



**INTERNATIONAL JOURNAL OF
PHARMACEUTICAL SCIENCES**
[ISSN: 0975-4725; CODEN(USA): IJPS00]
Journal Homepage: <https://www.ijpsjournal.com>



Review Paper

Formulation And Evaluation of Herbal Moisturizer Cream: A Review

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ARTICLE INFO

Published: 11 Oct 2026

Keywords:

Herbal cream, Aloe vera, Almond oil, Neem extract, Moisturizer, Emulsion, Evaluation.

DOI:

10.5281/zenodo.23293428

ABSTRACT

The present study focuses on the formulation and evaluation of a herbal moisturizing cream using natural ingredients with potential skin-nourishing and moisturizing properties. Herbal ingredients are increasingly used in cosmetic preparations due to their natural origin and beneficial effects on skin health. The cream was formulated using Aloe vera gel, almond oil, and neem extract incorporated into a suitable cream base by an appropriate emulsification method. The prepared formulation was evaluated for various physicochemical and cosmetic parameters, including appearance, colour, odour, pH, homogeneity, spreadability, washability, and stability. The formulation was designed to provide adequate hydration, improve skin softness, and help maintain the skin's natural moisture balance. The prepared herbal moisturizing cream exhibited satisfactory physical characteristics and was found to be smooth, homogeneous, and suitable for topical application. The study indicates that herbal ingredients can be effectively incorporated into a moisturizing cream to develop a potentially safe and suitable cosmetic preparation for maintaining healthy, hydrated, and nourished skin.

INTRODUCTION

Moisturizing cream is one of the most commonly used topical cosmetic preparations for maintaining the hydration, softness, smoothness, and overall appearance of the skin. The skin acts as an important protective barrier between the body and the external environment. It is continuously exposed to environmental factors such as dry

weather, low humidity, wind, sunlight, frequent washing, and cleansing agents. These factors can disturb the natural moisture balance of the skin and may result in dryness, roughness, scaling, and discomfort. Therefore, the regular application of a suitable moisturizing preparation helps maintain skin hydration and supports the natural protective function of the skin. A moisturiser is a topical preparation that helps increase and maintain the

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Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.



water content of the outermost layer of the skin. It also helps reduce transepidermal water loss (TEWL) and improves the softness and flexibility of the skin. Moisturizers generally produce their effects through three major mechanisms: humectant, emollient, and occlusive actions.[1,2] Humectants attract and retain water in the outer layer of the skin. Common examples include glycerin, propylene glycol, and sorbitol. Glycerin is widely used because it is water soluble, compatible with many formulation ingredients,

and effective in improving skin hydration. Emollients help soften and smooth the skin by improving the surface characteristics of the skin. Natural oils such as almond oil are commonly used as emollients. Occlusive agents form a protective layer over the skin surface and reduce water loss. Petrolatum, mineral oil, and waxes are commonly used occlusive materials. A combination of these components can provide an effective moisturizing effect.[3]

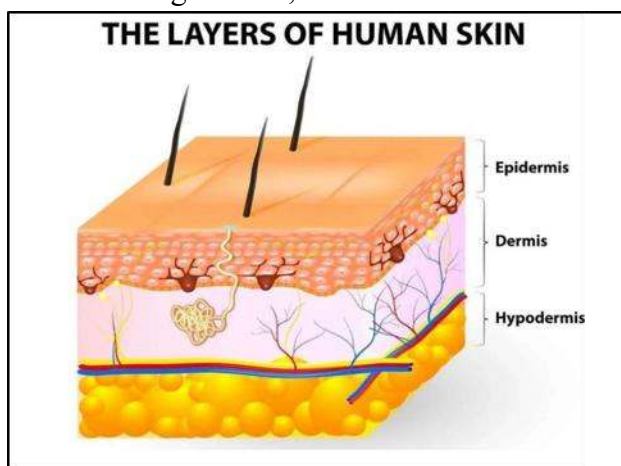


Fig. No. 1: Layers of Human Skin

Moisturizing creams are generally semisolid emulsions containing an aqueous phase and an oily phase. Since oil and water are immiscible, suitable emulsifying agents are required to produce a stable and uniform preparation. Other ingredients may include preservatives, antioxidants, fragrances, consistency modifiers, and active herbal ingredients. The selection of ingredients depends on the desired properties, stability, texture, and intended use of the formulation.[4]

