



Formulation and Evaluation of Herbal Face Cream

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ABSTRACT

The present study was point out with the object of preparing the Herbal face cream that improves the skin moisture, emollient and nourishment for the skin. Herbal face cream was formulated with the aqueous extract of *Crocus sativus* and *Aloe vera* gel that are commonly used for the skin nourishment and emollient. The main challenge lies in the selection of natural material which can be rationally justified and comparable to that of synthetic material. In present study our aim is to develop an Herbal face cream which would be natural. The Herbal face cream was prepared by Trituration method and further Evaluated for various evaluation parameters such as Physical properties, Determination of pH, Spreadability, Viscosity, Washability, after feel test, Greasiness, Phase separation, Irritancy test, Stability test. The Herbal face creams show the good physical appearance with faint yellow Color, Smooth consistency, pleasant odor, and Semi-solid state. The pH of the F3 was found to be 5.1. The Viscosity and Spreadability of the F3 was found to be 24389 Cps and 15. 16g.cm/s. The F3 was not observed of any phase separation and easily washable with tap water. After feel test for the F3 was found to be good, not show any irritation, greasiness and no separation.

Keywords: Herbal face cream, *Crocus sativus*, *Aloe vera* gel.

INTRODUCTION

A Cream is a preparation used for the application to the skin. Creams are also applied to the mucus membrane such as vagina, rectum. Creams may be considered as pharmaceutical products and cosmetics used in variety of skin conditions.^{1, 2} The demand of cosmetics due to the availability of herbal cosmetics is increasing predominantly. Herbal formulations are receiving more concentration in public because of their high-quality properties and less side effects. Additionally, it also provides the skin with necessary nutrients and required moisture³. The herbal cream is basically water in oil type of emulsion. The natural ingredients are chosen for preparation of herbal cream. The choice of these ingredients is based on their individual properties. Aloe-vera is used as a moisturizer and anti-acne agent.⁴ There are different types of creams like cleansing, cold, foundation, vanishing, night, massage, hand and body creams. The main aim of our work is to develop a herbal cream which can give multipurpose effect, like moisturizer, reduce acne and skin irritation, reduce skin diseases like eczema, psoriasis, dry skin, wrinkles, rashes etc. and also adding glow to the face^{5,6}.

Ideal properties of face cream

- They are easy to apply.
- They spread easily on the skin.
- They are pleasant in appearance.
- They cause less irritation to the skin.
- They should melt or liquefy.
- They should produce flushing action on skin and it's pore openings.

- They should form an emollient film on the skin after application.
- They should not make dry skin which happens in case, when the skin is washed with water or soap
- They also help in softening, lubricating and protecting skin apart from cleansing purposes.⁷

Classification of Creams:

Types of creams according to function, characteristic properties and type of emulsion:

1. Make-up cream (o/w emulsion):
 - a) Vanishing creams
 - b) Foundation creams.
2. Cleansing cream, cleansing milk, cleansing lotion (w/o emulsion)
3. Winter cream (w/o emulsion): a) Cold cream or moisturizing creams.
4. All-purpose cream and general creams.
5. Night cream and massage creams.
6. Skin protective cream.
7. Hand and body creams^{8, 9, 10, 11}.

MATERIALS AND METHODS

The Herbal plant material used for the preparation of face cream is *Crocus sativus* which was obtained from the local market, Guntur. A.P., and were identified. *Aloe vera* was collected from Aswani medicinal garden, Hindu College of Pharmacy, Guntur. The essential oil is also purchased from the local super market. All the other chemicals are available in the College laboratory.



Preparation of *Crocus sativus* Extract

500 mg of *Crocus sativus* is crushed and soak with 50ml solvent system (ethyl Acetate: isopropyl alcohol: water) for 24 hrs. After 24 hrs, *Crocus sativus* washed with solvent fraction. The color of *Crocus sativus* appears yellow and the supernatant liquid was collected and evaporated.

