

FORMULATION AND EVALUATION OF HERBAL FACEPACK

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Abstract

The present study focuses on the formulation and evaluation of an herbal face pack using natural plant-based ingredients known for their skin-enhancing, cleansing, and therapeutic properties. The formulation was developed by incorporating herbal powders such as Multani mitti, neem, turmeric, rose, orange peel, and sandalwood, selected for their antimicrobial, anti-inflammatory, antioxidant, and skin-brightening activities. The prepared face pack was evaluated for various physicochemical parameters including organoleptic characteristics, pH, particle size, spreadability, washability, stability, and irritancy. Results indicated that the herbal face pack demonstrated good consistency, acceptable pH compatible with skin, smooth texture, easy washability, and excellent stability under different storage conditions. The product showed no skin irritation and exhibited promising cleansing, oil-absorption, and complexion-improving effects. Overall, the study suggests that herbal face packs can be a safe, effective, and economical alternative to synthetic cosmetic formulations.

Keywords - Herbal cosmetics , Multani mitti , Neem, Turmeric, Rose powder, Orange peel, Stability studies

INTRODUCTION

Since the ancienter, people are aware of the use of plants for their essential need for a healthy and beautiful skin. Cosmetics are products used to clean, beautify and promote attractive appearance. Skin of the face is the major part of the body, which is a mirror, reflecting the health of an individual. A balanced nutrition containing

amino acids, lipids and carbohydrates are required for the skin to keep it clear, glossy and healthy. In ancient times, women were very conscious about their beauty and took special care of their specific skin types. Even today, people especially in rural areas, and hilly regions go for the natural remedies like plants extracts for various cosmetics purposes like neem, aloe vera, tulsi, orange peel, rose etc. Herbal cosmetics are the products which are used to purify and beautify the skin.^[1]

The main advantage of using herbal cosmetic is that it is pure and does not have any side effects on the human body. People have rough skin and when they don't take sufficient care, then the skin turns dark due to overexposure to the sun, other pollutants etc. In this article we have formulated herbal face pack to whiten, lighten and brighten the skin naturally for men and women. This face pack has natural skin lightening property and can be easily prepared at home. Face packs with natural constituents are rich in vital vitamins that are essential for the health and glow of the skin. These substances have been proven to be beneficial for skin in many ways. Natural facial packs are easy to use. They increase the circulation of the blood within the veins of the face, thereby increasing the

liveliness of the skin. A good herbal facepack must supply necessary nutrients to the skin, available in the form of free-flowing powder applied facially for the external purpose. It should penetrate deep down the subcutaneous tissues to deliver the required nutrients. Every type of skin is specific for the requirement of skin pack.[1]

Nowadays different types of packs are available separately for the oily, normal and dry skin. Face packs are used to increase the fairness and smoothness of the skin. It reduces wrinkles, pimples, acne and dark circles of the skin. Face packs which are recommended for oily skin prone to acne, blackheads, usually control the rate of sebum discharge from sebaceous glands and fight the harmful bacteria present inside acne lesion. The leftover marks of skin can be reduced by incorporation of fine powder so fsandal wood ,rose- petals and dried or ange peels. Herbal face packs are nowadays beingused on a large scale due

to the various benefits of them over chemical based packs. They are non-toxic, non-allergic and non-habit forming.[1]

They are natural in every aspect, having larger shelf life. They have no added preservatives. They can be easily formulated and stored over a larger span of time.

These packs are available in various types and forms and broadly classified into the following categories:[2]

- 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)

Present research deals with the formulation and evaluation of herbal face pack for skin

by using natural materials i.e., multanimitti, turmeric, sandalwood, saffron, milk powder, rice flour, orange peel, banana peel.

