

Design and Evaluation of Natural Face Pack

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ABSTRACT

The majority of cosmetic products on market are synthetic in nature and have a variety of negative side effects when used is an extended length of time. Use of herbal cosmetics is one remedy for this issue. Herbal cosmetics are thought to be generally safe with little adverse effects. Some of main skin problems are acne, redness, wrinkles, dark circles, pimples, dry skin, dead skin. By utilising herbal cosmetics such as face packs, scrubs, creams, etc., all these issues can be reduced. The objective of this work is to Formulation and Evaluation of herbal face pack by using natural ingredients for by using natural substances, radiant skin. Four differ-ent formulations with varying conc. of ingredients like multani-mitti, turmeric, aloe vera, sandal wood, orange peel, neem , nutmeg and rose petals powder are evaluated for their organoleptic properties, stability, physico-chemical parameters, irritancy test and microbial load.

Keywords: Face pack, Cosmetics, Formulation, Evaluation

Since the ancient era, people are aware of the use of plants for the essential needs of 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. ¹⁻⁵

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 face pack 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. ⁶⁻⁸

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 powders of sandalwood, rose-petals and dried orange peels. Herbal face packs are nowadays being used 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.

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.

Natural cosmetics are inexpensive. These products occasionally less expensive synthetic ones. They offered at a discount & sold for low price sales. Just enough research looks fantastic deals. A WHO estimate states that 80% world's population uses natural products for healthcare because of un-favourable side effects & rising expense of modern treatment. Traditional herbal medicines are being promoted & advised by World Health Organization in natural health care initiatives due their availability, cost & relative safety.

To ensure are appropriate for human use, a few beauty care products are at 1st tried on creatures. Be that as it may, testing normal beauty care products on animals isn't required. Specialists assess these regular structures in labs utilizing state of art apparatus without including any creatures.⁹⁻¹⁶

Your skin might become disturbed & break out utilizing engineered magnificence items. Your skin might become dry & slick because of them stopping up your pores. One need not be worried about them with normal beauty care products. The utilization of regular parts guarantees no adverse consequences; they can be utilized anyplace, whenever. For example, natural beauty care products are liberated from parabens, most normal additive in beauty care products that can penetrate skin & is remembered to disrupt chemical capability.¹⁷⁻²⁹

MATERIALS AND METHODS

All of the natural ingredients utilized in this study, including multani-mitti, turmeric, *Aloe vera*, sandalwood, orange peel, neem & Rosa Indica, were bought in dry powder form from local market in Meerut.

Multani mitti (calcium bentonite)

Multani mitti benefits skin in different ways, including by lessening pore size, taking out pimples & whiteheads, blurring spots, alleviating sun related burns, washing skin, improving blood circulation, improving complexion, and minimizing acne and blemishes. They also provide the appearance of glowing skin because they are rich in vital nutrients. Magnesium chloride is abundant in Multani Mitti.

Turmeric (*Curcuma longa*)

The major purpose of turmeric is to revitalize the skin. In addition to having antibacterial, antimicrobial, and anti-inflammatory qualities, it delays the appearance of wrinkles. The greatest blood purifier can be found there. Due to its antiseptic & anti-bacterial characteristics, which combat zits & breakouts to give your skin a youthful look, it is useful in treating acne. Additionally, it lessens sebaceous glands' production of oil.

Aloe Vera (*Aloe barbadensis*)

Aloe vera is a phenomenal skin lotion. Aloe vera saturates, revives & keeps up with skin's energetic appearance. Because of its enemy of microbial properties, aloe vera is phenomenal for treating skin

inflammation & pimples. Various supplements, including glycerin, Na-palmate, NaCO₃, sodium palm kemelate, sorbitol & others, can be found in aloe vera powder.

Sandal wood (*Santalumalba*)

The anti-aging & anti-tanning properties of sandal-wood. Additionally, it has a toning effect, is emollient, has anti-bacterial characteristics, is cooling & astringent & has soothing & healing benefits for the skin.

Orange peel (*Citrus reticulate*)

The citrus natural product orange gives different supplements, including calcium, potassium, magnesium & L-ascorbic acid. It makes preparations for oxidative pressure, skin drying out & free extreme harm. Also, it forestalls wrinkles, maturing, skin break out & flaws.

Neem (*Azadirachta indica*)

Neem has anti-microbial, anti-inflammatory, and anti-oxidant properties that make it good for oily and acne-prone skin. Neem also has antiseptic and anti-inflammatory properties.

Rose Petals Powder & Rose Oil (*Rosa indica*)

Vitamins A, C, and K are abundant in rose petals & are good for stimulating the body's production of collagen. Your skin remains firmer & suppler thanks to collagen. The vitamin C in roses also lightens & brightens skin tone, decreases hyper-pigmentation, eliminates scars, & minimizes pores. Antibacterial characteristics can be seen in rose petal powder. As preferred in manufacture of cosmetics, they should also have a pleasing aroma and aesthetic feel when applied.

Nutmeg (*Myristica fragrans*)

Nutmeg is widely used for its analgesic, anti-inflammatory, antiseptic and anti-bacterial property¹⁴. It helps in reducing wrinkles, fine lines and other signs of aging. It also helps in reducing acne scars and to make them less noticeable.