Preparation of *Aloe vera* Extract

Collected mature and fresh *Aloe-vera* leaf from plant and washed it with distilled water. Dried it in hot air oven. Leaf dissected longitudinally by sterile knife. The semi-solid *Aloe-vera* is collected. Remove fibers and impurities form it. *Aloe-vera* extract is obtained.

Preparation of Herbal Face Cream

Heat liquid paraffin and beeswax in a china dish at 75^o C and maintain that heating temperature (Oil phase). In another china dish dissolve borax, methyl paraben in distilled water and heat this beaker to 75^o C to dissolve borax and methyl paraben and to get a clear solution. (Aqueous phase).

Then slowly add this aqueous phase to the oily phase in a mortar and pestle and stir in a single direction to avoid lumps.

Then add the extract of *Crocus sativus* to the cream base and mix it.

Add few drops of Lavender oil as a fragrance to impart the aroma and mix all the ingredients properly.

Table 1: Formulation of Herbal Face Cream

S.NO	Ingredients	F1	F2	F3	Uses
1.	<i>Crocus sativus</i> extract	1.5ml	1.5ml	1.5ml	Pigmentation, scar healing
2.	<i>Aloe vera</i> extract	2.8ml	1.47ml	1.67ml	Fights skin ageing, Moisturising the skin
2.	Beeswax	4	3.6	3.2g	Emulsifier, thickener
3.	Liquid paraffin	22ml	20ml	15ml	Moisturizing agent, skin softener
4.	Methyl Paraben	0.05g	0.05g	0.03g	Anti-bacterial agent, Preservative
5.	Essential oil (lavender oil)	Q.S.	Q.S.	Q.S.	Fragrance, glowing skin
6.	Borax	0.4g	0.4g	0.3g	Buffering agent, preservative



Figure 1: Preparation of Herbal Face Cream

EVALUATION OF CREAM

Evaluation of herbal cream was following. Physical Evaluation Formulated herbal creams was further Evaluated by using the following physical parameter physical parameter colour, odour, consistency, and state of the formulation.

- a) **Colour:** The colour of the cream was observed by visual examination. The result was shows in table
- b) **Odour:** The odour of cream was found to be characteristics.

c) **State:** The state was cream was examined visually. The cream was solid in state result was shows in table 2.

d) **Consistency:** The formulation was examined by rubbing cream on hand manually. The cream having smooth consistency¹².

Determination of pH: Take 0.5 g of cream and dispersed it in 50 ml distilled water. Then check it's pH by using digital pH meter (Table 7)¹³.

Viscosity: The viscosity of the formulation was determined by Brookfield viscometer at 100 r/min, using the spindle No. 7 ¹⁴.

Spread ability: Spreadability is carried out for all three formulations that is, F1C, F2C and F3C. The less time take for the separation of both the slide better the spreadability. Therefore according to statement F2C had better spreadability (Table 8)¹⁵.

Phase separation: Prepared cream is kept in tightly closed container at room temperature away from sunlight and observed for 24 hours for phase.¹⁶

Washability: Wash ability test was carried out by applying a small amount of cream on the hand and then washing it with help of tap water. All three formulations were easily washable.¹⁶

After feel: Emolliency, slipperiness and amount of residue left after the application of fixed amount of cream was checked¹⁶.

Irritancy: This is used to check the quality of materials as well as chemicals and whether it is harmful to skin / mucosal or not. First of all, we have to mark area on left hand (dorsal surface). After that we have to applied formulation of cream to that area and time was noted. Then we have to leave formulation for few minutes by this we can check for irritancy.

Greasiness: This test is basically used to check nature of cream either oily or greased. According to result we can say that all formulations were non-greasy^{17, 18,19}.

Stability test: In the mechanical test cream samples were inserted into centrifuge tube at a speed of 3750 RPM for half an hour or 5000 to 10000 RPM for 15 Minutes then observed whether a separation exist or not.

