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Formulation and Evaluation of Multipurpose Herbal Cream

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Abstract

The herbal cosmetics are now a day's widely used by the common peoples because of concept of fewer side effects with better safety and security profile. So the main aim of this project work is to formulate and evaluate multipurpose herbal cream containing aloe-vera pulp, turmeric powder, neem oil, tulsi oil and rose oil. The cream was prepared by using cream base, i.e. stearic acid, sodium hydroxide, potassium hydroxide, glycerol, cetyl alcohol, isopropyl alcohol and distill water. The three formulation batches i.e. F1, F2 and F3 were prepared by using slab technique for homogeneous mixing of all the excipients and herbal ingredients. The prepared formulation was evaluated by various evaluation parameters like; physical evaluation, irritancy test, washability test, pH test, phase separation, greasiness, homogeneity, spreadiability and viscosity. Results showed that the cream was non-irritant, stable and posses multipurpose activity.

Keywords: *Aloe barbadensis* (Ghrit kumari), *Azadirachta indica* (Neem), *Curcuma longa* (Turmeric), *Ocimum tenuiflorum* (Tulsi), Multipurpose cream.

Introduction

Herbal cosmetics are defined as beauty products containing herbal ingredients that have desired physiological activities such as healing, smoothing appearance, enhancing and conditioning qualities. Creams are semi-solid emulsions which contain mixtures of oil and water. Their consistency varies between liquids and solids. Slave (medical ointment for soothing purpose) and unguent (soothing products) preparations in earlier days led to the development of cleansing and cold creams. With the help of additives such as emulsifying agents and newer techniques, the preparation of creams has become easy. These creams are also referred to as day creams as they applied during day times. There are various types of creams like; cleansing, cold, foundation, vanishing, night, hand and body creams. The herbal cosmetic formulations are receiving recognition all over the world, as they provide the enhanced feeling of purity, protection & effectiveness. The main aim of this work is to provide 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. The four herbal ingredients are used in these preparations which are neem, turmeric, tulsi and aloe-vera gel. Neem is used as an antifungal and anti- inflammatory and it is also used to reduce scar, pigmentation, redness and itching of the skin.

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Turmeric is an Asian cosmetic useful to impart a golden radiance to the complexion, it also shows anti-inflammatory and antiseptic properties. Tulsi is used to add glow to the skin and promote wound healing. Aloe-vera pulp is used a moisturizer which reduce pimples and acne also used for treatment of burn wounds. Three formulations were formulated & named as F1, F2 & F3.

Material and Methods

Table: 1 List of Herbal Ingredients and Excipients with their roles

S.No.	Ingredients	Roles
1.	Turmeric	Anti-inflammatory, anti-oxidant
2.	Aloe-vera	Anti-aging, moisturizer, reduce pimples and acne.
3.	Neem	Anti-fungal, anti-bacterial and promote wound healing.
4.	Tulsi	Anti-bacterial, adds glow to the face.
5.	Sodium hydroxide	Used as a pH balancer in skin care products.
6.	Potassium hydroxide	Produce softer creams with a good consistency.
7.	Glycerol	Protect the skin from irritants.
8.	Borax	Preservative
9.	Stearic acid	Emulsifier
10.	Rose oil	Fragrance

Collection of material:

All the materials like neem, tulsi, turmeric & rose oil are procured from local market. Aloe-vera was taken from college botanical garden and gel was extracted by trituration of pulp.

Formulation of Cream:

Aqueous Phase – Dissolve sodium hydroxide & potassium hydroxide in water, add glycerol & preservative then heat it to 80°C.

Oily Phase – In another beaker take stearic acid, cetyl alcohol & isopropyl alcohol & heat to 75°C.Then gently pour the aqueous phase in oily phase & stir vigorously then add rose oil for fragrance. Prepared formulation were filled in a suitable container and labeled.

Table: 2 List of Name and Composition of Herbal Cream (gm\ml)

S.No.	Ingredients	F1	F2	F3
1.	Sodium hydroxide	0.18	0.18	0.18
2.	Potassium hydroxide	0.50	0.50	0.50
3.	Glycerol	05	05	05
4.	Borax	0.02	0.02	0.02
5.	Stearic acid	15	15	15
6.	Propyl alcohol	03	03	03

7.	Cetyl alcohol	0.50	0.50	0.50
8.	Turmeric powder	0.2	0.4	0.8
9.	Aloe-vera Gel	01	02	04
10.	Neem Oil	0.5	01	02
11.	Tulsi Oil	1.5	03	06
12.	Rose oil	q.s	q.s	q.s
13.	Distilled water	q.s.	q.s.	q.s.