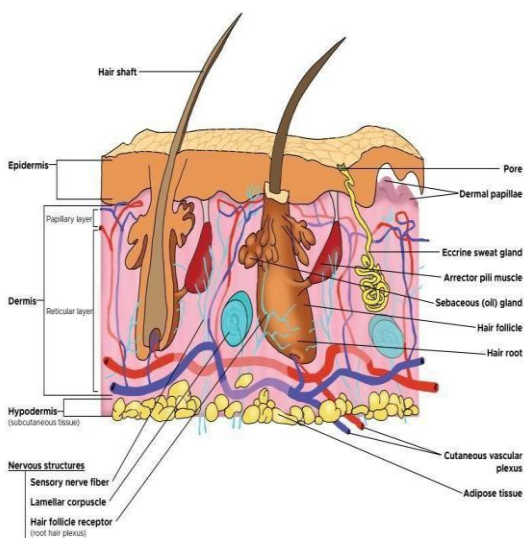
- Marketed products of Herbal Face Packs:
1. Svarasya Chandrika Natural Face Pack for glowing skin: The Ancient illuminator Face Pack for oily and acene prone skin with Natural ingredients: Turmeric and Star anise.
 2. Khadi Natural Ayurvedic Rose & Orange Face Pack: Face Pack for Glowing Skin and for Exfoliating Skin with Natural ingredients: Orange and rose.
 3. Matra Haldi Chandan Ubtan Ayurvedic Paste Face Pack: For Skin Brightening, Tan removal and Sandalwood with face pack brush, 100 grams.
 4. Mama earth Multani Mitti Face Pack and Bulgarian Rose for Oil Control and Acne- 100g.
 5. Himalaya's purifying Neeem Face Pack: goodness of Neem, Fuller's Earth, and Turmeric, which work together to remove excess oil, clean clogged pores, and helps prevent the recurrence of pimples.

SKIN [23-24]

The skin is the largest organ of the body, accounting for about 15% of the total adult body weight. It performs many vital functions, including protection against external physical, chemical, and biologic assailants, as well as prevention of excess water loss from the body and a role in thermoregulation. The skin is continuous, with themucous membranes lining the body's surface.

The skin is composed of three layers: the epidermis, the dermis, and subcutaneous tissue. The outermost level, the epidermis, consists of a specific constellation of cells known as keratinocytes, which function to synthesize keratin, a long, threadlike protein with a protective role. The middle

layer, the dermis, is fundamentally made up of the fibrillar structural protein known as collagen. The dermis lies on the subcutaneous tissue, or panniculus, which contains small lobes of fat cells known as lipocytes. The thickness of these layers varies considerably, depending on the geographic location on the anatomy of the body. The eyelid, for example, has the thinnest layer of the epidermis, measuring less than 0.1 mm, whereas the palms and soles of the feet have the thickest epidermal layer, measuring approximately 1.5 mm. The dermis is thickest on the back, where it is 30–40 times as thick as the overlying epidermis.



FUNCTIONS OF SKIN

1. Protection from wear and tear:

The skin varies in thickness according to the amount of friction and pressure to which it is subjected on the eyelids it is about 1mm thick, while on the palms of the hands and soles of the feet it can be up to 1cm. The toughness of skin is due to the amount of the insoluble protein keratin within it. There is little or none where the skin is not subject

to friction (for example, inside the lips) and more where the skin is subjected to constant external pressure. Subcutaneous fat beneath the skin acts as a shock absorber and helps to protect the body from trauma.

2. Protection against infection and chemicals:

Although large numbers of microorganisms live on the skin, these cannot break the barrier created by intact healthy skin. Trauma to the skin creates an opportunity for invasion by microorganisms and results in an inflammatory response characterized redness, swelling, localised heat, pain and pyrexia. Blood flow increases and transports white blood cells and macrophages to the site of injury to fight infection and repair the tissue. The skin also provides protection against weak chemicals and most gases.

3. Protection against ultra violet:

The skin protects the body from harmful UV rays. The pigment melanin is produced in special cells called melanocytes, which are found at the base of the epidermis. Melanin production is influenced by sunlight. When skin is over exposed to the sun's rays, it becomes red with erythema (flushing of the skin in response to dilatation of blood vessels in the dermis) due to inflammation. The skin then turns brown as melanin is produced. Melanin absorbs UV light and prevents it damaging cellular DNA. Hair, made of keratin, also helps to protect people from UV light as well as from extremes of temperature and trauma.

VIEW OF LITERATURE

1. J.Prathyusha ,N.S.Yamani (2019)[3]:

Cosmetics play a vital role for everyone to have a joyful and sanguine life. In present scenario herbal cosmeceuticals have more demand because they have no side effects. People having oily skin suffer from acne, whiteheads and blackheads quite often so

scrubbing become more essential. In our present study we formulated 3 different formulations F1, F2, F3 in gel form for oily skin by using turmeric, aloe vera, cinnamon, potato starch, activated charcoal powder, honey, green tea, lemon juice, onion, walnut shell, coconut oil, beet root juice powder, sodium lauryl sulphate, water and evaluated by using various parameters such as physical appearance, viscosity, pH, spreadability, irritability, washability, stability studies and got fruitful results with all the tests.

