WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
Coden USA: WJPRAP Impact Factor 8.63
Volume 15, Issue 12, 908-929. Research Article ISSN 2277–7105

TO DESIGN AND DEVELOPMENT OF HERBAL MOISTURISING CREAM FOR SOFTNING THE SKIN

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Article Received on 14 May 2026,
Article Revised on 04 June 2026,
Article Published on 16 June 2026,

https://doi.org/10.5281/zenodo.20697211

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How to cite this Article: Mr. Kashyap Kailash Wakpanjar*, Mr. Umakant Bhimrao Sonale, Prof. Vyanktesh Lakde, Dr. Rahul Bijwar Sir. (2026). Mr. Kashyap Kailash Wakpanjar, Mr. Umakant Bhimrao Sonale, Prof. Vyanktesh Lakde, Dr. Rahul Bijwar Sir. World Journal of Pharmaceutical Research, 15(12), 908–929.

ABSTRACT

The present study focuses on the formulation and evaluation of a herbal moisturizing cream intended for softening, hydrating, and protecting the skin using natural ingredients. The cream was prepared by using herbal and skin-friendly ingredients such as Kokum Butter, Aloe Vera Gel, Glycerine, Vitamin E, Rose Water, Beeswax, Methyl Paraben, and Distilled Water. The main aim of the formulation was to develop a safe, effective, stable, and non-irritant herbal cream with good moisturizing properties and minimum side effects. An oil-in-water (O/W) emulsion method was used for the preparation of the cream. Different formulations were prepared and evaluated for various physicochemical parameters such as colour, odour, texture, pH, spreadability, greasiness, washability, viscosity, phase separation, and skin irritation test. The prepared formulations showed good homogeneity, smooth texture, pleasant odour, easy washability, and acceptable pH suitable for skin application. No phase separation or skin irritation was observed during evaluation, indicating good stability and safety of the formulation. Kokum Butter acted as the main moisturizing and skin-softening agent, while Aloe Vera Gel provided soothing and cooling effects. Glycerine improved hydration by retaining moisture in the skin, and Vitamin E offered antioxidant and skin-protective properties. Beeswax helped in maintaining the consistency and stability of the cream. The study concludes that the formulated herbal moisturizing cream is effective in maintaining skin hydration, improving skin softness, and protecting the skin from dryness without causing irritation. The formulation can be considered as a natural and safe alternative to synthetic moisturizing creams for regular skin

care use.

KEYWORDS: Herbal Moisturizing Cream, Kokum Butter, Aloe Vera Gel, Glycerine, Vitamin E, Skin Hydration, Herbal Cosmetics, Moisturizer, Oil-in-Water Emulsion, Skin Softening, Natural Ingredients, Herbal Formulation.

INTRODUCTION

The word 'Cosmetic' derived from a Greek word – 'kosmesticos' that means to adorn. From that time any materials used to beautification or promoting appearance is known as cosmetic. The word "cosmetics" actually stems from its use in Ancient Rome. They were typically produced by female slaves known as "cosmetae" which is where the word "cosmetics" stemmed from. Cosmetics are used to enhance appearance. Makeup has been around for many centuries. The first known people who used cosmetics to enhance their beauty were the Egyptians. Makeup those days was just simple eye coloring or some material for the body. Now-a-days makeup plays an important role for both men and women. The importance of cosmetics has increased as many people want to stay young and attractive. Cosmetics are readily available today in the form of creams, lipstick, perfumes, eyeshadows, nail polishes, hair sprays etc. Other cosmetics like face powder give glow to the skin after applying the base cream. Then we have lipsticks, which are applied by many women of all ages. They are made from wax and cocoa butter in the desired amount.

Cosmetics like creams, gels, and colognes are used on a daily basis by both women and men. Creams act as a cleanser for the face in many circumstances. More recently anti-ageing creams have been manufactured which can retain younger looking skin for many years. The best cleansing agents are cleansing cream, soap and water. Cosmetic creams serve as a skin food for hard, dry and chapped skin. It mainly lubricates, softens and removes unwanted dirt from the skin. Some popular fat creams that are used include Vaseline and Lanolin. Dry creams are used in the manufacture of soap and gelatin which is used as a base for the skin.[1] The appearance and function of the skin are maintained by an important balance between the water content of the stratum corneum and skin surface lipids. The skin represents the most superficial layer of the body, and so it is constantly exposed to different environmental stimuli. Exposure to external factors as well as endogenous factors may disrupt this balance.[2]

In addition, frequent use of soaps, detergents and topical irritants such as alcohol and hot

water can remove the skin surface lipids. Disruption of skin barrier led to the various type of skin problems most common condition is a loss of water content which leads to dryness of skin such as roughness, scaling, cracks, redness and an uncomfortable feeling of tightness, sometimes with itching and stinging. Treatment with moisturizer aims at maintaining skin integrity and well-being by providing a healthy appearance of the individual. Numbers of moisturizers are available under the label of natural, safe, organic, herbal while the basic properties of humectancy, occlusivity and emolliency are consistent across all moisturizers.

