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Formulation and Evaluation of Face Pack Containing Lentil and Other Natural Ingredients

R. Kumarnaik*, D. Lakshmi, K. Lavanya, B. Roja, Naresh Gorantla

Balaji College of Pharmacy, Ananthapuramu, Andhra Pradesh, India

ABSTRACT

The present work was aimed to formulate face pack containing Lentil as main ingredient and other natural ingredients Oats, Almond, Chamomile, Camphor, Citric acid. Six different formulations of face pack was formulated and evaluated for physical parameters, Irritation studies and for stability studies and the all formulations shown good physical properties. Patch test was performed with two different solvents i.e. Honey and Water. The formulations containing Turmeric and Tamarind seed powder has shown mild irritation and the formulations without these two ingredients were found to be completely free from irritation with both the solvents. During stability studies all formulations shown good physical properties except a slight change in pH. We conclude the present study that the face pack containing natural ingredients is a good product for human use and further studies are needed to know the possible benefits of the face pack.

Keywords: Face pack, Patch test, Stability studies

ARTICLE INFO

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*Corresponding Author

R. Kumarnaik
Balaji College of Pharmacy,
Ananthapuramu, Andhra Pradesh, India
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1. Introduction

Cosmetics are defined as the products used for the purposes of cleansing, beautifying, promoting attractiveness or alternating one's appearance^{1 and 2}. Homemade natural face packs and masks make way for smooth, radiant and silky skin³. Lentil is high on proteins which are good for skin.

Yellow Lentil is healthy food but this can also be used to prepare face pack and masks to treat various concerns for the skin like the dark spots on face. It also cures the skin pigments, sun tanning and also makes skin complexion fair. The Natural face packs do contain some vital vitamins that

are required for the health and glow of your skin. These substances also prove to be beneficial for your skin in many ways. They foster your skin by not only improving its color but also by cleansing and reducing interstices. Natural Facial Packs are less complicated and pretty simple to use. They help you in looking after skin and also prove its worthiness by increasing the circulation of the blood within the veins of the face.

Effects of the facial packs are generally temporary and for the regular glow you should use it 2-3 times a week. A mix of face pack is prepared before it is used for applying. Face pack should be applied on clean skin and there should be no cosmetics on skin⁴. In The present study an attempt was made to formulate face packs of different natural ingredients like Lentil for it Skin glow property, Oats for it Anti-acne and glowing skin, Almond for it naturally Vitamin E and as a natural moisturizer, Chamomile for it smoothing of skin, Citric acid is used for the removing of dead cells, Camphor for its soothing effect and the formulations were evaluated for Physical parameters like Color, Odor, pH, Consistency and Feel and Patch test and Stability studies for one month.

2. Materials and Methods

Materials: The materials used in the present study was purchased from the local market of Ananthapuramu. Lentil, chamomile, Oats, Chamomile, Almond, Camphor, Citric acid were dried properly in shade and powdered and used for the preparation of face packs.

Method of preparation of face packs:

With the varying concentrations of all ingredients seven different formulations were prepared and each formulation was named as F1 to F6. Concentration of each ingredients was mentioned in table 1. The ingredients were weighed accurately and then ground into fine powder. The grounded ingredients were sieved separately by using sieve # 120. Then the all ingredients were mixed by serial dilution method¹. Further the mixed powder is again passed through sieve # 120 so as to break the lumps and to get a fine powder⁵. Then the prepared face pack was packed into a self-sealable polyethylene bag, labeled and used for further studies.

Method of Evaluation of face packs: The prepared face packs were evaluated for the following parameters [6,7]

- Physical parameters
- Flow properties
- Angle of repose, Bulk density and Tapped density
- Test for irritation
- Stability Studies

Physical parameters: All formulations were evaluated for physical parameters like Color, Odor, pH, Consistency and Feel.

Flow Properties:

Angle of Repose: The angle of repose, or critical angle of repose of a granular materials is the steepest angle of descent or relative to the horizontal plane to which a material can be piled without slumping. It is given by the equation:

$$\tan \theta = h/r$$

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

Where

θ = Angle of repose

h=Height of the powder

r=Radius of the heap base

Bulk Density:

It is defined as weight of the dry powder divided by the bulk volume of the powder. The bulk density of a powder is the ratio of the mass of an untapped powder sample and its volume including the contribution of interparticulate void volume. Hence, the bulk density depends on both the density particles and the spatial arrangement of particles in the powder bed.

$$\text{Bulk Density} = \frac{\text{Weight of the dry powder}}{\text{Bulk volume of the powder}}$$

Tapped Density:

The tapped density is an increased bulk density attained after mechanically tapping a container containing the powder sample. The tapped density is obtained by mechanically tapping a graduate measuring cylinder or vessel containing the powder sample. After observing the initial powder volume or mass, the measuring cylinder or vessel is mechanically tapped, and volume or mass change is observed.

$$\text{Tapped density} = \frac{\text{Weight of the dry powder}}{\text{Tapped volume of the powder}}$$

Patch test: Non-irritancy of the preparation is evaluated by patch test. This test is performed to evaluate the safety of face packs on application⁸. Even though the formulations contain all natural ingredients, from the safety point of view we performed this test for three parameters i.e., Primary irritation test, Delayed hypersensitivity and Photo irritation or allergy and the procedure for all test is as follows:

Primary irritation:

In this test 24 human volunteers are selected. Definite quantities of prepared face packs were applied in combination with purified water and honey separately on the back or volar forearm region for 30 days. Prior to the application of face pack any signs of irritation observed are noted. No visible reaction or erythema or intense erythema with edema and vesicular erosion should occur. All seven formulations were evaluated by same procedure and possible reactions with different degrees like -No Irritation, + Mild irritation, ++ Moderate irritation, +++ High⁹.

