Formulation and Evaluation of Herbal Face Pack

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Abstract

The aim of this work is to formulate and evaluate an herbal face pack for glowing skin by using natural herbal ingredients. The natural herbal ingredients such as multanimitti, turmeric, sandalwood, saffron, milk powder, rice flour, orange peel were purchased from local market in the form of dried powder. The powder of banana peel was prepared by shade drying commercially, all powdered natural ingredients were sieved using #120 mesh, weighed accurately and mixed geometrically for uniform formulation and then evaluated for parameters including morphological, physicochemical, physical, phytochemical, irritancy along with stability examination. Thus, in the present work, we formulated a herbal face pack which can be easily made with the easily available ingredients. After evaluation, we found good properties for the face packs, free from skin irritation and maintained its consistency even after stability storage conditions. Results of the study scientifically verified 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.Herbal face packs or 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. In this study it is concluded that all the formulations of face packs found to be good in physical parameters, free from skin irritations so we found good properties for the face packs and further optimization studies are required on this study to find the useful benefits of face packs on human use as cosmetic product. Everybody wants to get a fair and charming skin. Now A Day, acne, Black heads, pimples Are Common among person who suffer from it. According to Ayurveda, skin problems are normally due to impurity in blood. Herbal face packs on used to stimulate blood circulation, Rejuvenate the muscle and help to maintain the elasticity of the shin and remove dirt from skin pores.

Keywords: Herbal skincare, face pack formulation, natural ingredients, skincare research, traditional practices.

Introduction:-

For centuries, the recognition of plant's efficacy in achieving healthy, radiant, and beautiful skin has been a prevalent understanding [1,2]. Cosmetics, serving as tools to enhance appearance, are widely accessible goods utilized to improve one's look through the processes of cleansing, beautifying, and enhancing

attractiveness [3]. The utilization of various herbs for skincare dates back to ancient times, encompassing practices of dealing with skin-related issues, cleansing, and adorning. The face, as the largest exposed area of the body, serves as a visible indicator reflecting an individual's overall health [4]. In historical contexts, women were particularly attentive to their appearance, demonstrating a profound care for their distinct skin types. In contemporary times, using natural remedies, such as plant extracts like neem, aloe vera, orange peel, tulsi, and rose,persists, especially in rural and mountainous areas [5-7]. Despite the enduring pursuit of beauty, the modern era witnesses the prevalence of common skin issues, including acne, blackheads, pimples, and dark circles, predominantly among the younger population. Ayurveda attributes these skin problems to blood impurity, emphasizing a holistic approach to skincare [8]. Within Ayurveda, the term "mukhalepa" denotes the herbal paste used to address acne, pimples, scars, markings, and pigmentation on the face. The application of this herbal blend, known as "mukhalepana," has evolved into a popular facial cosmetic therapy. Additionally, the concept of a "face pack" involves applying a supple powder to the face. An effective herbal face pack is expected not only to enhance the appearance of skin but also to provide essential nutrients by penetrating the subcutaneous tissues [9,10]. The application process of a face pack entails the use of a smooth powder, applied as pastes or liquids, which dries and strengthens into a film. This film is left on the skin for a specified period, typically ten to twenty-five minutes, allowing the water to evaporate. Post-evaporation, the resulting film contracts, strengthens, and becomes easy to remove. While colloidal and adsorption clays in these preparations effectively remove grime and grease from the face's skin, the warming and narrowing impact caused by the face pack application imparts a stimulating sensation, creating a sense of rejuvenation. However, it's important to note that skin debris is typically left behind after the removal of the applied face pack. In light of this historical and contemporary context, the present research article delves into the formulation and evaluation of herbal face packs aimed at promoting glowing skin through the use of natural materials. This underscores an ongoing interest in exploring and harnessing traditional practices for skincare and beauty in the modern era. The pursuit of a healthy and radiant complexion remains deeply ingrained in cultural and scientific endeavors, merging ancient wisdom with contemporary scientific evaluation.[1,2]

HIGHLIGHTS OF HERBAL FACE PACKS:

Reduced Acne and Blemishes:

Herbal ingredients like neem, turmeric, and sandalwood possess antibacterial and anti-inflammatory properties that can help to combat acne and reduce blemishes.

