

Formulation And Evolution of Orange Peel Herbal Face Pack

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Abstract— *The purpose of this work is to create and assess a herbal face pack that uses natural herbal ingredients to promote glowing skin. Natural herbal ingredients in the form of dried powder, such as multani mitti, turmeric, sandalwood, neem powder, fullers earth, and orange peel, were bought from the local market. For a uniform formulation, all powdered natural ingredients were weighed precisely, sieved using #120 mesh, combined geometrically, and evaluated for morphological, physicochemical, physical, phytochemical, and irritancy aspects in addition to stability testing. Therefore, we created a herbal face pack in this work that is simple to make using readily available ingredients. Following assessment, we discovered that the face packs had good qualities—they didn't irritate the skin and kept their consistency even after stabilization.*

4. These face masks provide a soothing and relaxing effect on skin.
5. They help to restore the lost shine and glow of skin in short span of time.
6. Regular use of natural face masks bring glow to skin, improve skin texture and complexion.
7. The harmful effects of pollution and harsh climates can be effectively combated with judicious use of face packs.
8. They help to prevent premature aging of skin.
9. Formation of wrinkles, fine lines and sagging of skin can be effectively controlled by using natural face packs.
10. Natural face packs make the skin look young and healthy.

I. INTRODUCTION

Everyone aspires to have lovely, fair skin. These days, dark circles, black heads, pimples, and acne are common among young people who have the condition. Ayurveda says that blood impurities are typically the cause of skin issues. Skin-related disorders are brought on by blood toxins that have accumulated as a result of poor diet and lifestyle choices. Ayurveda describes a variety of herbs and medications for the purification of blood. In Ayurveda, the herbal paste called "mukha lepa" is applied to the face to treat pigmentation, scars, marks, and acne. This herbal mixture is applied to the face through a procedure called "mukha lepana." As a facial, this beauty therapy is well-known. "Face pack" is the name of the smooth powder used for applying makeup to the face.

1.1 Benefits of Applying Face Pack:

1. Nourishes the skin. Orange peel packs supply essential nutrients to skin.
2. Helps to reduce, acne, pimple, scars and marks depending on its herbal ingredients.
3. Face packs usually remove dead cells of skin.

Face packs which are recommended for acne, pimple, black heads usually control the over discharge of sebum from sebaceous glands and remove the harmful bacteria inside acne lesion. The scars and marks of skin can be reduced by adding fine powder of sandal and orange peel with acne face pack.

II. MATERIALS AND METHODS

The Face pack prepared accordingly the particle size and their binding property mixed thoroughly in plastic bag which shown in

Sr no.	Ingredient	F1	F2	F3	F4
1.	Orange peel powder	08	10	08	05
2.	Neem Powder	12	09	10	15
3.	Sandalwood Powder	20	18	23	20
4.	Turmeric Powder	10	06	07	05

5.	Fuller,s Earth	15	10	20	20
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Table 1

2.1 Orange peels (Citrus sinensis):

Orange is a citrus fruit which contains different nutritional source such as vitamin C, calcium, potassium and magnesium. It prevents the skin from free radical damage, skin hydration and oxidative stress. Also it has instant glow property, prevent acne, blemishes, wrinkles and aging.



Fig: 2.1

2.2 Neem powder (Azadirachta indica):

Neem is excellent for oily and acne-prone skin because it has antiseptic and anti-inflammatory properties. The antimicrobial, anti-inflammatory, and anti-oxidant properties of various chemical constituents have an anti-acne effect.



Fig:2.2

2.3 Sandalwood powder (Santalum alba):

Sandalwood powder, also known as Santalum alba, is used to remove dark spots from oily skin. Ten anti-aging and anti-tanning properties of sandalwood. It also has a toning effect, among other benefits for the skin. Anti-aging and anti-tanning properties are found in sandalwood. Additionally, it has numerous benefits for skin, including emollient, antibacterial, cooling, astringent, soothing, and healing qualities. [9]



Fig:2.3

2.4 Turmeric powder (Curcuma longa):

The primary application of turmeric is skin rejuvenation. In addition to having antibacterial, antiseptic, and anti-inflammatory qualities, it also postpones the appearance of wrinkles and other signs of aging. It is the best source of purifying blood. Because of its antiseptic and antibacterial qualities, which combat breakouts and pimples and give your skin a youthful glow, it is effective in treating acne. It also lessens the sebaceous gland's production of oil.



Fig:2.4

2.5 Fullers earth (Calcium bentonite):

Multani mitti benefits skin in a variety of ways, including reduced pore sizes, elimination of blackheads and whiteheads, fading freckles, relief from sunburns, skin cleansing, enhanced blood circulation, improved complexion, decreased acne and blemishes, and skin glowing due to the presence of healthy nutrients. The rich magnesium chloride found in Multani Mitti.



