

Formulation and Evaluation of Polyherbal Face Pack

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Abstract- *The objective of this work is to formulate and evaluate a cosmetic Polyherbal face pack for glowing skin by using natural ingredients. With the varying concentrations, four different formulations containing ingredients such as multani mitti, turmeric powder, amla powder, sandal wood powder, orange peel powder, neem powder; were prepared named as S1 to S4. All prepared formulations were evaluated by different parameters like organoleptic properties and physico-chemical parameters and stability along with irritancy test. Among all formulation, S3 was found to be good in physical parameters, free from skin irritation and maintained its consistency even after stability storage conditions.*

Indexed Terms- *Polyherbal, Stability, Irritancy, Physico-Chemical.*

I. INTRODUCTION

Cosmetics are products used to cleanse, enhance, or alter one's appearance. Throughout history, herbs have been utilized for their cleansing, beautifying, and medicinal properties. In India, herbal pastes known as "Mukhalepa" were commonly used in Ayurvedic facial therapy to treat issues like acne, pimples, rashes, stains, and pigmentation [1]. Herbal face packs, which are smooth powders applied to the face, are a cost-effective and side-effect-free method for achieving naturally fair skin. This study focuses on creating a herbal face pack using natural ingredients such as Multani mitti, turmeric powder, amla powder, sandalwood powder, and orange peel powder [2]. Different skin types require specific herbal face packs, and homemade natural face packs can help achieve smooth, healthy, and silky skin [3].

Face packs are smooth powders or pastes applied to the face to provide tightening, strengthening, and cleansing effects to the skin. These preparations are left on the skin for a certain period, allowing the

water to evaporate and the resulting film to contract and harden. The warmth and tightening sensation produced by face packs rejuvenate the face, while the clays used in these formulations effectively remove dirt and grease from the skin. When the face pack is removed, it takes away skin debris and deposited dirt, leaving the skin refreshed. Different types of herbal face packs cater to various skin needs, helping reduce wrinkles, pimples, acne, dark circles, and enhancing fairness and smoothness [4]. Ayurveda, a traditional system of medicine, provides effective means for achieving these skincare goals [6]. Face packs are available in different types and forms, including plastic masks (wax-based, latex-based, or vinyl-based), hydrocolloid masks (gel masks), and argillaceous masks (clay-based or earth-based, in ready-to-use or dry powder form) [7].

The present research article focuses on formulating and evaluating a Polyherbal face pack for glowing skin at home, utilizing natural materials such as multanimitti, turmeric powder, amla powder, sandalwood powder, orange peel powder, and neem powder. Cosmetics are commercially available products that aim to improve skin appearance through cleansing, beautifying, and enhancing attractiveness. Herbs have long been recognized for their cleansing and beautifying properties. The skin on the face reflects an individual's overall health and requires balanced nutrition to maintain its clarity, glossiness, and health [8,9,10]. Ayurveda recommends the use of face packs to address issues like acne, pimples, scars, marks, and pigmentation [11]. Herbal face masks contribute to smoother and more radiant skin. Choosing herbal face packs based on skin type maximizes their benefits. Ayurvedic face packs are effective in reducing wrinkles, acne, dark circles, and promoting overall skin health [12,13].

II. MATERIALS AND METHODS

The present study utilized various natural materials

purchased from the local market in the form of dried powder. These materials include multani mitti, turmeric powder, sandalwood powder, orange peel powder, neem powder, and amla powder. Each material has specific benefits for the skin.

Multani mitti, also known as calcium bentonite, helps the skin in multiple ways, such as reducing pore size, removing blackheads and whiteheads, fading freckles, soothing sunburns, cleansing the skin, improving blood circulation and complexion, reducing acne and blemishes, and providing a glowing effect due to its nutrient content, particularly magnesium chloride. [20]



Turmeric Powder, derived from *Curcuma longa*, is primarily used for skin rejuvenation. It helps delay signs of aging, such as wrinkles, and possesses antibacterial, antiseptic, and anti-inflammatory properties. Turmeric also acts as a blood purifier and effectively treats acne by fighting pimples and reducing oil secretion by the sebaceous glands [21,22].



Orange Peel Powder, obtained from *Citrus reticulata*, is a citrus fruit rich in nutrients like vitamin C, calcium, potassium, and magnesium. It protects the skin from free radical damage, provides hydration, and reduces oxidative stress. Additionally, it imparts an instant glow to the skin, prevents acne, blemishes, wrinkles, and signs of aging [23].



Neem Powder, derived from *Azadirachta indica*, possesses anti-inflammatory and antiseptic properties, making it highly beneficial for oily and acne-prone skin [24]. Its effectiveness in treating acne is attributed to its antimicrobial, anti-inflammatory, and antioxidant activities due to various chemical constituents [25].