Herbal Ingredients in Moisturizing Cream

The use of herbal ingredients in cosmetic preparations has increased due to their natural origin and potential moisturizing, soothing, antioxidant, nourishing, and skin-conditioning

properties. Herbal ingredients can be incorporated into suitable cream bases to develop cosmetic preparations with desirable skin-care properties.[5] Aloe vera is widely used in cosmetic formulations because of its hydrating and soothing properties. It can provide a smooth and refreshing feel to the skin.[6] Almond oil acts as a natural emollient and helps improve skin softness and smoothness. Neem extract contains naturally occurring phytoconstituents and is traditionally used in skin-care preparations for its supportive antioxidant and skin-conditioning properties. The combination of Aloe vera, almond oil, and neem extract with a suitable cream base may provide a moisturizing formulation with desirable cosmetic and skin-conditioning properties.[7]

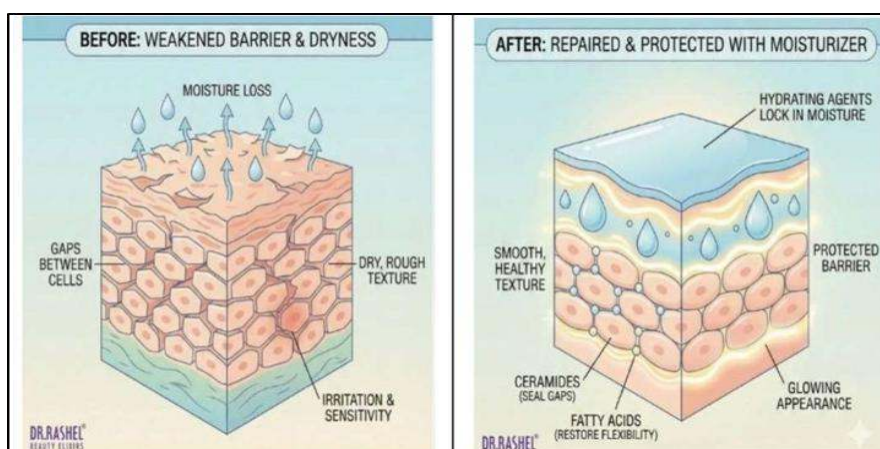


Fig. No. 2: Before and After Application of Moisturizing Cream

Preparation of Moisturizing Cream

The preparation of moisturizing cream generally involves the separate preparation of the aqueous and oily phases. Oil-soluble ingredients are incorporated into the oily phase, while water-soluble ingredients are incorporated into the aqueous phase. Both phases are heated to suitable temperatures and then combined with continuous stirring to form a uniform emulsion.[8] After emulsification, the formulation is gradually cooled with continuous stirring. Heat-sensitive herbal ingredients such as Aloe vera gel and neem extract

may be added during the cooling stage to minimize unnecessary exposure to high temperatures. The formulation is then mixed until a smooth, homogeneous, and suitable consistency is obtained. Various processing factors, including temperature, order of addition, mixing speed, mixing time, emulsifier concentration, and cooling conditions, can influence the quality and stability of the final cream. Proper processing conditions are therefore important for obtaining a uniform and stable formulation.[9]

Table: Uses and Advantages of Herbal Moisturizer Cream[10,12,13]

Sr.No.	Uses	Advantages
1.	Helps moisturize and hydrate the skin.	Contains herbal or naturally derived ingredients.
2.	Helps reduce dryness and roughness.	Provides moisturizing and skin-conditioning effects.
3.	Maintains skin softness and smoothness.	May provide soothing and antioxidant properties.
4.	Helps reduce moisture loss from the skin.	Provides smooth and pleasant application.
5.	Provides skin-conditioning and nourishing effects.	Combines moisturizing and herbal ingredients in one formulation.
6.	Can be used as part of daily skincare.	Can be customized according to desired skincare properties.
7.	May provide soothing and refreshing effects.	Uses the beneficial properties of selected herbal ingredients.