Fig:2.5

III. EVALUATIONS OF FORMULATIONS

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

4.1 Physical evaluation:

Physical parameters such as colour, odour, appearance and texture were checked visually.

4.2 Determination of moisture content:

Weigh about 1.5 gm of the powdered drug into a weighed flat and thin porcelain dish. Dry in the oven at 100°C or 105°C, until two consecutive weighings do not differ by more than 0.5 mg. Cool in desiccators and weigh. The loss in weight is usually recorded as moisture.[18]

4.3 Total ash:

Place about 2-4g of the ground air-dried material, accurately weighed, in a previously ignited and tared crucible (usually of platinum or silica). Spread the material in an even layer and ignite it by gradually increasing the heat to 500-600°C until it is white, indicating the absence of carbon. Cool in a desiccator and weigh. If carbon-free ash cannot be obtained in this manner, cool the crucible and moisten the residue with about 2 ml of water or a saturated solution of ammonium nitrate R. Dry on a water-bath, then on a hot-plate and ignite to constant weight. Allow the residue to cool in a suitable desiccator for 30 minutes and then weigh without delay.

Calculate the content of total ash in mg per g of air-dried material.

4.4 Acid-insoluble ash:

To the crucible containing the total ash, add 25 ml of hydrochloric acid (~70g/l) TS, cover with a watch-glass and boil gently for 5 minutes. Rinse the watch-glass with 5 ml of hot water and add this liquid to the crucible. Collect the insoluble matter on an ashless filter-paper and wash with hot water until the filtrate is neutral. Transfer the filter-paper containing the insoluble matter to the original crucible, dry on a hot-plate and ignite to constant weight. Allow the residue to cool in a suitable desiccator for 30 minutes and then weigh without delay. Calculate the content of acid-insoluble ash in mg per g of air-dried material.

4.5 Water-soluble ash:

To the crucible containing the total ash, add 25 ml of water and boil for 5 minutes. Collect the insoluble matter in a sintered-glass crucible or on an ashless filter-paper. Wash with hot water and ignite in a crucible for 15 minutes at a temperature not exceeding 450°C. Subtract the weight of this residue in mg from the weight of total ash. Calculate the content of water-soluble ash in mg per g of air-dried material .[19]

4.6 Particle size:

Particle size is a parameter, which affect various properties like spread ability, grittiness etc., particle size was determined by sieving method by using I.P. Standard sieves by mechanical shaking for 10 min.

4.7 Angle of repose :

It is defined as the maximum angle possible in between the surface of pile of powder to the horizontal flow.

4.8 Open - ended cylinder method It required amount of dried powder is placed in a cylindrical tube open at both ends is placed on a horizontal surface. Then the funnel should be raised to form a heap. The height and radius of the heap is noted and recorded. For the above method, the angle of repose (θ) can be calculated by using the formula.

$$\theta = \tan^{-1}(h / r)$$

Where, θ – Angle of repose, h – Height of the heap, r – Radius of the base

4.9 Bulk density:

Bulk Density is the ratio between the given mass of a powder and its bulk volume. Required amount of the powder is dried and filled in a 50 ml measuring cylinder up to 50 ml mark. Then the cylinder is

dropped onto a hard wood surface from a height of 1 inch at 2 second intervals. The volume of the powder is measured. Then the powder is weighed. This is repeated to get average values. The Bulk Density is calculated by using the below given formula.

Bulk Density = Volume/ Mass

4.10 Tapped density:

Tapped density is an increased bulk density attained after mechanically tapping a container containing the powder sample. After observing the initial powder volume or mass, the measuring cylinder or vessel is mechanically tapped for 1 min and volume or mass readings are taken until little further volume or mass change was observed. It was expressed in grams per cubic centimeter (g/cm³).

4.11 Spreadability :

Spreadability was determined by an apparatus suggested by fabricated in-house. The apparatus consists of a wooden block with a fixed glass slide and movable glass slide with one end tied to weight pan rolled on the pulley, which was in the horizontal level with fixed slide. The spreadability of the formulated gel was measured on the basis of 'Slip and Drag' characteristics of gel. An excess of gel (about 2g) under study was placed on this ground slide. The gel was then sandwiched between two slides. One kg weight was placed on the top of the two slides for 5 min to expel air and to provide a uniform film of the gel between the slides. Excess of the gel was scrapped off from the edges. The top plate was then subjected to pull off 50 gm. Mix with the help of string attached to the hook and the time (T, in seconds) required by the top slide to move a distance of 7.5 cm be noted. A shorter interval indicated better.

