color, odor, feel and consistency which were evaluated manually for its Physical properties.

**Physicochemical Evaluation-** Physicochemical parameters were resolute, counting the determination of, PH and moisture content. Ash content was performed using incinerator, PH was found by using PH meter and loss on drying was also performed

**Physical Evaluation-** The particle size was tested by the help of microscopy method. The flow property of the dried powder of combined form was evaluated by performing Angle of Repose by funnel method, bulk density and grittiness by Physical touching. The particle size was tested by microscopy method. The flow property of the dried powder of combined form was evaluated by performing Angle of Repose by funnel method, bulk density and tapped density by Tapping Method

**Irritancy test-** The Irritancy Test is performed to determine if a product has the tendency to affect skin irritation when used by consumers. By penetrating through the skin's outer layer, several cosmetic items might irritate the skin. Mark vicinity (1sq.cm) at the left-hand dorsal surface. Definite portions of organized face packs have been carried out to the desired vicinity and time became noted. Irritancy, erythematic, edemabecame checked if any for normal durations as much as 24 hrs and reported.

**Antimicrobial evaluation-** In the Pharmaceutical Biotechnology lab examined the formulation for antibacterial activity against test organisms such as Staphylococcus aureus and Propionibacterium acnes. In this procedure, 100 micro litre standardised bacterial suspension was planted on nutritional agar plates and reinforced clostridial agar (RCA). 200 mg of formulation was combined with distilled water and placed into the wells once the dosage was optimised. The diameter of Zones of Inhibition (mm), including cupsize, is measured under standard circumstances to assess antibacterial activity. This method is repeats with 3 times for better evaluation of antibacterial property.

**PH-** It is a logarithmic scale used to specify the acidity or basicity of aqueous solutions. Acidic solutions are measured to have lower PH values than basic or alkaline solutions. A PH meter is a scientific instrument that measures the hydrogen-ion activity in water-based solutions, indicating its acidity or alkalinity expressed as PH.

**IV. RESULT AND DISCUSSION**

**Table 1: Organoleptic Property :**

Sr.No.	Parameters	Observation		
		F1	F2	F3
1	Appearance	Paste	Paste	Paste
2	Color	Brownish yellow	Brownish yellow	Brownish yellow
3	Odour	Slight	Slight	Slight
4	Texture	Fine	Fine	Fine
5	Smoothness	Smooth	Smooth	Smooth

The different formulation of face pack was prepared and evaluated for Physical parameters showed in table 1. The appearance of F1, F2, F3 formulation was in the form of paste. The colour of formulation were brownish yellow in composition of F1, F2 and F3. The odour of prepared all formulation was good acceptable which is desirable as cosmetic formulations. The texture is fine in all composition of F1, F2, F3. All the formulations was smooth in nature.

**Table 2 : Irritancy Test :**

Sr. No.	Evaluation	Formulations			Observation
		F1	F2	F3	
1	Irritant	+	NIL	+	No Irritation
2	Erythema	NIL	NIL	NIL	No Irritation

3	Edema	NIL	NIL	+	No Irritation
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The result of irritancy test was showed in table 2. The formulation of F1,F2 showed mild irritation because of presence of turmeric powder. The formulation which was prepared by lowering the concentration of turmeric i.e. formulation F3 showed no redness, edema, inflammation and irritation during irritancy studies. This formulation is safe to use for skin.

**Table 3: Physical Parameter and Physicochemical Evaluation :**

Sr. No.	Parameters	Observation		
		F1	F2	F3
1	Particle size ( $\mu\text{m}$ )	26.4 $\pm$ 5.44	22.5 $\pm$ 2.85	24.8 $\pm$ 4.36
2	PH	7.66 $\pm$ 0.13	6.65 $\pm$ 0.1	6.79 $\pm$ 0.16

The particle size was in the range of 22.5  $\pm$  2.85 $\mu\text{m}$  to 26.4  $\pm$  5.44 $\mu\text{m}$  . The PH of all formulations lied near to natural range i.e. in the range of 6 to7

### V. CONCLUSION

Natural remedies are more acceptable in the belief that they are safer with fewer side effects than the synthetic ones. Herbal formulations have growing demand in the world market. Herbal face packs are used to stimulate blood circulation, rejuvenate the muscles and help to maintain the elasticity of the skin and remove dirt from skin pores. It is a our good attempt to formulate the herbal face pack containing natural herbal ingredients such as multanimitti, turmeric, sandal wood, saffron, milk powder, rice flour, orange peel and banana peel. After evaluation, we found good properties for the face packs, free from skin irritation and maintained its consistency even after stability storage conditions. It has been revealed that herbal face pack having enough potential to give efficient glowing effect on skin. The overall study is useful to substantiate product claims due its useful benefits on the human beings. The F2 formulation is safe for skin.

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