



ISSN: 2278-2648

International Journal of Research in Pharmacology & Pharmacotherapeutics (IJRPP)

IJRPP | Vol.12 | Issue 4 | Oct - Dec -2023

www.ijrpp.com

DOI : <https://doi.org/10.61096/ijrpp.v12.iss4.2023.354-360>



Research

Formulation and evaluation of cosmetic herbal face pack for glowing skin

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	Abstract
Published on: 29 Dec 2023	<p>The purpose of this work is to create test the herbal face mask for shiny skin using herbal ingredients. The natural face pack contains some of the vitamins need to keep our skin healthy and radiant. The modified structure was tested with different parameters such as organoleptic, physio-chemical parameters, no skin irritation and maintained its consistency even after conditions to maintain microbiological stability. Herbal facial pockets help to keep wrinkles, acne, dark-circles. They also make the skin smoother and smoother. These ingredients also appear to be beneficial in many ways to our body.</p>
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INTRODUCTION

Since from ancient period of time, people are aware of the use of plants for the healthy, glowing and beautiful skin. Cosmetics are product used to clean, beautify and promote attractive appearance. Face skin is the major part of the body, which indicate the health of an individual¹. When herbal face pack used according to us skin type, then we get maximum benefits of herbal pack like increasing glow and fairness. These are various kinds of face pack described in ayurveda which having nourishing, healing, astringent, and antiseptic property. These preparations are applied on the face in the form of liquid or paste and allowed to dry and set to form film giving tightening, strengthening and cleansing effect to the skin. These pack are available in various types and forms and classified as plastic masks, hydrocolloid mask, argillaceous mask.² This face pack has natural skin brightening property and can be easily prepared at home. Even today, people especially in rural areas and hilly regions go for natural remedies like plants extract like neem, alovera³ etc.

Nowadays different types of packs are available separately for the oily, normal and dry skin. The leftover marks of the skin can be reduced by the incorporation with rose petals, orange peels etc. They are non toxic, non allergic and non habit forming. They are natural in every aspect, having larger shelf lives. They have no added preservatives. They can be easily formulated and stored over a larger span of time.⁴

Present research article with the formulation and characterization of cosmetic herbal face pack made from natural constituents.

MATERIALS AND METHOD

HERBAL INGREDIENTS PROFILE

Turmeric¹⁵

Scientific name : curcuma longa
Kingdom : Plantae
Order : Zingiberales
Family : Ziniberaceae
Genus : Curcuma
Species : C.longa



Chemical constituents :Curcumin, Curcuminoids, Cymene, Tumeron, Isdemethoxycurcumin, Demethoxycurcumin, Diaryl heptanoids.

Uses:

- To treat inflammatory skin condition, such as acne, wounds, or atopic dermatitis.
- And also as skin lightening properties.

Aloevera¹⁶

Scientific name : Aloe barbadensis miller
Kingdom : Planta
Order : Asparagales
Family : Xanthorrhoeaceae
Genus : Aloe
Species : A.vera



Chemical constituent: Carbohydrate fraction, Alkaloids, Chromones, Anthraquinone glycoside, phytosterols, lectins.

Uses:

- Anti-inflammatory,
- Anti-aging,
- Heal wounds, Lightens scars and blemishes Treats acne, Treat stretch mark, Soothes sunburn,
- Treat dry skin

Sandalwood¹⁷

Scientific name : Santalum album
Kingdom : Plantae
Order : Santalales
Family : Santalaceae
Genus : Satalum
Species : S.album



Chemical constituent: Santene, α -santalol, β -santalol, norticycloekasantalal.

Uses:

- Acne treatment
- Skin whitening, moisturiser for dry/oil skin
- treat wounds
- softens skin and remove scars
- protects from prickly heat

Orangepeel¹⁸

Scientific name : Citrus sinensis
Kingdom : Plantae
Order : Pezizales
Family : pyronemataceae
Genus : Aleuria
Species : A.aurantia



Chemical constituent: Limonene(90%), Citral(4%), Vitamin C, Pectin, Hesperidine, Aurantimaricin, Aurantimaric acid, Octanal(39%), Decanal(42%), Monoterpene(91%) and contain not less than 2.5% volatile oil.

Uses:

- Protect skin free from radical damage. Heals dry, flaky, and itchy skin.
- Hydrates dehydrated skin. Bring back moisture.

- Remove tan.
- Promote healthy skin glow. Works as a skin lightening agent. Prevent oxidative stress in skin cells, for youthful, glowing skin.

Neem powder¹⁹

Scientific name : Azadirachta indica

Kingdom : Plantae

Order : Rurales

Family : Meliaceae

Genus : Azadirachta

Species : Indica

Chemical constituent: Triterpenoids, Alkaloids, Phenolic compounds, Flavonoids, Carotenoids, Ketones and Steroid.