Amla powder, known for its high content of vitamin C and antioxidants, is one of the richest sources of polyphenols. The antioxidants and polyphenols present in amla naturally brighten the skin [26].



Sandalwood Powder provides numerous benefits to the skin. It is known for its soothing and cooling properties, making it suitable for calming irritated skin and reducing inflammation.

Additionally, sandalwood powder possesses antiseptic properties, which help in combating acne-causing bacteria and preventing breakouts. It is also often used to enhance the skin's complexion and achieve a radiant glow.



III. METHODS OF PREPARATION

Four different formulations were prepared with varying concentrations of all ingredients named as S1 to S4. List of ingredient was mentioned in Table 1. The accurate quantity of ingredients were weighed and ground into fine powder by using sieve #120. Then the all ingredients were mixed geometrically by serial dilution method for uniform mixing. Then the prepared face pack was packed into a self-sealable polyethylene bag, labeled and used for further studies.[27]

Procedure of Face Pack Application Take prepared face pack powder in a bowl as per the requirement and add rose water to mix. Mix well and apply over the

facial skin. Cover the acne and blemishes spots too. Kept as it is for complete drying for 20 to 25 min and then wash with cold water.

IV. FORMULATION OF FACEPACK

Following evaluation parameters were performed to ensure superiority of prepared face pack; Organoleptic Evaluation The organoleptic parameters include its nature, color, odor, feel and consistency which were evaluated manually for its physical properties.[28]

| Sr.No | Name of Ingredients | Quantity of Sample for 100 gm | | | |
|-------|---------------------|-------------------------------|----|----|----|
| | | S1 | S2 | S3 | S4 |
| 1 | Orange peel powder | 25 | 35 | 30 | 15 |
| 2 | Multani Mitti | 23 | 14 | 18 | 23 |
| 3 | Turmeric powder | 10 | 10 | 7 | 20 |
| 4 | N neem Powder | 25 | 20 | 25 | 25 |
| 5 | Amla Powder | 10 | 6 | 12 | 7 |
| 6 | Sandalwood powder | 7 | 15 | 8 | 10 |

V. METHODS OF EVALUATION

Physical Evaluation: 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.[29]

Physicochemical Evaluation: Ash content was performed using incinerator, pH was found by using pH meter and loss on drying was also performed.[30]

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. Irritancy, erythema, edema, was checked if any for regular intervals up to 24 hrs and reported.[31]

Stability Studies: Stability testing of prepared formulation was conducted for formulation S3 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. [32]

ORGANOLEPTIC PROPERTIES

| Sr No. | Parameters | Observations | | | |
|--------|------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | | S1 | S2 | S3 | S4 |
| 1 | Appearance | Powder (Free Flowing) | Powder (Free Flowing) | Powder (Free Flowing) | Powder (Free Flowing) |
| 2 | Color | Slight Yellow | Slight Yellow | GreenishYellow | Slight Yellow |
| 3 | Odour | Slight | Slight | Slight | Slight |
| 4 | Texture | Fine | Fine | Fine | Fine |
| 5 | Smoothness | Smooth | Smooth | Smooth | Smooth |

Table 4: Physical Parameters and Physicochemical Evaluation

| Sr No. | Parameters | Observations | | | |
|--------|----------------|--------------|------------|-------------|------------|
| | | S1 | S2 | S3 | S4 |
| 1 | Ash Content | 93 ± 0.732 | 87 ± 0.859 | 92 ± 0.556 | 95 ± 0.462 |
| 2 | PH | 7.66 ± 0.13 | 6.65 ± 0.1 | 6.79 ± 0.16 | 6.88 ± 0.1 |
| 3 | Loss on Drying | 3.33 | 3 | 4 | 3.67 |

Table 5 : Irritancy Test

| Sr No. | Parameters | Formulations | | | | Observation |
|--------|------------|--------------|-----|-----|-----|---------------|
| | | S1 | S2 | S3 | S4 | |
| 1 | Irritant | + | + | NIL | + | No Irritation |
| 2 | Erythema | NIL | NIL | NIL | NIL | No Irritation |
| 3 | Edema | NIL | NIL | NIL | NIL | No Irritation |

