



Formulation and Evaluation of Herbal Face Pack by Using Natural Ingredients

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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 different formulations with varying conc. of ingredients like multani-mitti, turmeric, aloe vera, sandal wood, orange peel, neem 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.

INTRODUCTION

Over time, use of skin care products has prodigiously grown in popularity. People utilize variety to protect their bodies, improve their personalities, & avoid body odour, such as foot powder, lipstick, mouthwash, & complexion treatments. Items intended to be rubbed, poured, sprinkled, sprayed, injected into, & other-wise applied part body order to cleanse, enhance, promote attractive-ness, & alter appearance skin are referred to as skin care preparations. Ayurveda describes many plants, including alma & haldi, in cosmetic formulations. Because they were not aware of risks, many of European women who used lead carbonate to whiten faces eighteenth century died from lead poisoning. Cosmetics are manufactured goods that are applied skin to improve its appearance by washing, beautifying, & fostering beauty. Different plants have been utilized for washing, adorning, & treating since beginning of time. A significant body component that represents human health is facial skin. It contains elements like lipids, carbohydrates, & amino acids, among others. Herbal remedies used to cure face as "mukhalepa".¹⁻¹²

A cleanser is facial clean on face of makeup, dead skin cells, oil, grime, & other sorts of impurities. This aids in pore cleaning & prevention of skin dis-orders like acne. A cleanser, toner & moisturizer can all be used a skin care routine.^{13,14}

For all skin types, regular beauty care products are suitable. There are common beauty care items like foundation, eye shadow, & lipstick that are appropriate regardless of your complexion, whether you are dark & fair skinned. Ladies with smooth or delicate skin can also use them without worry degrading their skin. Coal tar is thought human cancer-causing substance, & main concern with individual coal tar varieties is they can cause disease. Coal tar-determined hues are commonly used in cosmetic

care goods. Normal tones obtained from spices are safer in any circumstances.¹⁵⁻²²

Broad commitment to browsing Regular beauty care products may still be a category within beauty industry, but they currently provide a range of quality goods for all make-up enthu-siasts to browse. There are many different products available, including mascara, eye shadow, lipstick, blush, a lot more that are often known. In addition, one can obtain privately produced standard beauty care items & those created by well-known international fashion designers. Natural concentrates come in a wide variety; some examples include Andro-graphis Pani-culata, Asparagus Racemosus (Shata-wari), Boswellia Serrata, Black-top (Shilajit), others.²³⁻³⁰

Natural cosmetics are inexpensive. These products occasionally less ex-pensive 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.³¹⁻³⁶

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 para-bens, most normal additive in beauty care products that can penetrate skin & is remembered to disrupt chemical capability.³⁷⁻⁴⁷

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 reticulata*)

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.

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

S.No	Ingredients	Formulation batches				
		F1	F2	F3	F4	F5
1	Multani mitti	20	15	10	15	20
2	Neem leaves	15	15	15	15	10
3	Aloe Vera	15	15	15	20	10
4	Turmeric	15	20	20	20	25
5	Sandal wood	20	20	10	10	25
6	Orange peel	10	20	15	10	5
7	Rose Petals Powder	5	5	15	10	5

METHOD OF APPLICATION

Take 5 grams of powder mixture made up of neem leaves, orange peel powder, rose petal powder, Multani mitti, and sandalwood. To create a smooth paste, add 3-4ml of rose water or plain h₂o. Apply this paste all over your face, give

it 10 to 15 minutes to dry. Gently scrape pack off skin once powder has dried, then rinse it off with h₂o. When gently massaged into the skin for a few minutes, face pack also functions as a scrub.



METHOD OF EVALUATION

Organoleptic Evaluation

A number of organoleptic characteristics, including colour, odour, look, texture, and consistency, were assessed for the prepared face pack. The senses of touch and sensation were used to evaluate colour, smell, and texture visually.

Rheological Evaluation

Evaluation of the powder's properties was required. A number of physical metrics, including angle of repose, bulk density, tapped density & hausner's ratio, were used to evaluate sample.

Physico-chemical Evaluation

Physico-chemical assessment included boundaries like dampness content, pH & debris values.

Irritancy test

Mark a 1-square-centimeter region on left dorsal surface. A particular measure of arranged face packs were applied to assigned district, & application time was recorded. Disturbance, erythema, & edema were inspected & revealed if present at standard stretches for as long as 24 hours.

Washability

It was determined how easily a formulation could be wiped off. After applying a face pack, the skin was carefully examined to see how easily and thoroughly it could be washed with regular tap water.

Determination of Microbial Load

The produced formulation was tested for Total Viable Count & presence of gram-negative bacteria like E. coli, Salmonella & Pseudo-monas by Unique Path Laboratory Bhawani Nagar, Meerut.

Stability Studies

For formulation F5, stability testing was done by storing manufactured formulation under various temp. settings for a month. The stuffed glass vials of detailing were tried for actual qualities such variety, smells, pH, consistency, & feels at 3-unmistakable: room temperature, 35°C & 40°C.