Delayed hypersensitivity:

Delayed hypersensitivity test is performed with the same procedure as in primary irritation test by increasing the application time and observance time¹⁰. After washing of face pack from the skin the reactions were measured for 2 h of time and noted down.

Photo irritation/ allergy:

Some ingredients may produce an allergic reaction only when exposed to light (usually UV). This test is aimed to know the possible photo allergic reactions of the prepared face packs on exposure to sun light on application. All the formulated face packs were applied as in the Primary irritation test and the individuals are asked to expose themselves for sun light and possible reactions in the terms

of itching, allergy, irritation and signs of redness after washing is measured and noted down¹¹.

Stability studies:

The prepared formulations are subjected to stability studies by storing at different temperature conditions for the period of one month. All the formulations were packed in glass vials separately and 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.

3. Results and Discussion

Physical parameters:

The results for physical parameters were showed in the table 2. All formulations shown free flowing properties which are desirable for measuring the required quantity of powder. The prepared formulations showed colors like F1 Pale yellow, F2 Pale yellow, F3 Pale yellow, F4 Pale yellow, F5 Pale yellow and F6 Pale yellow. All prepared

formulations were having good acceptable odor which is desirable as cosmetic formulations. The pH all formulations lie in the range of 6.0-6.4 which is near to neutral.

Patch test:

The prepared formulations were evaluated for its irritation effects by its patch test with water and milk and honey, the results were shown in Table 3. All formulations showed no signs of irritation during primary irritation test, delayed hypersensitivity test and photo irritation test when applied with water F1 sample is show as a mild irritation.

Stability studies:

During stability studies a slight change in pH was observed for all formulations which are stored at 40°c and we found that at room temperature and at 35°c formulations do not show changes in pH. Changes in PH results were tabulated in Table 4 and shown in fig 1. Among all formulations which are prepared to be good in all aspects viz. physical parameters, patch test for irritation and during stability studies.

Table 1: Composition of different formulations of Face pack

Ingredients	F ₁	F ₂	F ₃	F ₄	F ₅	F ₆
<i>Lens culinaris</i>	75	75	75	75	75	75
Oats	15	10	8	12.5	7.5	7.5
Chamomile	5	10	8	7.5	12.5	3
Almond	3	3	7	3	3	12.5
Camphor	1	1	1	1	1	1
Citric Acid	1	1	1	1	1	1
TOTAL	100	100	100	100	100	100

Table 2: Results for physical Parameters of Formulations F1 to F6

Physical Parameters	F ₁	F ₂	F ₃	F ₄	F ₅	F ₆
Color	Pale Yellow	Pale Yellow	Pale Yellow	Pale Yellow	Pale Yellow	Pale Yellow
Odor	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable
p^H	6.0	6.0	6.0	6.0	6.0	6.0
Consistency	Free Flowing Powder	Free Flowing Powder	Free Flowing Powder	Free Flowing Powder	Free Flowing Powder	Free Flowing Powder
Feel	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

Table 3: Results of Test for irritation during stability studies

Parameters	Day-1	Day-5	Day-10	Day-15	Day-30
Primary irritation	-	-	-	-	-
Delayed hyper sensitivity	-	-	-	-	-
Photo irritation	-	-	-	-	-
(-) No irritation					

Table 4: Change in pH after stability studies

Formulation	RT	35±0.5°c	40±0.5°c
F1	6.5	6.5	6.6
F2	6.5	6.7	6.7
F3	6.7	6.7	6.8
F4	6.7	6.9	7.0
F5	6.9	7.0	6.9
F6	6.8	6.8	6.9

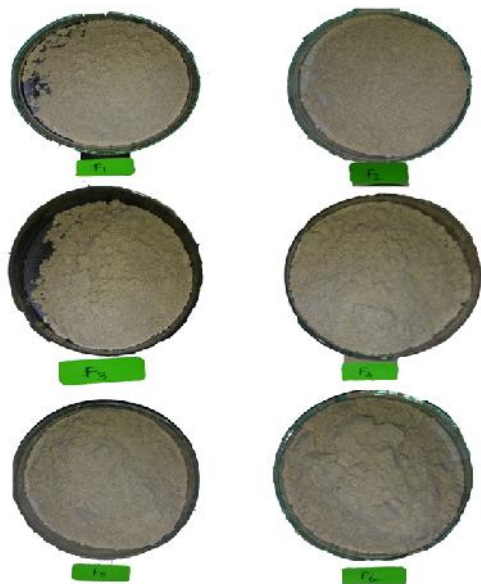


Figure 1: All formulations F1 to F6

4. Conclusion

These face packs were formulated with the naturally available ingredients like Lentil, Oats, Almond, Chamomile, Camphor, Citric acid 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. The present study was aimed to formulate face pack containing natural ingredients like Lentil, Oats, Almond, Chamomile, Camphor, Citric acid. Six different formulations were prepared and evaluated for physical properties like color, Odor, pH, Consistency, Feel, Flow properties and irritation. Based on the results obtained We Conclude that among all formulations the primary irritation test with milk F1 show mild irritation. Delayed hypersensitivity and photo irritation and the remaining formulations were completely free from irritation.

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