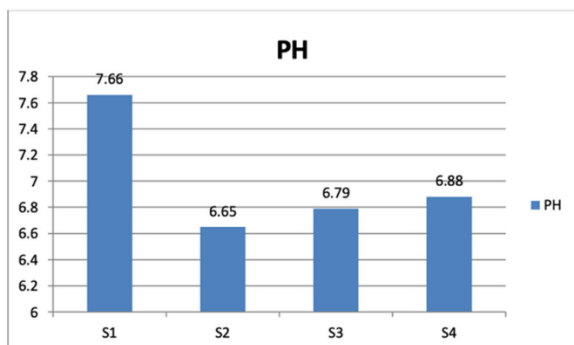
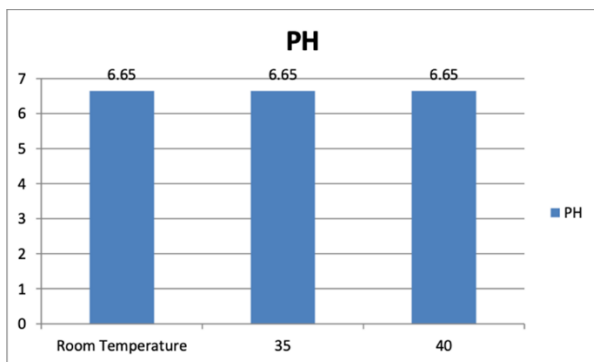


Figure 1: pH of Formulations S1 to S4



Formulation S3

Figure 2: pH of Formulation S3 during Stability studies

BENEFITS OF HERBAL FACE PACK

- Face packs for acne, pimples and blackheads usually regulate excessive sebum production from theseaceous glands and remove dangerous bacteria from the acne lesion.
- By mixing fine powdered with rose petals, orange lentils, and sandal, remove scars, acne, and markings on the skin can be eliminated.
- Face packs are used to eliminate dead skin cells.
- The calming and relaxing properties of these face packs and masks are beneficial to the skin.
- They aid in the restoration of the skin's natural radiance and brightness in a short period of time.
- Using natural face packs on a regular basis will give your skin a healthy shine and improve the texture and appearance of your skin.
- By correctly applying a face pack, the detrimental effects of pollution and harsh elements can be effectively prevented.
- They aid in the prevention of premature skin aging.
- Natural face packs can effectively control the formation of wrinkles, fine lines, and skin sagging.
- Natural face packs give the appearance of fresh and healthy skin
- Herbal face packs give skin nutrition.
- Depending on their herbal contents, herbal face packs can diminish acne, pimples, scars, and blemishes.
- Face packs typically exfoliate the skin's dead cells
- These face masks provide a calming and unwinding impact on the skin.
- They aid in quickly restoring the skin's lost radiance and glow.
- They help to prevent premature aging of skin.
- Natural face packs give the skin a youthful, healthy appearance.
- It keeps the skin's suppleness.
- Natural face masks improve the texture and tone of the skin and give it a glow when used frequently.
- The negative impacts of pollution and extreme weather can be successfully combated by using facepacks sensibly.[14]

ADVANTAGE OF HERBAL FACE PACK

- Herbal products don't have negative side effects.
- It aids in eliminating our skin's dead cells.
- Herbal products are inexpensive.
- Products made from herbs are widely accessible.
- It is utilized to make our skin sparkle.[14]

DISADVANTAGE OF HERBAL FACE PACK

- Sometimes our skin displays signs of irritability and redness.
- Inflammation has taken place.
- The effects of the face pack will develop gradually. [14]

VI. RESULT AND DISCUSSION

Physical parameters The different formulation of face pack was prepared and evaluated for physical parameters showed in the Table 3. The flow property parameter showed free flowing properties. The colors of formulations were different due to variation in composition of contents. Formulation S1, S2 and S4 were slightly yellow in color and formulation S3 showed as Greenish yellow. The odor of prepared formulations was good acceptable which is desirable as cosmetic formulations.

The pH of all formulations lied near to neutral range i.e. in the range of 6 to 7 pH. (Figure 1).

The ash content and moisture content was within limit (Table 4). Irritancy test The results of irritancy test were shown in (Table 5). The formulations S1, S2 and S4 showed mild irritation because of presence of turmeric powder[33] formulations which was prepared by lowering the concentration of turmeric i.e. formulations S3 showed no redness, edema, Inflammation and irritation during irritancy studies. This formulation is safe to use for skin.

Stability studies The stability studies showed a slight change in pH of formulation which was stored at 40oC and no changes were observed at room temperature and at 35oC (Figure 2). The odour of formulation was slightly changed after one month of stability studies at 40oC and there was no change in color and odour at other mentioned conditions of stability which were showed in (Table 6)

SUMMARY

From the present research it can be concluded that a successful formulation of polyherbal Facepack of Multani Mitti can be formulated using turmeric powder, sandalwood powder, amlapowder, orange peel powder, neem powder etc.

CONCLUSION

The present skin conditions such as pimples, acne can be cured by using herbal preparations. There are various herbal preparations such as herbal face pack, herbal face mask, face scrub act by different mechanism and helps to keep the skin healthy. The present formulation was prepared by using various herbs which will help in improve fairness, reduce acne, by acting on face. The formulation was subjected to various evaluation test such as angle of repose, irritancy test and all the test was passed by the formulation. Therefore, polyherbal formulations have a wide variety of scope in preventing skin problems.

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