Evaluation of Cream

Physical evaluation: In this test color, odor, texture & state of the three formulations were studied.

Irritancy: Mark the area (1cm²) on the left hand dorsal surface. Then the cream was applied to that area and the time was noted. Then it is checked for irritancy, erythema & edema any for an interval up to 24hr & reported.

Washability: All the three formulations were easily washable with tap water.

pH Test : 0.5g cream was taken and dispersed in 50ml distilled water and then pH was measured by using digital pH meter.

Phase separation: Prepared cream was kept in a closed container at a temperature of 25-100°C away from light. Then phase separation was checked for 24hr for 30 days.

Type of smear/Greasiness: The cream was applied on the skin surface in the form of smear and checked if the smear was oily of grease-like.

Homogeneity: The formulations were tested for the homogeneity by visual appearance and by touch.

Spreadability: Two sets of glass slides of standard dimensions were taken. The multipurpose herbal cream formulation was placed over one of the slides. The other slide was placed on the top of the cream, such that the cream was sandwich between the two slides in an area occupied by a distance of 6 cm along the slide. 100gm weight was placed upon the upper slide so that the cream between the two slides was pressed uniformly to from a thin layer. The weight was removed & the excess of the cream adhering to the slides was scrapped off. The two slides in position were fixed to stand without slightest disturbance & in such a way that only the upper slide to slip off freely by the force of weight tied to it.

Viscosity: Viscosity of cream was done by using Brooke field viscometer at a temperature of 25°C at 100 RPM & showed adequate result.

Results and Discussion

The herbal cream was prepared by slab technique for geometric & homogeneous mixing of all the excipients and herbal extracts. The cream was prepared by using the cream base i.e. Stearic acid , sodium hydroxide, borax, potassium hydroxide, distill water, rose oil, aloe vera gel, glycerol, cetyl alcohol, propyl alcchol, neem oil & tulsi oil. Finally three formulations was prepared i.e. F1 F2 & F3 and all the formulation was evaluated by various parameters like; physical evaluation, irritancy test, washability test, pH test, phase separation, greasiness, homogeneity and viscocity.The results of evaluation parameters are done and described in the table.

Physical evaluation: In this test color, odor, texture, and state of the three formulations were checked & result shown in the table3.

Table: 3 Observation table for physical evaluation

Parameters	**F1**	**F2**	**F3**
Color	Creamy white	Light yellow	Light yellow
Odor	Pleasant	Pleasant	Pleasant
Texture	Smooth	Smooth	Smooth

State	Semi-Solid	Semi-Solid	Semi-Solid

Irritancy: The formulations show no redness, edema, inflammation and irritation during irritancy studies.

Table: 4 Observation table for irritancy

Formulation	F1	F2	F3
Irritant effect	Nil	Nil	Nil
Erythema	Nil	Nil	Nil
Edema	Nil	Nil	Nil

Washability test: A small amount of cream was applied on the hand and it is then washed with tap water.

Table: 5 Observation table for washability

Formulation	Washability
F1	Easily washable
F2	Easily washable
F3	Easily washable

pH Test: According to the results, the pH of all the three formulations that is F1,F2 and F3 were found to be nearer to the skin pH .So it can be used safely on skin.

Table: 6 Observation table for pH test

Formulation	pH
F1	6.45
F2	6.31
F3	6.40

Phase Separation: No phase separation was observed in all the three formulations.

Table: 7 Observation table for phase separation

Formulation	Phase separation
F1	No phase separation
F2	No phase separation
F3	No phase separation

Type of Smear/Greasiness: According to results all the formulations were non-greasy.

Table: 8 Observation table for greasiness

Formulation	Greasiness
F1	Non-greasy
F2	Non-greasy
F3	Non-greasy

Homogeneity: The cream was found to be homogeneous. Any sign of heterogeneity was not found.

Table: 9 Observation table for homogeneity

Formulation	Homogeneity
F1	Excellent
F2	Excellent
F3	Excellent

Spreadability: Formulation F3 showed better spreadability as compared to other formulations.

Table: 10 Observation table for spreadability

Formulation	Time (sec)	Spreadability (gm×cm/sec)
F1	12.29	12.2
F2	16.10	9.2
F3	10.20	14.6

Conclusion

All the three herbal formulations showed significant different activities. Based on the result all the three formulations F1, F2 & F3 were stable. On the basis of comparative studies F3 formulation is most suitable and compatible. The herbal formulation is safe to use & it can be used as the provision of a barrier to protect skin.

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