Improved Skin Tone and Texture:

Ingredients like orange peel and other herbs can help to brighten the skin, reduce hyperpigmentation, and improve overall skin texture.

Reduced Wrinkles and Dark Circles:

Certain herbal extracts, such as sandalwood and aloe vera, have anti-aging and soothing properties that can help to reduce the appearance of wrinkles and dark circles.

Gentle Exfoliation:

Many herbal face packs contain natural exfoliants that can help to remove dead skin cells and unclog pores, leaving the skin feeling smooth and refreshed.

Natural and Safe:

Herbal face packs are generally considered safe for use, as they contain natural ingredients and are free from harsh chemicals.[3,4]

ADVANTAGES:

Herbal face packs offer numerous benefits for the skin, including reducing acne, pimples, and scars, improving skin texture and tone, and promoting a healthy glow. They can also help soothe inflammation, control oil, and potentially reduce signs of aging.

DISADVANTAGES:

Herbal face packs, while generally safe and beneficial, can have some drawbacks. They may take longer to dry than chemical-based products, potentially causing irritation or redness. Some individuals may find the smell or application difficult, and certain ingredients like lemon or spices could be irritants, especially for sensitive skin.

MATERIALS AND METHODS:

INGREDIENT OF FORMULATION:

A. NEEM:

Azadirachta indica, commonly known as neem and belonging to the Meliaceae family, is a tree renowned for its rich chemical composition. Various biologically active substances, including triterpenoids, alkaloids, phenolic compounds, flavonoids, carotenoids, ketone bodies, and steroids, are present in different parts of the neem tree. Azadirachtin, a tetranortriterpene classified as a C seco Limonoid, stands out as the most biologically active compound, comprising seven isomeric chemicals like meleicin, azadirachtin M, and azadirachtin N [13]. Other significant Limonoids found in neem include Valassin, Salanin, Gedunin, Nimbidin, Nimbolides, and Nimbin. Notably, Azadirachtin, Salannin, Meliantriol, and Nimbin are considered the top four Limonoid compounds. Limonoids, with their insecticidal and pesticidal properties, serve various purposes such as antifeedants, repulsives, growth inhibitors, attractants, chemosterilants, and insecticides. Neem oil extracted from Azadirachta indica has demonstrated promising applications, including its effectiveness in treating aging symptoms, post-surgical scalp wounds, and acne, and exhibiting antifungal and antibacterial activities [13,14]. Additionally, neem oil has been recognized for its role in reducing scars, healing wounds, and minimizing warts and moles, highlighting its diverse therapeutic uses. These properties of Azadirachta indica underscore its significance as a valuable source of bioactive compounds with applications in skin care, wound healing, and pest management. [7,8]

Biological Source: The Azadirachta indica tree, also known as Indian lilac or Margosa.

Family: Meliaceae.

Chemical Constituent: Neem contains a wide array of chemical constituents, most notably limonoids like azadirachtin, nimbin, and nimbidin, as well as other compounds like flavonoids, tannins, saponins, and fatty acids.