Morphological Evaluation

Herbal face packs were assessed for the morpho-logical characteristics listed in table below. The formulation was a light-yellow colour. It is desirable for cosmetic formulations that the created formulations have a pleasant and agreeable smell. The texture and smoothness met the criteria for cosmetic compositions.

Table 2: Morphological Evaluation of Prepared face pack

S.No	Parameter	F1	F2	F3	F4	F5
1	Colour	Yellow	Yellow	Yellow	Yellow	Yellow
2	Odour	Pleasant	Pleasant	Pleasant	Pleasant	Pleasant
3	Texture	Fine	-	-	-	-
4	Smoothness	Good	Good	Good	Good	Very Good
5	Appearance	Free Flowing	-	Free Flowing	-	Free Flowing

Evaluation of Powders

Table 3: Evaluation of Powders

Formulation Code	Angle of Repose	Bulk density (gm/ml)	Carr's index (%)	Tapped density (gm/cc)	Hausner's ratio
F1	27.19±0.52	0.89±0.58	20.15±1.9	0.79±0.54	1.26±0.14
F2	28.58±1.06	0.79±0.54	17.36±0.6	0.76±1.06	1.20±0.16
F3	26.86±0.48	1.0±0.43	18.50±1.2	0.74±0.99	1.27±0.13
F4	27.59±1.10	0.98±1.21	22.68±0.8	0.70±1.05	1.39±0.20
F5	32.84±0.64	1.06±0.02	14.14±0.9	1.32±0.81	1.31±0.12

Values are expressed as mean ±SD (n=3)

Table 4: Physiochemical evaluation of pace pack

Formulation Code	pH	Moisture Content %	Total Ash %	Particle Size (Micrometer)	Loos on Drying %
F1	7.85±0.2	11.53%	1.58%	23.7±1.41	4.75%
F2	6.14±0.9	12.65%	2.63%	22.5±1.74	3.8%
F3	6.41±0.5	10.58%	2.12%	21.9±2.12	4%
F4	6.62±0.8	9.85%	1.89%	23.1±1.74	5.98%
F5	6.89±0.1	7.25%	3.85%	20.1±1.78	3%



Table 5: Observation of Skin irritancy

S.No	Parameter	Formulations				
		F1	F2	F3	F4	F5
1	Irritant	+	No Irritation	+	No Irritation	No Irritation
2	Erythema	Nil	Nil	Nil	Nil	Nil
3	Edema	Nil	Nil	Nil	Nil	Nil

Table 6: Microbial Load of Formulation F5

S.No	Test	Observation
1	Total viable count (CFU/g)	872
2	Gram -ve patho-gens, CFU/g (E. coli, Salmo-nella, Pseudo-monas)	Absent

Table 7: Stability study for best formulation F5

S.No.	Parameters	Initial	1 Month	2 Month	3 Month
1	Colour	Yellow	No Change	No Change	No Change
2	Odour	Pleasant	No Change	No Change	No Change
3	Ph	6.89±0.1	6.89±0.1	6.90±0.12	7.2±0.3
4	Texture	Fine	Fine	Fine	Fine
5	Smoothness	Very Good	No Change	No Change	No Change

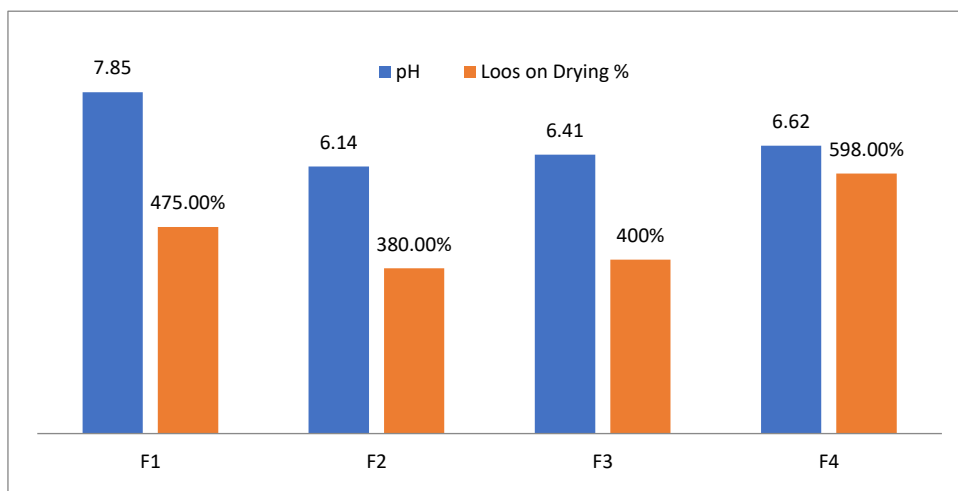


Figure 1: A Graphically Representation of Physiological Parameter (pH and Loss on Drying)