RESULTS AND DISCUSSION

Medicinal plants used in the formulation of Herbal face cream we found in these plants were found to be Crocus sativus, *Aloe vera* extract and other ingredients have been reported for glowing & nourishment. The various quality control parameters Like Physical Appearance/Visual Inspection, P^H, Irritancy, Washability, Viscosity, After Feel Phase Separation, Spread Ability, Greasiness, Stability Test. All parameter gives favorable result. The result obtained on present study shows that the active ingredients of these drugs when incorporated in Herbal cream gives more stable products with good aesthetic appeal.

1) Physical appearance/visual inspection:

The Formulation prepared was evaluated for the Colour, Odour and Consistency. The Colour of the cream was observed by visual examination which is Faint yellow in Colour. The Odour of cream was found to be pleasant. The State was cream was examined visually. The cream was semisolid in nature. The formulation was examined by rubbing cream on hand manually. The cream having smooth Consistency. Results are listed in Table 2.

Table 2: Evaluation of physical characteristics

Characteristic	F1	F2	F3
Colour	Faint yellow	Faint yellow	Faint yellow
Odour	Pleasant	Pleasant	Pleasant
State	Semisolid	Semisolid	Semisolid
Consistency	Smooth	Smooth	Smooth

2) Determination of pH:

The pH balance of the product is important as it affects skin and surface on which there are used. The pH of our Formulated face cream falls with the ideal pH range of the cream i.e., 4.5 -5.5. The results were shown in Table-3.

Table 3: pH test

S.No	Formulation	pH
1	F1	6.0
2	F2	5.9
3	F3	5.1

3) Viscosity:

Viscosity has an important role in explaining and controlling many attributes like shelf-life ability and product aesthetics such as clarity, ease of flow, on removal from packing and reading when applied to face. Viscosity of cream was done by using Brooke field viscometer at the temp of 25°C.using spindle no, 63.at rpm. Results were shown in Table-4

Table 4: Viscosity Test

S.No	Formulation	Viscosity (Cps)
1.	F1	33771
2.	F2	31869
3.	F3	24389

4) Spreadability:

Spreadability of Formulated cream was measured by placing sample in between two slides then compressed to uniform thickness by placing a definite weight for defined time. The specified time required to separate the two slides was measured as Spread ability. Lesser the time taken for separation of two slides results showed better Spread ability. Spread ability was calculated by the following formula. The value should be in between 9.0 to 31.02g.cm/s. Result were shows in Table-5.

$$\text{Spread ability(S)} = \frac{\text{Weight tide to upper slide (W) x Length of glass slide (L)}}{\text{Time taken to separate slide (T)}}$$

Table 5: Spreadability Test

S.No	Formulation	Results
1.	F1	21.8g.cm/s
2.	F2	35.2g.cm/s
3.	F3	15.16g.cm/s

5) Phase separation:

The prepared cream was transferred in a suitable wide mouth container. Set aside for storage the oil phase and aqueous phase separation were visualizing after 24h. Result were shown in Table-6

Table 6: Phase Separations

S.No	Formulation	Phase Separation
1.	F1	Slight phase separation
2.	F2	No phase separation
3.	F3	No phase separation



6) Washability:

Formulation was applied on the skin and then ease extends of washing with water was checked. Results were shown in Table-7.

Table 7: Washability test

S.No	Formulation	Washability
1.	F1	Not easily washable
2.	F2	Easily washable
3.	F3	Easily washable

7) After feel:

Emolliency, slipperiness and amount of residue left after the application of the fixed amount of cream was found to be good. Observation shown in table 8.

Table 8: After feel test

S.No	Formulation	After feel
1.	F1	Good
2.	F2	Good
3	F3	Good

8) Irritancy test:

Herbal Cream formulation was evaluated for the non-irritancy test. Preparation shown no redness, edema, inflammation and irritancy. Observation of the state was done for 24 h. Results were shown in Table 9.