2. Vidya Keshav Kakad (2022):

Many of the marketed products when applied on the skin cause dryness of skin after its long-term use which results less life of skin problems of acne and redness. Solution for this problem is use of scrub which consist all herbal ingredients which increases cleansing,

softening, moisturizing, fairness of skin. The use of natural ingredients to fight against acne, wrinkle and also to control secretion of oil is known as natural or Herbal cosmetics. Herbal cosmeceuticals usually contain the plant parts which possess antimicrobial, antioxidant and anti-aging properties. Herbal cosmetics are the safest product to use routine with no side effects and cosmaceuticals are the product which influences the biological function of skin.

3. Millikan, Larry E. Cosmetology (2012)[4]:

Exfoliation is the process of removal of removing the old, dead skin cells that cling to the skin's outermost surface. The two types of exfoliation are mechanical and chemical. People's opportunities for seeking dermatological assistance for a myriad of conditions, including acne, rosacea, striae, photodamage, and skin cancers have increased in recent years. Skin exfoliation improves the quality and tone of skin by

assisting in the removal of dead skin cells from the surface. Herbal Exfoliant produces soft, supple, re-energized skin and prevents premature skin aging.

4. Chanchal D. and Saraf S. (2009) [5] :

The main objective of present study was to prepare a polyherbal scrub incorporated into gel. The use of natural ingredients to fight against acne, wrinkle and also to control secretion of oil is known as natural or Herbal cosmetics. Herbal cosmeceuticals usually contain the plant parts which possess antimicrobial, antioxidant and anti-aging properties. Herbal cosmetics are the safest product to use routine with no side effects and cosmeceuticals are the product which influences the biological function of skin. In this preparation Green apple, cinnamon, Millet, Sandalwood, Neem, Turmeric and honey is used as active ingredients and incorporated into the gel which is prepared with carbopol of different grades. Other ingredients like propylene Glycol, Triethanolamine; methyl parahydroxy benzoate was added along with sodium lauryl sulfate into the gel. The prepared gel was evaluated for various parameters such as appearance, pH, viscosity, Spread ability, Washability, irritability and found to be satisfied with all required characterizations. Thus, the developed formulation can be used as an effective scrub for using it to bear a healthy and glowing skin.

5. Swarali Yuvraj Sandanshiv (2023)[6-7]:

Majority of the cosmetic products available in market are of synthetic origin and causes numerous side effects when used for longer period of time. One of the solutions for this problem is use of herbal cosmetics. Herbal cosmetics are considered safe for routine use with minimal side effects. Acne, redness, wrinkles, dark circles, pimples, dry and dead

skin is some of the major skin issues. All these problems can be minimized by using herbal cosmetics such as face pack, scrub, cream, etc. Present work focused on preparation of powder based herbal face pack using natural ingredient like orange peel, neem, tulsi, sandalwood, rose oil, etc. Orange peel was used as core ingredient for its ability to reduce acne, wrinkle and also to control excessive secretion of oil is known as natural or herbal cosmetics. Formulation was evaluated for its appearance, spreadability, smoothness, irritability, pH etc. from the results obtained from

evaluation

parameters, it can be concluded that the prepared face pack can be safely used. Keywords:herbal cosmetics, scrub, softening, cleansing, moisturizing and fairness.

6. Pooja Dave; Gira Patel (2022) [8-11]:

The goal of the project is to test and develop an herbal face pack that contains natural herbal compounds that act as antioxidants, antiseptics, and skin brighteners. Natural herbal components including coffee, multanimitti, arjuna powder, rice flour, gram flour, orange peel powder, nutmeg, milk powder, saffron, aloe vera gel. All natural components were sieved through #120 mesh, carefully weighed, and geometrically blended for a homogeneous formulation, and then tested for phytochemical, morphological, physical, stability, and irritancy, microbial as well as physicochemical properties. Herbal face masks or packs are used to revitalize muscles and improve blood circulation while maintaining healthy skin and eliminating pollutants from pores. All face pack formulations were determined to be good in physical criteria and clear of skin irritations, indicating that the face packs have good qualities, according to this

report's results. To identify the practical aids of face packs for human consumption as cosmetic items, more optimization research are needed on this study.