Most of the available moisturizers use synthetic adhesives, emulsifiers, perfuming agents, pigments, surfactants and thickeners to form the base. There is extensive need to replace toxic synthetic agent from the base using natural agents.[3]

Dermatologists recommend the application of moisturizers for various dry skin issues. General-purpose moisturizers, often known as hand and body lotions, are effective in alleviating dry skin and possess an attractive appearance, which improves patient acceptance and compliance. These products can be categorized as cosmetics; however, they may also be subject to the regulations governing medicinal products if marketed for the treatment of dry skin conditions, such as atopic dermatitis and ichthyosis.[4]

Moisturizers have proven effective in improving these conditions by restoring the integrity of the stratum corneum, which acts as a barrier to prevent water loss and assists in replenishing skin lipids and other vital compounds. Furthermore, moisturizers are commonly used to reduce the appearance of fine lines, leading to skin that appears smooth and soft. While many products make broad claims about skin rejuvenation, a significant portion of the beneficial effects of these products can be linked to the moisturizers they contain, such as glycerin, petrolatum, and dimethicone.[5]

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Moisturizer is essential in basic daily skin care, particularly when there are alterations to the epidermal barrier and a reduction in epidermal water content. It is a crucial component in a dermatologist's strategy for maintaining skin health and addressing various skin issues that arise with dryness and are related to impaired skin barrier function, including atopic disorders and other types of dermatitis.[7]

Moisturizers are arguably the most commonly suggested products in dermatological practice, and they are also among the most intriguing. The incidence of dryness-related skin conditions is increasing due to factors such as urbanization, pollution, adulteration, extended life expectancy, and the reduction of traditional oil massages and baths. A considerable segment of the global population utilizes different moisturizers throughout their lives; thus, it is crucial for dermatologists to have a comprehensive understanding of these products.[8,9]

ANATOMY OF SKIN

The skin is the largest organ in the human body, functioning as a continuous protective barrier that separates the internal environment from the external world. It covers an area of approximately 1.5 to 2 square meters in adults and weighs around 6 kilograms (13 pounds), accounting for about 16% of the total body weight. The thickness of the skin varies significantly across different parts of the body, ranging from 0.5 mm (approximately 0.02 in) on the eyelids to 4 mm or more on the palms and soles, reflecting the diverse functional needs of various regions of the body.[10]

The primary functions of the skin are numerous and essential for survival. Firstly, it serves as a protective barrier against physical injuries, chemical irritants, pathogens, and ultraviolet radiation. Secondly, it regulates body temperature through vasodilation and vasoconstriction of blood vessels, as well as through sweat production. Thirdly, the skin acts as a sensory organ, containing specialized receptors for touch, pressure, pain, temperature, and vibration. Fourthly, it prevents excessive water loss and maintains fluid balance via the stratum corneum barrier. Fifthly, the skin synthesizes vitamin D when exposed to ultraviolet B radiation, which is crucial for calcium metabolism and bone health. Sixthly, the skin plays a significant role in immune surveillance, aided by specialized immune cells. Finally, the skin facilitates social communication through changes in color, facial expressions, and tactile interactions with the environment.[23,25]

The epidermis is perpetually subjected to environmental threats and experiences ongoing

cellular renewal. Maintaining the balance between proliferation and differentiation within the epidermis is crucial for skin homeostasis. Proliferation and terminal differentiation are segregated into the basal and suprabasal layers, respectively. These layers can be distinguished by varying patterns of protein expression, which serve as differentiation markers. For example, the intermediate filament cytoskeleton components, keratins K5 and K14, are restricted to the proliferative basal layer, whereas keratins K1 and K10, along with keratins K6 and K16, or precursors of the cornified envelope such as involucrin, are expressed by suprabasal cells that are terminally differentiating. Analyzing the expression of these markers facilitates the investigation of the imbalance's characteristic of disease. Traditionally, these markers have been examined in skin microsections, on attached cells through immunostaining, or via western blotting; however, quantifying them through flow cytometry is both feasible and beneficial. We have extensively utilized this technology on human and mouse keratinocytes. In this document, we outline comprehensive flow cytometry techniques to assess the differentiation status of keratinocyte populations.[10,25]