MATERIAL AND METHOD

Table: Materials Used in the Formulation of Herbal Moisturizing Cream[14,15]

Sr. No.	Material	Source/Description	Role in Formulation
1	Aloe vera gel	<i>Aloe barbadensis</i> Miller	Moisturizing and soothing agent
2	Almond oil	<i>Prunus amygdalus</i> kernels	Emollient and moisturizing agent
3	Neem extract	<i>Azadirachta indica</i>	Herbal protective and skin-conditioning agent
4	Stearic acid	Fatty acid	Consistency and emulsifying agent
5	Cetyl alcohol	Waxy fatty alcohol	Thickening, stabilizing and consistency agent
6	Glycerin	Glycerol	Humectant and moisturizing agent
7	Preservative	Suitable pharmaceutical preservative	Prevents microbial contamination
8	Purified water	Purified aqueous vehicle	Vehicle and aqueous phase
9	Triethanolamine (TEA)	Pharmaceutical excipient	Neutralizing, emulsifying and pH-adjusting agent
10	Beeswax	Natural wax from honeybees	Thickening, consistency and stabilizing agent

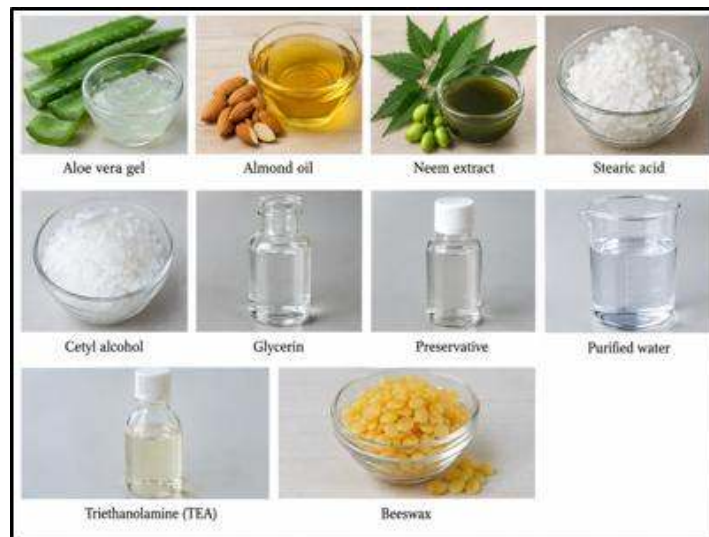


Figure 4. Photographic representation of the materials used in the formulation

Method of Preparation of Herbal Moisturizing Cream

Step 1: Cleaning and Weighing

All the required equipment, including beakers, measuring cylinders, weighing balance, spatula,

thermometer, glass rod, and water bath, was cleaned and dried properly before use. All the ingredients were accurately weighed according to the specified formulation.[16]

Step 2: Preparation of Oil Phase

The required quantities of almond oil, stearic acid, and cetyl alcohol were transferred into a clean beaker. The beaker was placed on a water bath and heated to approximately 70–75°C with continuous stirring. Heating was continued until the stearic acid and cetyl alcohol melted completely, resulting in a clear and uniform oil phase.[17]

Step 3: Preparation of Aqueous Phase

In a separate clean beaker, the required quantity of purified water was taken. Glycerin and the required quantity of preservative were added to the water and mixed thoroughly. The aqueous phase was heated separately to approximately 70–75°C to achieve a temperature comparable to that of the oil phase.[18]

Step 4: Emulsification

After both the oil and aqueous phases reached approximately the same temperature, the aqueous phase was added gradually to the oil phase with continuous stirring. Stirring was continued throughout the addition to facilitate proper emulsification and formation of a smooth cream base.[19]

Step 5: Formation of Cream Base

Continuous stirring was maintained until a uniform and smooth cream base was obtained. Adequate mixing was ensured to prevent phase separation and achieve a consistent cream preparation.[20]

Step 6: Cooling

After formation of the cream base, heating was discontinued. The cream was allowed to cool gradually to avoid excessive exposure of the formulation to high temperature. Gentle continuous stirring was maintained during the

cooling process. The herbal ingredients were incorporated during the cooling stage to minimize their exposure to elevated temperatures.[21]

Step 7: Addition of Aloe vera Gel

When the cream base had cooled sufficiently, the required quantity of Aloe vera gel was added gradually with continuous stirring. Stirring was continued until the gel was uniformly incorporated into the cream base without the formation of lumps.[22]

Step 8: Addition of Neem Extract

The required quantity of neem extract was subsequently added to the cream base. The mixture was stirred thoroughly to ensure uniform distribution of the extract throughout the formulation.[23]