AIM AND OBJECTIVE

Aim:

Formulation and Evaluation of Herbal Face Pack .

Objective:

1. As 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 synthesize a pack ideal for all skin types. After the synthesis, all the parameters have been calculated in order to meet up the quality standards.
2. To formulate and evaluate a cosmetic preparation poly herbal face pack made from herbal ingredients.
3. Herbal face packs or masks are used to stimulate blood circulation, rejuvenates and help to maintain the elasticity of the skin and remove dirt from skin pores.
4. To moisturize, cleanse, tone and rejuvenate your skin. Masks are designed for each skin and age type.

Drug And Excipient Profile

Multani mitti (Fullers Earth, Calcium Bentonite): Multanimitti contains bentonite, magnesium, sodium, and calcium which are highly absorbent and offer various skin benefits. It helps skin by different ways like diminishing pore sizes, removing black head sand white heads fading freckles, minimizes pores size, 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 will help to make your skin radiant and excellent for aggravated and irritated skin. its cooling action soothes the skin, relieves the dirt and skin cells accumulated and replace with fresh, radiant and glowing skin. Multani

Mitti is rich magnesium chloride. [12,21,25]



Turmeric (*Curcuma longa*): Haridra is another name for Turmeric. Haridra has been shown to have anti-inflammatory, antioxidant property, and anti-allergic activity. It is the best blood purifier and helps in wound healing. It possesses the best blood purification action so it is used in all diseases

with blood impurities of origin. Haridra is a rejuvenator of skin and revitalizes skin; delays the signs of aging like wrinkles. It is effective in the treatment of acne due to its antimicrobial, antioxidant, anti-inflammatory property. It also reduces the oil secretion by sebaceous glands. [13,26]



Sandal wood (*Santalum*): The Sandalwood is the central part of the tree with a characteristic fragrance. The oil extracted from this sandalwood is referred to as the East Indian sandalwood oil and is used in different health conditions. Over the years, it has been used as an anti-ageing product as it reduces wrinkles, scars, and the darkening of the skin. This is due to its toning, antioxidant, and anti-

inflammatory actions. Sandalwood protects the skin against the impact of environmental pollution and keeps the skin cool, fair and healthy. Sandalwood is a helpful Ayurvedic herb with antimicrobial properties. It is used for healing various skin problems and removing scars. Eczema is a medical condition where patches of the skin become dry, scaly, red, and cause itching leading to bleeding. Sandalwood oil may be applied on the skin to help in the management of the condition due to its anti-inflammatory action [14].



Neem (*Azadirachta indica*): The principal constituent of neem leaves includes protein, carbohydrates, phosphorus, vitamin C, and carotene. It eliminates inflammation, disinfects and is very beneficial for oily skin and acne. The acne is due to the anti-bacterial, anti-inflammatory and anti-oxidant activities of various chemicals. Neem powder helps to get rid of the dandruff which also reduces the skin ailments like psoriasis, eczema and other skin-related infections. Neem powder cures the boils, prickly heat and other minor skin problems. Face packs enriched with neem also reduce the acne marks and scars. [15,26,27]



Nutmeg (*Myristica fragrans*): A number of species in the genus *Myristica* produce the seeds or ground spice known as nutmeg. Nutmeg is rich in essential nutrients that contribute to healthy and glowing skin. It contains vitamins C, A, and E, known for their antioxidant properties. These antioxidants help combat free radicals and protect skin from oxidative stress, which can lead to premature aging and damage. Nutmeg is widely used in treatment of fever and inflammation. It has analgesic, anti-inflammatory, antiseptic and anti-bacterial property. It helps in reducing wrinkles, fine lines. It also helps in reducing acne scars and to make them less noticeable. Nutmeg possesses soothing properties that can help alleviate skin inflammation and irritation. Its anti-inflammatory effect calm the skin, reducing redness and discomfort. Deals with greasy skin.[15]

Orange peel (*Citrus aurantium*): Orange is a citrus fruit which contains different nutritional source such as vitamin C, calcium, potassium, and magnesium. It prevents the skin from free radical damage, skin hydration and oxidative stress. Orange peel powder is rich in vitamin C and other antioxidants. On vitamin C brightens your skin and makes it youthful and glowing. Orange peel powder benefits include unclogging pores, removing blackheads and treating acne. It contains citric acid, which exfoliates.[16]



METHODOLOGY^[22]

• **Formulation of herbal facepack:**

Step-1: All the required herbal powders for the face pack preparation were accurately weighed individually by using digital balance and ground into fine powder by using sieve no. 120.