Uses:

- It reduce scars, heal wounds, minimize warts and moles.
- Anti-bacterial and Anti-fungal activity.
- Prolonged treatment for acne



Nutmeg²⁰

Scientific name : Myristica fragrans

Kingdom : Plantae

Order : Magnoliales

Family : Myristicaceae

Genus : Myristica Gronov

Species : Fragrans

Chemical constituent: It contain 5-15% volatile oil, lignin, stearin, starch, gum, colouring matter, and 0.08% of an acid substance. The volatile oil contains Clemicine, myristicin, geraniol, borneol, pinene, camphene, and dipentene. It also contain Eugenol, safrol, p-cymene and isoeugenol in small quantity.

Uses:

- It reduce pigmentation.
- Treat oily skin.
- Natural toning cleanser.
- It make skin gentle and smooth.



Rose petal²¹

Scientific name : Rosa rubiginosa

Kingdom : Plantae

Order : Rosales

Family : Rosaceae

Genus : Rosa

Species : Canina

Chemical constituent: Flavonoids, triterpenes, tannins, phenolic acid, polysaccharides, fatty acid, organic acids, carotenoids and vitamin.

Uses:

- Cleanses and nourishes skin.
- Cooling and soothing effect.
- Reduce inflammation and shrinks pores.
- Retain moisture in the skin, Shiny glowing skin.



Rosemary²²

Scientific name : Salvia rosmarinus

Kingdom : plantae

Order : Lamiales

Family : Lamiaceae

Genus : salvia

Species : S rosmarinus

Chemical constituents: cineol, camphor, α -pinene, limonene, camphene, linalool

Uses:

- it is used as a mild analgesic,
- Headaches



- To treat insomnia
- antispasmodic

METHOD OF PREPARATION

FORMULATION OF HERBAL FACE PACK

Step1: All ingredients of required quantities of herbal powders for the face pack preparation is accurately weighed individually.

Table 1: Ingredients for herbal pack

INGREDIENTS	OFFICIAL FORMULA
Aloevera	5g
Sandalwood	5g
Nutmeg	2g
Turmeric	1g
Rose petals	3g
Orange peel	5g
Neem powder	2g
Rose mary leaves	2g

Step 2: These herbal drugs were transferred into a mortar and pestle and triturated

Step 3: The powders were passed into sieve no#44

Step 4: The prepared face pack was packed into a self sealable polyethylene bag, labelled and used for further studies.

Procedure for herbal pack application

Take prepared face pack powder in bowl as per the requirement and add with rose water or water. Mix well and form a paste and applied on a face with the help of brush. Keep it for complete dryness for 20-25min. Then wash with cold water.

METHOD OF EVALUATION

1. ORGANOLEPTIC EVALUATION

The organoleptic parameters include its appearance, color, odour, texture, washability etc....

2. PHYSIOCHEMICAL EVALUATION

It is determined including the determination of moisture content, extractive value and ash value.

Determination of moisture content

Moisture content is important for the plant drugs because principles. Moisture content was determined by loss on drying (LOD). Weigh accurately 3g of powdered drug and take in a weighed petri dish and placed in a hot air oven at 100-108°C. It was read until constant rate was obtained.

Determination of extractive values

Extractive values are primarily useful for the determination of exhausted or adulterated drug. It helps to determine the quality as well as purity of the product.

Water soluble extractive value

Macerate about 5g of accurately weighed sample with 100ml of chloroform water in a stoppered flask for 24 hours. Shake frequently for first 6 hours. Filter rapidly through filter paper into 50ml cylinder and they collect the filtrate and evaporate 25ml aqueous extract. The dryness in a tared flat-bottomed shallow dish. Evaporate to dryness on a water bath and completely dry the residue in an oven at 105° and weigh. Keep it in a desiccator dry the extract to constant weight. Finally, calculate the percent w/w of water soluble extractive value with reference to air dried drug.

Alcohol soluble extractive value

Macerate about 5gm accurately weighed sample with 100ml 90% alcohol in a 100ml stoppered flask for 24 hours. Shake frequently for first 6 hours. Filter rapidly through filter paper into 50ml cylinder and collect the filtrate and evaporate 25ml of alcoholic extract to dryness in a tared flat-bottomed shallow dish. Evaporate to dryness on a water bath and completely dry the residue at 105° and weigh. Keep it in a desiccator. Dry the extract

to constant weight, finally calculate the percent w/w of alcohol soluble extractive value with reference to the air-dried drug.

Determination of Ash values

The residue remaining after complete incineration is the ash content of the product. Ash value is a criterion to judge the identity or purity of the drug. A high ash value is indicative of contamination, substitution, adulteration or carelessness in preparation of the product. Ash values can be determined by as follows:

Total Ash value: Total ash value is useful for detecting low grade, exhausted products and also useful for detecting excess of sandy, earthy matter with drug. About 2-4gm of the prepared sample was placed in a previously ignited and tared crucible. The material was spread evenly on the crucible and ignited by gradually increasing the heat until it was white i.e. free from carbon. It was then cooled in desiccator and weighed. Percentage total ash was calculated with reference to the air-dried sample

Acid insoluble Ash value: Used to determine the earthy matter. To the crucible containing total ash, 25ml of HCl was added and covered with a watch glass. Boiled gently for 5min. The watch glass was rinsed with 5ml hot water and added into the crucible. The insoluble matter was collected on an ashless filter paper and washed with hot water until it was neutral. The filter paper containing the insoluble matter was transferred to the original crucible, dried on a hot plate and ignited to constant weight. Allowed to cool in a desiccator for 30min and weighed. Percentage acid insoluble ash was calculated in reference to air-dried sample.