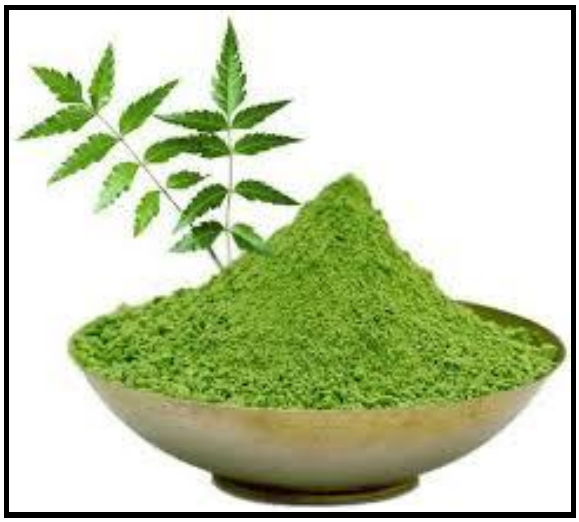


Figure 1. Neem powder

B. Multani Mitti:

Multani Mitti, commonly known as Fuller's Earth, proves to be a versatile skincare ingredient with a multitude of benefits. Its transformative effects on the skin include reducing pore size, eliminating blackheads and whiteheads, and fading freckles and sunburns, contributing to a smoother and more even complexion. The natural cleansing properties of Multani Mitti make it effective in detoxifying the skin, removing impurities and excess oil, while simultaneously enhancing blood circulation for a healthier complexion and a radiant glow. With its richness in essential nutrients, Multani Mitti not only combats acne but also diminishes blemishes, resulting in clearer and more evenly toned skin. The presence of magnesium chloride further amplifies its skin friendly attributes [17,18]. Incorporating Multani Mitti into a skincare routine provides a holistic approach to achieving and maintaining radiant and healthy skin, making it a valued and versatile ingredient in various beauty treatments. Whether addressing specific skin concerns or promoting overall skin well-being, Multani Mitti stands out as a natural and effective solution for those seeking a skincare regimen rooted in beneficial properties.[9,10]

Biological Source: Multani Mitti, also known as Fuller's Earth, is a natural clay and its biological source is geological. It is not derived from plants or animals. It's a mineral deposit, primarily composed of hydrous aluminum silicates.

Chemical Constituent: Multani Mitti, also known as Fuller's Earth, is primarily composed of hydrous aluminum silicates, along with magnesium chloride and calcium bentonite. It also contains silica, alumina, iron oxide, magnesium oxide, and lime, which give it its unique properties and color. These components contribute to its ability to absorb oil and impurities from the skin and hair.

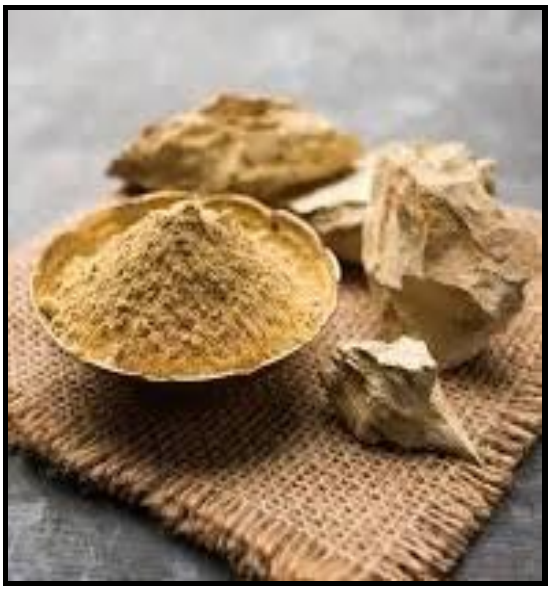


Figure 2. Multani mitti

C. Turmeric Powder:

Turmeric, scientifically identified as Curcuma longa and classified under the Zingiberaceae family within the genus Curcuma, plays a pivotal role in skincare preparations due to its diverse and beneficial properties. Recognized for its blood-purifying attributes and antibacterial effects, turmeric actively supports wound

healing and addresses skin conditions stemming from blood impurities. Its versatility extends to anti-inflammatory and anti-allergic properties, making it a valuable asset in skincare routines dedicated to soothing and calming the skin. Enriched with phytoconstituents, notablyterpenoids, turmeric becomes a potent agent in enhancing skin tone, providing a natural radiance, and contributing to overall skin health [20,21]. Noteworthy for its anti aging benefits, turmeric effectively reduces the appearance of wrinkles and promotes skin suppleness, aligning with the desire for youthful and vibrant skin. Additionally, turmeric comprehensive skincare benefits encompass addressing pigmentation issues, uneven skin tone, and dullness, making it a versatile solution for achieving a clearer and more even complexion [22]. By integrating turmeric into skincare regimens, individuals can harness its multifaceted properties to promote healthy, radiant skin. Whether utilized for wound healing, anti-inflammatory effects, or anti-aging benefits, turmeric emerges as a natural and effective ingredient, enriching skincare formulations and contributing to the overall well-being of the skin. [11,12]

Biological Source: The biological source of turmeric powder is Curcuma longa

Family: *Zingiberaceae*

Chemical Constituents: Turmeric powder is made by drying and grinding the rhizomes of the Curcuma longa plant. Its active compound, curcumin, is responsible for its yellow color and many of its medicinal properties.