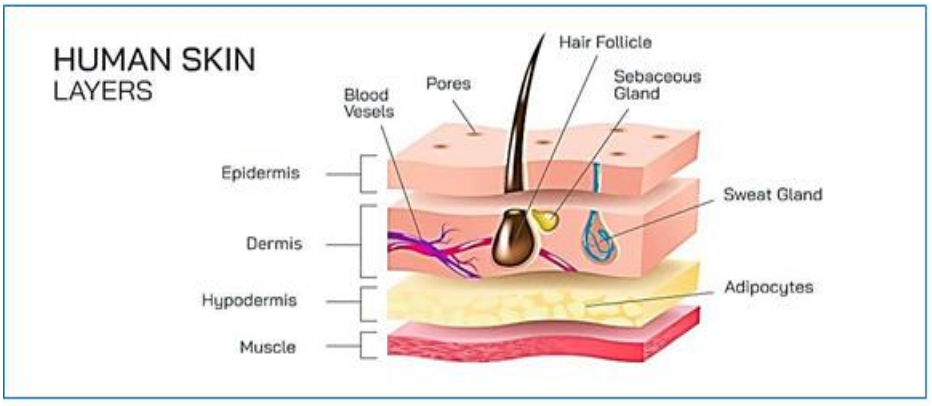

Fig No 1: Layers of skin.

Types of layers in skin

1. Epidermis
2. Dermis
3. Hypodermis

1. Epidermis

The epidermis represents the outermost layer of the skin, serving as the body's primary defense against germs, chemicals, and loss of water. Lacking blood vessels, it derives its nutrients from the underlying dermis. The predominant cells found in the epidermis are keratinocytes, which produce keratin and contribute to the formation of a robust protective

surface, and melanocytes, which generate melanin and impart color to the skin.

In thick skin, the epidermis consists of five sublayers, arranged from the deepest to the most superficial: stratum basale, stratum spinosum, stratum granulosum, stratum lucidum, and stratum corneum. The stratum basale is responsible for generating new skin cells, whereas the stratum corneum comprises dead, flattened cells that serve to protect the body. In contrast, the stratum lucidum is typically absent in thin skin.

The epidermis has five sublayers in thick skin

- Stratum basale, Stratum spinosum, Stratum granulosum, Stratum lucidum, Stratum corneum.

2. Dermis

The dermis acts as the supportive middle layer and is considerably thicker than the epidermis. It consists of connective tissue rich in collagen and elastin, which enhance the skin's strength, flexibility, and resilience. Moreover, the dermis contains blood vessels, lymphatic vessels, sensory nerves, hair follicles, sweat glands, and sebaceous glands. This layer is divided into the papillary dermis and the reticular dermis. The papillary dermis, being the uppermost layer, is involved in nourishing the epidermis, while the reticular dermis, situated deeper, provides most of the skin's tensile strength. Additionally, this layer is essential for sensation, as it is filled with numerous touch and pressure receptors.

The dermis has two parts

- Papillary dermis.
- Reticular dermis.

3. Hypodermis

The hypodermis, also referred to as subcutaneous tissue, is located beneath the dermis and is primarily composed of adipose tissue and loose connective tissue. Its role is to secure the skin to muscles and bones while allowing for a certain degree of movement. The fat stored in the hypodermis functions as an energy reserve, offers insulation to prevent heat loss, and provides cushioning that absorbs mechanical shocks. Therefore, the hypodermis is crucial for protection and the regulation of body temperature.