Water soluble ash value: It is the difference in weight between total ash and residue after treatment of total ash with water. It is used to detect either the material is exhausted by water or not. To the crucible containing total ash, 25ml water was added and boiled for 5min. The insoluble matter was collected on an ashless filter paper. Washed with hot water and ignited in a crucible for 15min at a temperature not exceeding 450°C. Cooled and weighed. Percentage water soluble ash was calculated in reference to air dried sample.

3. RHEOLOGICAL EVALUATION

It gives an overall idea about the visco elastic flow behavior of the product. Physical parameters like angle of repose, tapped density, bulk density, Hausner's ratio and Car's index were observed and calculated for the formulation

Angle of repose

The angle of repose or critical angle of repose, of a granular material is the steepest angle of descent or dip relative to the horizontal plane to which a material can be piled without stumping. It is important for the design of processing, storage and conveying systems of particulate materials. It is also useful to quantify the flow properties of powder because it influences cohesion among the different particles. The fixed funnel cone method employs the calculation of height (H) above a paper that is placed on a horizontal surface. The formulated pack was carefully poured through the funnel till the peak of the conical heap just touched the tip of the funnel. Here 'R' denotes the radius of the conical heap

The equation for calculating angle of repose(a) is, $a = \tan^{-1} \frac{H}{R}$

Tapped Density

The tapped density is an increased bulk density attained after mechanically tapping a graduated measuring cylinder containing powder sample. The tap density of a powder can be used to predict both flow properties and its compressibility. The volume of packaging can be determined in a graduated cylinder. 25gms of weighed formulation powder was taken and slowly added to the cylinder with the aid of a funnel. The initial volume was observed firstly and the sample was then tapped until no further volume reduction occurred. The value obtained after tapping was noted. The equation for calculating the tapped density is,

Tapped density = Weight of product(g)/tapped volume(ml)

Bulk Density

The bulk density value includes the volume of all the pores within the powder sample. The term bulk density refers to method used to indicate a packaging of particles or granules. 25gms of weighed powder was taken and slowly poured into the graduated cylinder. The volume occupied by the powder was noted. The formula for calculating bulk density is,

$$D = \frac{M}{V}$$

Where,

D = bulk density, M = mass of particles, V = total volume occupied by them.

Hausner's Ratio

Hausner's ratio is related to interparticle friction and as such can be used to predict the powder flow properties. The equation for measuring the Hausner's ratio is,

$$\text{Hausner's ratio} = \frac{\text{tapped density}}{\text{bulk density}}$$

Carr's Index

Carr's index is another indirect method of measuring the powder flow from bulk density. It is directly related to the relative flow rate cohesiveness and particle size. It is simple, fast and popular method of presiding powder flow characters.

The equation for measuring it is,

$$\% \text{ compressibility} = \frac{\text{tapped density} - \text{bulk density}}{\text{tapped density}} \times 100$$

RESULT AND DISCUSSION

Following evaluation parameters were performed to ensure the superiority of face pack.

Organoleptic evaluation

Herbal face pack was evaluated for organoleptic parameter showed in table 2: the color of prepared formulation was beige. The odour of prepared formulation was mild and good acceptable which is a desirable to cosmetic formulation.

Table 2: organoleptic evaluation

Sl.No	Parameter	Observation
1	color	beige
2	odour	mild
3	appearance	powder
4	texture	fine
5	smoothness	smooth

Rheological evaluation

Herbal face pack was evaluated for powder property. Showed in table 3: rheological findings justified the flow properties of herbal face pack.

Table 3: Rheological evaluation

Sl.No	Parameter	Observation
1	Bulk density	0.37g/ml
2	Tapped density	0.53g/ml
3	Angle of repose	18.2
4	Hausner's ratio	1.43
5	Carr's index	30.18%

Physiochemical evaluation

Table 4: Herbal face pack was evaluated for physiochemical parameters

Sl.No	Parameter	Observation
1	Moisture content	8%
2	Water soluble extractive value	19%
3	Alcohol soluble extractive value	15%
4	Total ash value	2.5%
5	Acid insoluble ash value	0.95%
6	Water soluble ash value	1.44%

CONCLUSION

The present study was directed to a herbal face pack. Efficacy data shows that this embodiment is highly effective, shows fast results without causing any damage or irritation to the skin. Rosemary fights the acne bacteria from getting in to your pores, it has an anti aging properties also. Sandalwood powder works actively on getting rid of the marks and impurities, it also lightens the complexion, thus giving way to glowing and clearer skin. The

formulation is found to produce excellent results within few applications. Pollution, ageing, stress and harsh chemicals can badly affect the quality of skin.

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