Step 9: Homogenization

The prepared cream was subjected to continuous stirring/homogenization until a smooth, homogeneous, and lump-free preparation was obtained. Homogenization ensured uniform distribution of the formulation components and improved the consistency and overall appearance of the cream.[24]

Step 10: Final Mixing and Cooling

The cream was gently mixed for a few minutes and allowed to cool completely to room temperature. The final preparation was visually inspected for smoothness, homogeneity, uniformity, consistency, and absence of lumps or phase separation. The prepared herbal cream was then transferred into a suitable, clean, dry, and properly labelled container for further evaluation.[25]



Step 11: Filling

The prepared herbal moisturizing cream was carefully transferred into a clean, dry, and suitable container using a spatula. Care was taken to avoid the incorporation of air bubbles and contamination during the filling process. The container was filled uniformly and appropriately sealed.[26]

The filled container was properly closed and labelled with the name of the formulation, formulation code/batch number, date of preparation, and other relevant details. The prepared herbal moisturizing cream was stored in a cool and dry place, protected from direct sunlight and excessive heat, until further evaluation.[27]

Step 12: Labelling and Storage



Figure 5: Method of Preparation of Herbal Moisturizing Cream

Evaluation of Herbal Moisturizer Cream [28-32]

Sr. No.	Evaluation Test	Method	Expected Result
1	Appearance	Cream was visually checked for colour, texture, smoothness and lumps.	Smooth, uniform and pleasant appearance.
2	pH	1 g cream was mixed with 10 mL distilled water and pH was measured using a calibrated pH meter.	pH between 5.0–7.0.
3	Spreadability	Cream was placed between two glass slides and its spreading ability was observed.	Good and uniform spreadability.
4	Homogeneity	Cream was rubbed between fingers and checked for lumps, grittiness and uniformity.	Smooth and homogeneous, free from lumps.
5	Washability	Cream was applied to the skin and washed with water.	Easily washable with water.
6	Viscosity	Viscosity was measured using a suitable viscometer.	Suitable viscosity for easy application.

7	Irritation Test	A small amount of cream was applied to the skin and observed for redness, itching or burning.	No significant irritation.
8	Stability Test	Cream was stored under selected conditions and checked periodically for changes in colour, odour, pH and consistency.	Stable with no significant changes.
9	Moisturizing Effect	Cream was applied to clean skin and softness, smoothness and hydration were observed.	Improved skin softness, smoothness and hydration.

CONCLUSION

Herbal moisturizing creams provide a promising and natural approach for maintaining skin hydration, softness, smoothness, and overall skin health. The incorporation of herbal ingredients such as Aloe vera, Neem extract, and natural oils can provide moisturizing, soothing, antioxidant, and skin-conditioning properties. These ingredients may help improve the appearance and feel of the skin while providing a pleasant topical application. The quality and effectiveness of a herbal moisturizing cream depend on the proper selection, concentration, and compatibility of the ingredients used in the formulation. Evaluation of important parameters such as appearance, homogeneity, pH, spreadability, washability, viscosity, irritation potential, stability, and moisturizing effect helps to determine the quality, safety, and performance of the prepared formulation. A well-formulated herbal moisturizer should possess a smooth and homogeneous texture, skin-compatible pH, good spreadability, suitable viscosity, easy washability, good stability, and should not cause significant skin irritation. The formulation should also provide noticeable improvement in skin softness, smoothness, and hydration. Thus, herbal moisturizing creams can serve as useful topical preparations for supporting skin hydration and maintaining healthy-looking skin. However, further detailed studies, including long-term stability, safety, efficacy, and

appropriate clinical evaluation, are required to establish their therapeutic benefits and ensure consistent product quality. Overall, the development of herbal moisturizing creams combines the benefits of natural botanical ingredients with modern pharmaceutical formulation techniques and represents a potential area for further research and development.

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HOW TO CITE: Vaishnavi Nikas, Vipashyana Ingle, Vedanti Dukare, Valaya Ghorpade, Vrushali Deshmukh, Varsha Narwade, Vrushali Late, Dr. Ramesh Pagore, Formulation And Evaluation of Herbal Moisturizer Cream: A Review, *Int. J. of Pharm. Sci.*, 2026, Vol 4, Issue 10, 1443-1451, <https://doi.org/10.5281/zenodo.23293428>