METHOD OF PREPARATION

To obtain uniformly sized particles, each of the powdered materials was put through a sieve with a mesh size of 40 before being precisely weighed. To ensure homogeneous and even mixing, all powder ingredients were also combined geometrically. Below is a representation of each ingredient's quantity. The prepared face pack was tested using a variety of assessment criteria and kept in an airtight container.

Table 1: Formulation chart of face pack

Sr No	Ingredients	Formulations				
		F1	F2	F3	F4	F5
1	Multani mitti	15	10	10	15	20
2	Neem leaves	15	15	15	15	10
3	Aloe Vera	15	15	15	20	10
4	Turmeric	15	20	15	15	25
5	Sandal wood	20	20	10	10	20
6	Orange peel	10	20	15	10	5
7	Nutmeg powder	5	5	5	5	5

METHOD OF APPLICATION

Five different formulations were prepared with varying concentrations of all ingredients named as F1 to F5. 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.

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, 35°C and 40°C and were evaluated for physical parameters like Color, Odor, pH, Consistency and feel.

Determination of Microbial Load

The prepared formulation was evaluated for Total Viable Count, presence of gram negative pathogens such as E. coli, Salmonella and Pseudomonas by BAC-Test.

Sr. No.	Parameters	Observation				
		F1	F2	F3	F4	F5
1	Appearance	Powder (Free Flowing)	Powder (Free Flowing)	Powder (Free Flowing)	Powder (Free Flowing)	Powder (Free Flowing)
2	Color	Slight Yellow	Slight yellow	Greenish yellow	Slight Yellow	Greenish yellow
3	Odor	Slight	Slight	Slight	Slight	Slight
4	Texture	Fine	Fine	Fine	Fine	Fine
5	Smoothness	Smooth	Smooth	Smooth	Smooth	Smooth

Table 2: Organoleptic Properties

Sr. No.	Parameters	Observation				
		F1	F2	F3	F4	F5
1	Particle size (µm)	25.4±5.44	20.5±2.85	24.8±4.36	25.2±5.21	20.5±2.85
2	Ash content	93 ± 0.732	87 ± 0.859	92 ± 0.556	95 ± 0.462	92 ± 0.55
3	pH	7.30 ± 0.13	6.88± 0.1	6.79± 0.16	6.65±0.1	6.65±0.1
4	Loss on Drying	3.33	3	4	3.67	3

Table 3: Physical Parameter and Physicochemical Evaluation

Sr. No.	Evaluation	Observation					
		F1	F2	F3	F4	F5	
1	Irritant	+	NIL	+	NIL	+	No Irritation
2	Erythema	NIL	NIL	NIL	NIL	NIL	No Irritation
3	Edema	NIL	NIL	NIL	NIL	NIL	No Irritation

Table 4: Irritancy Test

Sr. No.	Parameters	Observations (Formulations F4)		
		Room Temperature	35±0.5°C	40±0.5°C
1	Color	No change	No change	No change
2	Odour	No change	No change	Slightly Change
3	pH	6.65±0.17	6.65±0.11	6.72±0.21
4	Texture	Fine	Fine	Fine
5	Smoothness	Smooth	Smooth	Smooth

Table 5: Parameters of Stability studies of Formulation F4

Sr. No.	Test	Observation
1	Total viable count (CFU/g)	867
2	Gram negative pathogens, CFU/g (E.coli,Salmonella, Pseudomonas)	Absent

Table 6: Microbial Load of Formulation F4

RESULT AND DISCUSSION:

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 colors of formulations were

different due to variation in composition of contents. Formulation F1, F2 and F4 were slightly yellow in color and formulation F3, F5 showed as greenish yellow. The odor of prepared formulations was good acceptable which is desirable as cosmetic formulations. The particle size of formulations was in the range of $20.5 \pm 2.85 \mu\text{m}$ to $25.4 \pm 5.44 \mu\text{m}$. 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.

Organoleptic Evaluation

Herbal face pack was evaluated for organoleptic parameters. 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.

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.

Sr No	Parameter	Observation
1	Tapped Desity	1.40 gm/ml
2	Bulk Density	1.02 gm/ml
3	Angle of Repose	30.16^0
4	Hausner's ratio	1.28
5	Carr's index	20.65

Table 1: Physical Evaluation and Physicochemical Evaluation

Irritancy Test

The results of irritancy test were shown in Table 2. The formulations F1, F2, F3 and F5 showed mild irritation because of presence of turmeric powder. The formulations which was prepared by lowering the concentration of turmeric i.e. formulations F4 showed no redness, edema, Inflammation and irritation during irritancy studies. This formulation is safe to use for skin.

Sr No	Parameters	Observations
1	Irritant	No Irritation
2	Erythema	No Irritation
3	Edema	No Irritation

Table 2: Irritancy Test

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 color and odor at other mentioned conditions of stability.

DISCUSSION:

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. The advantage of herbal cosmetics is their nontoxic nature, reduce the allergic reactions and time tested usefulness of many ingredients. Formulation was creamish yellow in color and had semisolid consistency.

The formulation was found homogenous, easily washable and also had very slightly alkaline pH which were compatible with normal skin physiology. Angle of repose is a characteristic related to interparticulate friction or resistance to the movement between the particles. The flow property has been classified as per limit of Indian Pharmacopoeia in terms of the angle of repose. The results of all these parameters indicated that the dried powder of combined form possess good flow properties and good packing ability. Consequently, it exhibited good flow properties for formulation to achieve soft, fresh and clean formulation.

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, neem powder, nutmeg powder, orange peel powder and rose powder.

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. 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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