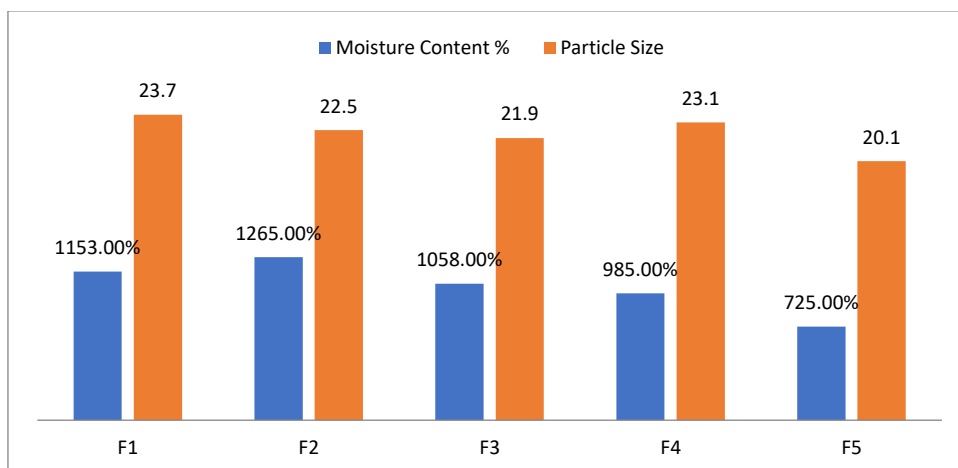


Figure 2: A Graphically Representation of moisture content and particle Size

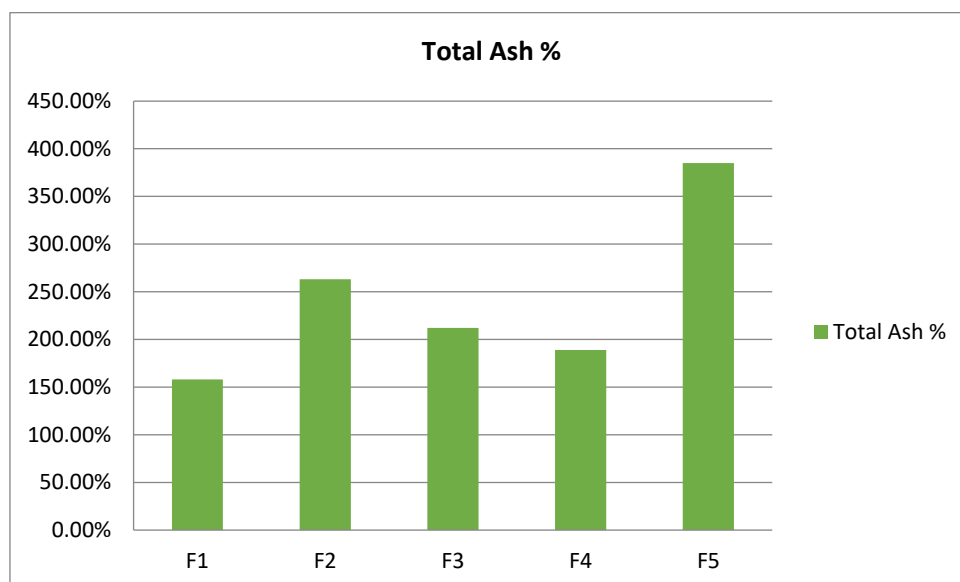


Figure 3: Total ash in prepared face pack

RESULTS AND DISCUSSION

Evaluation of powders

The physical characteristics of herbal face pack (powder property) were assessed as shown in table 3. The flow characteristics of herbal powder for face pack were supported by rheological data. It was determined that it had a free-flowing, non-sticky character.

Physicochemical evaluation

The table 4 displays the results of the formulation. Face packs have a moisture content ranging from 7.25% to 11.53%. It is discovered that the face pack's total ash, pH, particle size, and LOD range from 1.58% to 3.85%, 6.890.1 to 7.850.2, 20.11.78 to 23.71.41, and 3% to 4.75%, respectively. The use of formulation F on skin can be deemed safe based on the aforementioned criteria.

Skin Irritancy test

Irritancy Test The results of irritancy test were shown in Table 4. The formulation showed no irritation, redness, edema and Inflammation during irritancy studies. This formulation is safe to use for skin. Table 5.

Determination of microbial load

The microbial burden showed All out Suitable Count (872CFU/g), & test for presence of gram -ve micro-organisms like E. coli, Salmonella & pseudomonas missing per gram displayed in Table.6.

Stability testing

The stability experiments of Formulation 5 were conducted for 90 days at 40°C and 75°RH, during which time there was no change in product's colour, smell, smoothness, texture, & pH. All results were analysed in accordance with ICH principles in table 7.

CONCLUSION

People today require treatments for a variety of skin issues without adverse effects. It was made by blending powders from several organic plants & herbs. Natural ingredients tend to work well even though they don't directly change the physiological characteristics of skin. In contrast to synthetic face packs containing chemical agents, which may be dangerous when applied, these agents also have a tendency to have minimal adverse effects. To get rid of flaky and dead skin, use prepared face pack as a face scrub. The created face pack based on home remedies is safe to apply to skin, according to observation of all evaluation criteria.

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