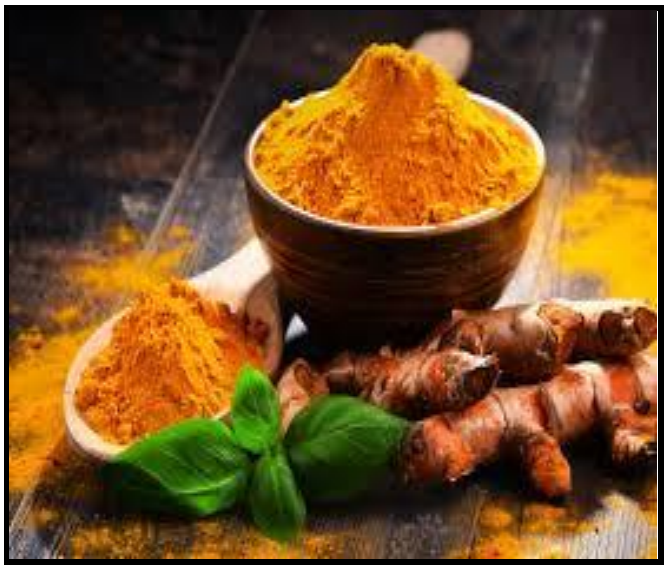


Figure 3. Turmeric powder

D. Aloe Vera:

Aloe vera, scientifically known as Aloe barbadensis and categorized under the Liliaceae family within the genus Aloe, stands out for its remarkable skincare properties. Renowned for its anti microbial attributes, aloe vera proves to be an exceptional remedy for treating acne and pimples, providing effective and natural solutions for individuals dealing with these common skin issues [24,25]. In addition to its acne-fighting capabilities, aloe vera emerges as a fantastic moisturizer for the skin. Its hydrating properties make it a valuable ingredient for maintaining skin health and preventing dryness. Aloe vera powder, containing a plethora of essential nutrients, further enhances its skincare benefits. Components such as glycerin, sodium palmate, sodium carbonate, sodium palm kemelate, and sorbitol contribute to the richness of aloe vera powder, underscoring its potential to nourish and revitalize the skin. Incorporating aloe vera into skincare routines harnesses its natural goodness, offering a holistic approach to skincare and promoting a healthy and rejuvenated complexion.[13,14]

Biological Source: The biological source of Aloe vera is the plant Aloe vera (L.) Burm.f.

Family:*Asphodelaceae*

Chemical Constituent: Aloe vera is widely known for its medicinal properties, especially its gel used in skincare, wound healing, and digestive remedies.

Figure 4. Aloe Vera powder

E. Papaya:

Belonging to the Kingdom Plantae, Order Brassicales, Family Caricaceae, Genus Carica, and species C. papaya, the papaya plant is scientifically named Carica papaya. Commonly known as papaya, it is also referred to as pawpaw or papaw. This tropical fruit not only holds culinary significance but also offers a range of benefits for skincare and health. Papaya is renowned for its role in exfoliation, aiding in the removal of dead skin cells and promoting a smoother complexion. Additionally, it is recognized for its potential in preventing hair loss, making it a valuable ingredient in hair care routines. The fruit's properties extend to treating sore and cracked heels, contributing to overall foot health. Moreover, papaya is known for its skin-lightening effects, offering a natural solution for individuals seeking to enhance and brighten their skin tone. Incorporating papaya into skincare and beauty regimens showcases its versatility and effectiveness in addressing various concerns. Whether used in facial masks, hair treatments, or foot care products, papaya stands out as a natural and beneficial ingredient, aligning with the desire for holistic and nourishing solutions for skin and hair health. [15,16]

Biological Source: The biological source of papaya is the plant Carica papaya L.

Family: *Caricaceae*

Chemical Constituents: Papaya is valued for its nutritional fruit and medicinal enzyme papain, which is used as a digestive aid and in pharmaceutical preparations.