In summary, the skin is a multi-layered organ with distinct yet interrelated functions. The epidermis serves as a barrier; the dermis provides support and sensory perception, while the

hypodermis offers cushioning and insulation. Together, these layers ensure that the body is protected and functions efficiently.[10]

ADVANTAGES OF HERBAL MOISTURISING CREAM

- The main advantage of Herbal Moisturizer is that it enhances the skin dryness without any side effects
- It reduce the further chances of skin problems.
- Less grasy compaired to other ointments
- Moisturizing help your skin stay young
- With small quantity they are very effective as compare to synthetic cosmetic.
- Moisturizing can reduce the appearance of other Blemishes.
- Soothe sensitive skin
- Slow the signs of Aging.
- Help fight Acne.
- Protection from skin[4,22]

DISADVANTAGES OF HERBAL MOISTURISING CREAM

- Herbal Drugs have slower effects as compare to allopathic dosage form it required long term therapy.
- Most of herbal drugs are not easily available.
- They are difficult to hide taste and Odour.
- Less stable as compare to ointments[4]

DRUG AND EXCIPIENT PROFILE

API (Active Pharmaceutical Ingredient / Drug)

1. KOKUM BUTTER

Table No. 1: Kokum Butter.

Parameter	Details
Biological Source	Solid fat extracted by cold-pressing the dried kernels (seeds) of Garcinia indica Choisy (kokum tree)
Scientific Name	Garcinia indica (Choisy)
Synonym	Kokum fat, Goa butter, Mangosteen oil, Brindleberry butter, Kokum tallow
Family	Clusiaceae (Guttiferae)
Kingdom	Plantae
Uses (Cosmetic)	Emollient, deep skin moisturiser, skin softener, anti-inflammatory agent, promotes cell regeneration, heals chapped/cracked skin

Key Constituents	Stearic acid (53–56%), Oleic acid (39–41%), Palmitic acid (2–4%), Phytosterols, Polyphenols, Arachidic acid (trace)
Physical Appearance	White to pale yellow, hard solid butter with a waxy texture at room temperature
Procurement	Marketed (Commercially available)

Description: Kokum Butter is a hard, brittle, non-greasy vegetable fat obtained from the seeds of *Garcinia indica*, a tropical fruit-bearing tree native to the Western Ghats region of India. Its exceptionally high stearic acid content gives it a melting point close to body temperature, allowing it to melt smoothly on skin contact. It is highly valued in herbal cosmetics for its ability to restore skin elasticity, provide intensive moisture to dry and damaged skin, and promote the regeneration of skin cells. Unlike many other plant butters, Kokum Butter is non-comedogenic and suitable for acne-prone skin.[28]

Fig No. 2: Kokum Butter.

EXCIPIENTS

1. ALOE VERA GEL

Table No. 2: Aloe Vera Gel.

Parameter	Details
Biological Source	Clear mucilaginous gel obtained from the inner leaf parenchyma of Aloe barbadensis Miller
Scientific Name	Aloe barbadensis Miller
Synonym	Aloe vera, Aloe vulgaris, Barbados aloe, Curacao aloe
Family	Liliaceae (Asphodelaceae)
Uses	Soothing and cooling agent, moisturiser, anti-inflammatory, wound healer, pore minimiser, mild exfoliant
Key Constituents	Polysaccharides (acemannan), Vitamins (A, C, E, B12), Minerals (Zn, Mg, Ca), Amino acids, Enzymes (aliiase, bradykinase)
Physical Appearance	Colourless to pale yellow, transparent gel with slight characteristic odour
Procurement	Marketed (Commercially available)

Description: Aloe Vera Gel is a widely accepted and extensively studied natural ingredient for topical cosmetic and pharmaceutical preparations. In the present formulation, it functions

as a primary soothing and moisturising excipient. Its polysaccharide content creates a film-forming layer on the skin, which aids in moisture retention, while its anti-inflammatory constituents (bradykinase, C-glucosyl chromone) help reduce redness and irritation. The combination of Aloe Vera with Kokum Butter significantly enhances the overall moisturising and skin-calming efficacy of the cream.[16,20]

Fig No. 3: Aloe Vera Gel.

2. GLYCERINE

Table No. 3: Glycerine.

Parameter	Details
Biological Source	Derived from plant-based triglycerides via saponification of vegetable oils (coconut, palm, soybean) or as a by-product of biodiesel production
Scientific Name	Glycerol (1,2,3-Propanetriol)
Synonym	Glycerine, glycerol, glycyl alcohol, 1,2,3-propanetriol
Family	Polyol / Alcohol family
Uses	Humectant, skin conditioning agent, moisturiser, viscosity modifier, enhances spreadability and feel
Key Constituents	Pure glycerol (C3H8O3), molecular weight 92.09 g/mol
Physical Appearance	Clear, colourless, viscous liquid; odourless with a sweet taste
Procurement	Marketed (Commercially available)

Description: Glycerine is one of the most widely used and clinically validated humectants in dermatology and cosmetics. In the present formulation, it is incorporated at a concentration of 2% to provide sustained skin hydration by attracting moisture from the environment into the stratum corneum. It also improves the spreadability and sensory feel of the cream, ensuring smooth and even application on the skin surface. Glycerine's well-documented safety, broad compatibility, and hydration efficacy make it an indispensable excipient in herbal moisturising cream formulations.[17]

Fig. No. 4: Glycerine.