Step-2: Then the all ingredients were mixed geometrically by serial dilution method for uniform mixing.

Step-3: Then the prepared face was packed into a self-sealable polythene bag, labelled and used for further studies. The quantity and composition are listed in Table-1

Table 1: Composition of Herbal Face Pack

Sr.No	Ingredients (In powder form)	Quantity of sample (100gm)
1	Multani mitti	25mg
2	Turmeric	20mg
3	Aloevera	10mg
4	Sandalwood	25mg
5	Orange peel	10mg
6	Neem	03mg
7	Nutmeg	07mg

• **Procedure of facepack application:**

1. Take prepared face pack powder in a bowl as per the requirement and add rose water to mix.
2. Mix well and apply over the facial skin.
3. Cover the acne and blemishes spots too.
4. Kept as it is for complete drying for 20 to 25 min and then wash with cold water.

EVALUATION TEST^[17-21]

1. Physical parameters:

The different formulation of face pack was prepared and evaluated for physical parameters showed in the Table-2. The flow property parameter showed free flowing properties. The colours of formulations were different due to variation in composition of contents. Formulation was brown in colour. The odour of prepared formulations was good acceptable which is desirable as cosmetic formulations. The particle size of formulations 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 neutral range i.e. in the range of 6 to 7 pH. The ash content and moisture content was within limit (Table-3).

2. Organoleptic Evaluation:

Herbal face pack was evaluated for organoleptic parameters showed in the Table-2. The colour of formulation was Brown. The odour of prepared formulations, was pleasant and good acceptable which is desirable to cosmetic formulations. Texture and smoothness was acceptable as per requirement of cosmetic formulations.

Table-2: Organoleptic evaluation

Sr. No.	Parameter	Observation
1	Colour	Yellowish
2	Odour	Pleasant
3	Appearance	Powder
4	Texture	Fine
5	Smoothness	Smooth

3. Physical Evaluation and Physicochemical Evaluation:

The particle size of formulations was in the range of $22.3 \pm 2.25 \mu\text{m}$. The pH of formulation lied near to neutral. The ash content and moisture content was within limit. Herbal face pack was evaluated for physical

parameters (powder property) Rheological findings justified the flow (powder) properties of the herbal face pack. It was found to be a free-flowing and non-sticky in nature (Table-3).

Table-3: Physical Evaluation

Sr.No.	Parameters	Observation
1	Tapped density	0.70 gm/ml
2	Bulk density	0.78 gm/ml
3	Angle of repose	31

4. Irritancy Test:

There sult of irritancy test were shown in Table-4. The formulations which was prepared by lowering the concentration of turmeric i.e. formulations showed no redness, edema, inflammation and irritation during irritancy studies. This formulation is safe to use for skin.

Table-4: Irritancy Test

Sr.No.	Parameters	Observation
1	Irritant	No
2	Erythema	No
3	Edema	No

5. Stability studies:

The stability studies showed a slight change in pH of formulation which was stored at 40°C and no changes were observed at room temperature and at 35°C there was no change in colour and odour at other mentioned conditions of stability (Table-5):

Table-5: Stability studies

Sr.No.	Parameter	Room temperature	40°C
1	Colour	No change	No change

2	Odour	Nochange	No change
3	PH	6.92 ±0.12	6.87 ±0.13
4	Texture	Fine	Fine
5	Smoothness	Smooth	Smooth

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 an our good attempt to formulate the herbal face pack containing natural herbal ingredients such as multani mitti, turmeric, sandal wood, saffron, milk powder, rice flour, orange peel and banana peel.
- After evaluation, we found good properties for the facepacks, 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 over all study is useful to substantiate product claims due its useful benefits on the human beings.
- Herbal ingredients opened the way to formulate cosmetics without any harmful effect.
- Herbal face packs are considered as sustaining and productive way to advance the appearance of skin.

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