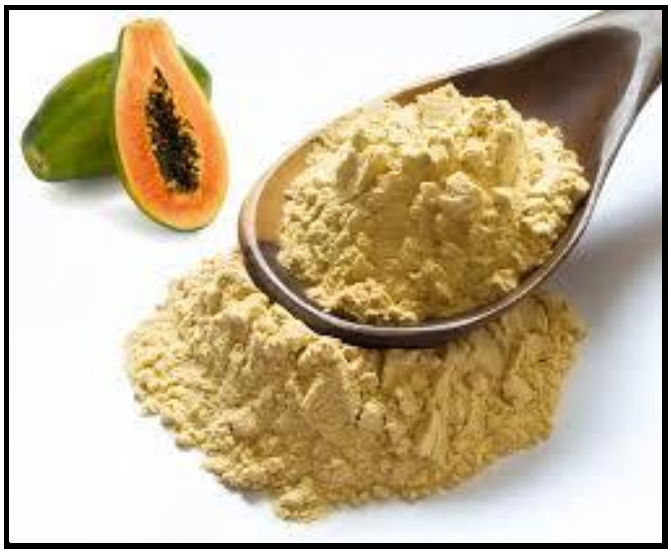


Figure 5. Papaya powder

F. Liquorice:

The botanical name for liquorice is Glycyrrhiza glabra Linn, and it belongs to the family Leguminosae under the genus Glycyrrhiza. A key component of Glycyrrhiza glabra is glycyrrhizin, also known as glycyrrhizic acid, which is a terpenoid saponin. This compound is found in the form of potassium and calcium salts in glycyrrhizinic acid, serving as the primary constituent of liquorice. Glycyrrhizinic acid further breaks down into glycyrrhetinic acid, also known as glyrrhetic acid, exhibiting a triterpenoid structure. In addition to glycyrrhizin, another noteworthy chemical component found in liquorice is flavonoids. These flavonoids contribute to the anti-gastric impact of liquorice, making them beneficial for the treatment of peptic ulcers. The multifaceted chemical composition of Glycyrrhiza glabra underscores its medicinal properties, making it a valuable ingredient with applications in traditional medicine and various therapeutic formulations. [17,18]

Biological Source: The biological source of liquorice is the peeled and unpeeled stolons, roots, and stems of Glycyrrhiza glabra Linn.. This plant is also known as licorice, sweetwood, or Mulaithi, and is native to parts of Asia and Europe.

Family: *Fabaceae*

Chemical Constituent: Liquorice root contains the sweet compound glycyrrhizin, which is responsible for its characteristic taste and therapeutic properties.

Figure 6. Liquorice powder

G. Rose water:

Rose water is a floral water derived from the distillation of rose petals, primarily from the Damask rose (Rosa damascena) or other species of roses. This fragrant liquid has been used for centuries for its versatile benefits in skincare, culinary arts, and aromatherapy. In skincare, rose water is renowned for its mild astringent properties, making it a popular natural toner for the skin. It helps balance the skin's pH, tighten pores, and remove residual impurities. The soothing and anti inflammatory properties of rose water also make it a gentle solution for calming irritated skin and reducing redness. Beyond skincare, rose water is a culinary ingredient, adding a delicate floral flavor to various dishes and beverages. It has been used in Middle Eastern and South Asian cuisines for its unique aroma and taste. In aromatherapy, the pleasant scent of rose water is believed to have mood-enhancing properties, promoting relaxation, and reducing stress. Many people use rose water as a natural fragrance or as a component in various beauty products.[19,20]

Biological Source: The biological source of rose water is the petals of roses, primarily from the species Rosa damascena (Damask rose).

Figure 7. Rose water

METHOD OF PREPARATION:

FORMULATION OF HERBAL FACE PACK:

All the required herbal powders for the face pack preparation were weighed separately by using digital balance as mentioned in Table 1. The powders are now mixed thoroughly. prepared a mixture of herbal powders triturated to obtain uniform drug powder of face pack. The mixture was passed through sieve no #44. The prepared face pack powder was packed into a self-sealable polyethylene bag, labeled, and used for further studies.[21,22]

Table 1. Ingredients for Herbal Face Pack

Sr.no	Name of ingredient	Scientific Name	Quantity of sample for 10g				
			F1	F2	F3	F4	F5

1	Neem Powder	Azadirachta indica	1g	2g	3g	1g	3g
2	Multani Mitti	Bentonite Clay	2g	3g	1g	1g	2g
3	Termeric Powder	Curcuma longa	3g	1g	2g	3g	1g
4	Aloe Vera powder	Aloe Barbadensis Mille	2g	1g	1g	2g	1g
5	Papaya Powder	Carica Papaya	1g	2g	1g	2g	1g
6	Liquorice	Glycyrrhiza glabra	1g	1g	2g	1g	2g
7.	Rose Water	Rosa damascena flower water	Q.S	Q.S	Q.S	Q.S	Q.S

Figure 8. Formulated face pack.