3. VITAMIN E (TOCOPHEROL)

Table No. 4: Vitamin E.

Parameter	Details
Biological Source	Derived from natural plant oils including wheat germ oil, sunflower oil, soybean oil, and maize oil through cold-pressing and distillation
Scientific Name	Alpha-tocopherol (most biologically active form)
Synonym	Tocopherol, DL-alpha-tocopherol, D-alpha-tocopherol, vitamin E acetate
Family	Fat-soluble vitamin / Tocopherol family
Uses	Antioxidant, photoprotective agent, skin conditioner, antiaging, promotes healing, natural preservative for formulation
Key Constituents	Alpha-tocopherol, beta-, gamma-, delta-tocopherols and tocotrienols
Physical Appearance	Clear to pale yellow, viscous oily liquid with mild characteristic odour
Procurement	Marketed (Commercially available)

Description: Vitamin E (alpha-tocopherol) is incorporated into the formulation at 0.5% as a dual-purpose ingredient — serving both as an active antioxidant for skin protection and as a natural preservative for the formulation itself. Its lipophilic nature allows it to integrate into the oil phase of the O/W emulsion alongside Kokum Butter, where it protects both the formulation lipids and the skin lipids from oxidative degradation. By neutralising free radicals at the skin surface and within the lipid bilayer of the stratum corneum, Vitamin E contributes to the antiaging and photoprotective profile of the herbal moisturizing cream.[18,21,24]

Fig No. 5: VITAMIN E.

4. ROSE WATER

Table No. 5: Rose Water.

Parameter	Details
Biological Source	Aqueous distillate obtained by steam distillation of fresh petals of Rosa damascena Mill.
Scientific Name	Rosa damascena Mill.
Synonym	Rose water, Damask rose water, Aqua Rosae
Family	Rosaceae
Kingdom	Plantae
Uses	Fragrance agent, natural astringent, skin pH balancer, antiinflammatory, toning, reduces redness and puffiness
Key Constituents	Phenylethyl alcohol, Geraniol, Citronellol, Linalool, Flavonoids, Terpenes
Physical Appearance	Clear, colourless liquid with a characteristic delicate rose fragrance
Procurement	Marketed (Commercially available)

Description: Rose water is added to the formulation as part of the aqueous phase, contributing both fragrance and functional skin benefits. Its mild astringent properties help tighten the skin and minimise the appearance of pores, while its anti-inflammatory and antioxidant constituents enhance the overall therapeutic profile of the cream. The use of rose water as a natural fragrance component eliminates the need for synthetic perfumes or artificial fragrance compounds, making the formulation completely natural and safe for regular use.[12]

Fig No. 6: Rose water.

5. BEESWAX Table No. 6: Beeswax.

Parameter	Details
Biological Source	Natural wax secreted by the wax glands of worker honeybees (Apis mellifera); formed into the hexagonal honeycomb structure
Scientific Name	Cera alba (White Beeswax) / Cera flava (Yellow Beeswax)
Synonym	White wax, yellow wax, cera alba, cera flava
Family / Origin	Animal origin (Hymenoptera)
Uses	Emulsifying agent, thickening agent, film-forming agent on skin, provides structure and consistency to cream
Key Constituents	Esters of fatty acids (~70%), Hydrocarbons (alkanes, ~14%), Free fatty acids (~13%), Alcohols (~1%)
Physical Appearance	White to pale yellow solid with waxy texture; pleasant characteristic honey-like odour
Procurement	Marketed (Commercially available)

Description: Beeswax is the structural backbone of the cream formulation, providing the mechanical stability and semi-solid consistency that defines a moisturising cream. As an emulsifying wax, it stabilises the interface between the oil phase (Kokum Butter, Vitamin E) and the aqueous phase (water, rose water, aloe vera gel), preventing phase separation and maintaining the physical integrity of the emulsion. Its filmforming property on the skin surface also contributes to occlusive moisture retention, complementing the humectant action of glycerine for a comprehensive moisturising effect.[13,19]

Fig No. 7: BEESWAX.