4.12 pH:

pH of 1% aqueous solution of the formulation was measured by using a calibrated digital pH meter at constant 28 .

4.13 Microbial Assay:

The antibacterial activities of different formulations were determined by modified agar well diffusion method. In this method, nutrient agar plates were seeded with 0.2 ml of 24 h broth culture of *Escherichia coli* and *Pseudomonas aureginosa* acausative organism for acne vulgaris. The agar plates were allowed to

solidify. A sterile 8 mm borer was used to cut wells of equidistance in each of the plates. 0.5 ml of formulations, herbal extracts were introduced into the wells at randomly. The plates were incubated at 37°C for 24 hours. The antibacterial activities were evaluated by measuring the zones of inhibition (in mm). The results of evaluation are shown in Table 29

4.14 Washability This is the common method for checking the washability of the formulation. The formulation were applied on the skin and then ease and extent of washing with water were checked manually by using 1 liter of water is used to remove all content of the formulation were applied on the surface 28 .

IV. RESULTS AND DISCUSSION

The results of evaluation are displayed in Table For organoleptic and physico-chemical and general powder evaluation. The study of nature, color, odour, taste, texture, ash values, moisture content and pH of dried powders of combined form under investigation provided the important feature of organoleptic and physicochemical evaluation. The presence of ash in the dried powder of combined form was evaluated for total ash and acid insoluble ash values. The yielded was found to be 4.3g total ash and 2.9g acid insoluble ash. And moisture content value was found to be 5%. The moisture content values observation clearly indicated that the powder of combined form was hygroscopic in nature. The acidic or alkaline nature of the dried powder of combined form was determined by preparing 1% dispersion of powder form in distilled water and measuring the pH with pH meter. The pH of 1% dispersion of powder was obtained as 7.21 which indicated that the powder of combined form were slightly alkaline in nature. Dried powder of combined form was evaluated for particle size, angle of repose, bulk density and tapped density before being formulated. Values of particle size, angle of repose, bulk density and tapped density obtained for powder of combined form were found to 25-30µm, 15°±1°05", 0.486g/cc and 0.408g/cc respectively, have good flow properties. The powder had passable flow property which is suitable for a face pack. And it's easily washable with water. Antimicrobial evaluation was performed with three organisms *Staphylococcus aureus*, *Staphylococcus epidermidis* and *Propionibacterium acnes* Zone of inhibition was found in formulation was displayed in table 2.

Sr. no	Evaluation parameter	observation			
		F1	F2	F3	F4
Organoleptic Evaluation:					
1.	Nature	Powder	Powder	Powder	Powder
2.	Odour	Pleasant	Pleasant	Pleasant	Pleasant
3.	Colour	Yellowish	Yellowish white	Yellowish white	Yellowish white
4.	Texture	Fine	Fine	Fine	Fine
Physiochemical Evaluation:					
Ash value:					
5.	Total Ash	2.5%	2.7%	2.1%	2.4%
6.	Water soluble ash	1.2	1.3	0.9	1.4
7.	Acid insoluble ash	0.58	0.60	0.45	0.52
8.	Ph	7.3	6.8	7.2	6.9
9.	Moisture content	2.4 %w/w	1.8 %w/w	1.3 %w/w	2.7 %w/w

General powder characters:					
10.	Particle size	28-32	25-30	29-33	30-35
11.	Angle of repose	33	36	31	34

12.	Bulk density	0.75gm/ml	0.83gm/ml	0.78gm/ml	0.81gm/ml
13.	Tapped density	0.68gm/ml	0.74gm/ml	0.70gm/ml	0.73gm/ml
14.	Washability	Easily washable	Easily washable	Easily washable	Easily washable
15.	Grittiness	Nil	Nil	Nil	Nil
16.	Nature of face after wash	Soft and clean	Soft and clean	Soft and clean	Soft and clean

TABLE NO 02: EVALUATION OF ORANGE PEEL HERBAL FACE MASK

Sr no	Bacteria	Zone of inhibition of formulation (mm)			
		F1	F2	F3	F4
1.	Escherichia coli	36	42	39	38
2.	Pseudomonas aureginosa	35	36	33	35

TABLE NO 03: ANTIMICROBIAL EVALUAUTION OF ORANGE PEEL HERBAL FACE MASK

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 or masks are used to stimulate blood circulation, rejuvenates those muscles and help to maintain the elasticity of the skin and remove dirt from skin pores. It is a very good attempt to establish the herbal face pack containing different powders of plants. Thus in the present work, 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.

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