Table 9: Irritancy test

S.No	Formulation	Results
1.	F1	Non-irritancy
2.	F2	Non-irritancy
3.	F3	Non-irritancy

9) Greasiness:

The cream was applied on skin surface in the form of smear and checked if the smear was oily or grease like according to the results, we can say that all three formulations were non-greasy. Results were shown in Table-10.

Table 10: Greasiness test

S.No	Formulation	Greasiness
1.	F1	Non-greasy
2.	F2	Non-greasy
3.	F3	Non-greasy

10) Stability Test:

To assess the formulation stability, the stability studies were done. Each formulation was stored at 4°C room temperature and 40°C temperature for a month and observed for physical stability like colour. No separation

occurs so it is found to be stable. Results were shown in Table-11.

Table 11: Stability test

S.No	Formulation	Stability
1.	F1	No separation
2.	F2	No separation
3.	F3	No separation

Table 12: Results for the optimized formulation F3.

S.No	Parameters	Results
1.	Colour	Faint yellow
2.	Odour	Pleasant smell
3.	State	Semi-solid
4.	Consistency	Smooth consistency
5.	pH	5.1
6.	Spread ability	15.16g.cm/s
7.	Washability	Easily washable
8.	Non- irritancy test	Non irritant
9.	Viscosity	24389(Cps)
10.	Phase separation	No phase separation
11.	Greasiness	Non-greasy
12.	Stability Test	No separation occurs

SUMMARY AND CONCLUSION

The present study was point out with the object of preparing the Herbal face cream that improves the skin moisture, emollient and nourishment for the skin. Herbal face cream was formulated with the aqueous extract of *Crocus sativus* and *Aloe vera* gel that are commonly used for the skin nourishment and emollient. The main challenge lies in the selection of natural material which can be rationally justified and comparable to that of synthetic material. In present study our aim is to develop an Herbal face cream which would be natural. We Formulated an Herbal face cream by using plant extracts which are commonly used traditionally and lauded for the skin moisturizing actions. All the ingredients used to Formulate Herbal face creams are safer and their use can greatly reduce the skin aging and skin elasticity.

- The Herbal face cream was prepared by Trituration method and further Evaluated for various evaluation parameters. The Herbal face creams show the good physical appearance with faint yellow Color, Smooth consistency, Pleasant odor, and Semi-solid state.
- The pH of the formulation F3 was found to be 5.1
- The Viscosity of the optimized formulation F3 was found to be 24389Cps
- The Spreadability of the optimized formulation F3 was found to be 15. 16g.cm/s



- The formulation F3 was not observed of any phase separation.
- The formulation F3 is easily washable with tap water.
- The After feel test for the optimized formulation F3 was found to be good.
- The formulation F3 does not show any irritation
- The formulation F3 does not show any greasiness.
- There is no separation in formulation F3 so it is found to be stable.

However, the Formulated Herbal face cream shows good physical appearance with faint yellow Color, Smooth consistency, Pleasant odor, and Semi-solid state, good rheological properties and shows good physical properties like pH, Viscosity, Spreadability, No Phase separation, Washability, After feel, Non-irritancy, No greasiness, Good Stability.

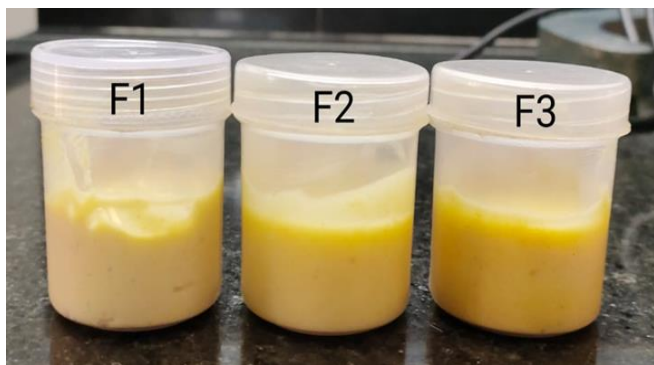


Figure 2: Formulations of prepared Herbal Face Cream

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