Figure 9.Final Product Face pack.

METHODS OF PREPARATION:

Four different formulations were prepared with varying concentrations of all ingredients named as F1 to F4. Concentration of each ingredient was mentioned in Table 1. The accurate quantity 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.[22,23]

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.

Methods of Evaluation:

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.

Physical Evaluation:

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.

Physicochemical Evaluation:

Ash content was performed using incinerator, pH was found by using pH meter and loss on drying was also performed.

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.

Stability studies:

Stability testing of prepared formulation was conducted for formulation F2 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, 35ºC and 40ºC and were evaluated for physical parameters like Color, Odor, pH, Consistency and feel.

RESULT:

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

1. **Organoleptic Evaluation:-**

Herbal face pack was evaluated for organoleptic parameters showed in the Table. The colour of prepared formulation was brown. The odour of prepared formulation was pleasant and good acceptable which is desirable to cosmetic formulations.

Table 2: Organoleptic Evaluation:-

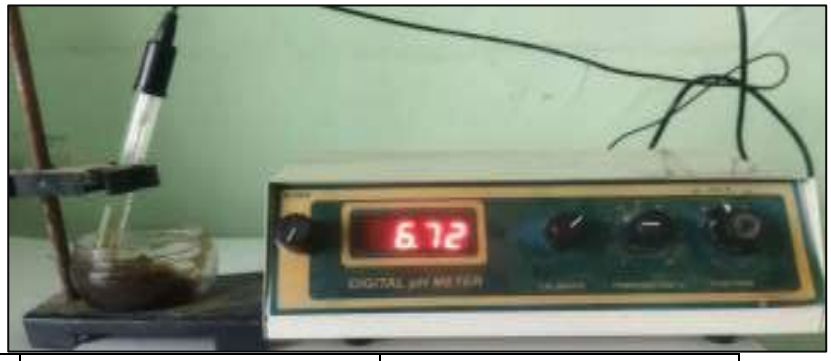
Sr.No	Parameter	Observation
1.	Colour	Brown
2.	Odour	Pleasant
3.	Apperance	Smooth, Fine
4.	Texture	Fine
5.	Smoothness	Smooth

2. **Physicochemical Evaluation:-**

PH was found by using PH paper and digital PH meter

Table 3: Physicochemical Evaluation:-

Sr.No	Parameter	Observation



1.	PH	6.51

Figure 10.Digital PH Meter

3. Irritancy Test: -

Mark an area (1 Sq.cm) on the left-hand dorsal surface. Definite quantities of prepared face pack were applied to the specified area and time was noted. Irritancy and Edema was checked and reported.

Table 4: Irritancy Test: -

Sr.No	Parameter	Observation
1.	Irritation	No
2.	Redness	No
3.	Swelling	No

4. Stability Studies: -

Stability testing of prepared formulation was conducted by storing at different temperature conditions for the period of one month and were evaluated for physical parameters like colour, odour, PH, consistency and feel.

CONCLUSION:-

Herbal face packs are used to muscle rejuvenation, skin suppleness, the removal of dirt from skin pores and promote blood circulation. Herbal face pack cosmetics have several benefits such as, nontoxic and reduces allergic reactions. This face pack is economical, useful, in addition satisfied all the characterization criteria. After testing, we discovered that the face packs had good characteristics, were free of skin irritation, and kept their consistency even after being stored in stable setting. Also, it can provide effective bright, health, and crystal-clear skin. Because of its beneficial effects on humans, the total study is important in supporting evidence product claims.

The well-evaluated herbal face pack, blending natural ingredients seamlessly, exhibits pleasing attributes like a delightful scent and smooth texture. With consistent flow, non-stickiness, and sustained stability, it emerges as a reliable cosmetic choice. This study highlights the value of incorporating traditional herbal wisdom for modern skincare, offering an effective solution for radiant and resilient skin.[24,25]

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