6. Methyl Paraben (PRESERVATIVE)

Table No. 7: Methyl Paraben.

Parameter	Details
Scientific Name	it occurs naturally in several fruits practically in blueberries
Synonym	Methyl hydroxy benzoate, methly hydroxybenzoate
Chemical Formula	esters of para-hydroxybenzoic acid, 4 hydroxybenzoic acid
Family	alky, para-hydroxybenzoic acid
Uses	Preservative
Physical Appearance	White
Procurement	Marketed (Commercially available)

Fig. No. 8: Methly Paraben.

Distilled Water

Category: Solvent.

Role in Formulation: Acts as the base of the cream, dissolving other water-soluble ingredients and providing moisture.

Benefits: Hydrates the skin without oiliness. Ensures product purity and prevents microbial contamination (compared to tap water).

PROCEDURE OF FORMULATING HERBAL MOISTURIZING CREAM

Step 1: Weighing of Ingredients

All the ingredients required for the formulation were weighed accurately using a digital weighing balance according to the formulation table. Clean and dry apparatus were used throughout the procedure to avoid contamination.

Step 2: Preparation of Aqueous Phase

Required quantity of distilled water was taken in a clean beaker and heated to about 70–75°C. Methylparaben was added into the heated water and stirred until completely dissolved. After that, glycerine and rose water were added slowly with continuous stirring to obtain a uniform and homogenous aqueous mixture.

Step 3: Preparation of Oil Phase

In another clean beaker, Kokum butter, beeswax, and emulsifying wax were taken together. The mixture was heated separately at 70–75°C until all the ingredients melted completely and formed a clear uniform oily phase.

Step 4: Emulsification

The hot oil phase was added gradually into the hot aqueous phase with continuous stirring.

The temperature of both phases was maintained during mixing to ensure proper emulsification and formation of a stable cream base.

Step 5: Homogenization

The prepared emulsion was stirred vigorously using a mechanical stirrer or glass rod to achieve proper homogenization. This step helped in obtaining a smooth, uniform, and stable cream without phase separation.

Step 6: Cooling of Cream

The cream was allowed to cool gradually while gentle stirring was continued continuously. Cooling was carried out until the temperature reached approximately 40°C.

Step 7: Addition of Heat-Sensitive Ingredients

After cooling, Vitamin E and Aloe vera gel were added to the cream. The mixture was stirred properly until all ingredients were completely incorporated and a smooth consistency was obtained.

Step 8: Filling and Storage

The prepared herbal moisturizing cream was transferred into clean and sanitized containers. The containers were properly closed and stored in a cool and dry place for further evaluation and use.[11,12]

FORMULA OF HERBAL MOISTURIZING CREAM (F1 – F6)

Table No. 8: Formula of Herbal Moisturizing Cream.

Sr. No.	Ingredients	Functions	F1	F2	F3	F4	F5	F6
1	**Kokum Butter**	Emollient	3gm	3gm	3.5 gm	3.5 gm	3.5 gm	3.5 gm
2	**Beeswax**	Thickener	0.90 gm	0.90 gm	1 gm	1 gm	1 gm	1 gm
3	**Emulsifying Wax**	Emulsifier	1.50 gm	1.50 gm	2 gm	2 gm	1.50 gm	1.50 gm
4	**Glycerine**	Humectant	1.50 ml	1.50 ml	1.50 ml	1.50 ml	1.50 ml	1.50 ml
5	**Aloe Vera Gel**	Soothing Agent	4.50 gm	4 gm	4 gm	3 gm	1.5 gm	1.5 gm
6	**Vitamin E**	Anti-Oxidant	0.30 gm	0.30 gm	0.30 gm	0.30 gm	0.40 gm	0.40 gm
7	**Methyl Paraben**	Preservative	0.40 gm	0.40 gm	0.40 gm	0.40 gm	0.40 gm	0.40 gm
8	**Rose Water**	Active Agent, Fragrance	3 ml	3 ml	3 ml	4 ml	4 ml	4 ml
9	**Distilled Water**	Solvent / Vehicle	15.25 ml	15.25 ml	12 ml	12 ml	13 ml	14 ml
10	**Total**		30gm	30gm	30gm	30gm	30gm	30gm

EVALUATION PARAMETER

a. **Physical evaluation:** This mostly serves to evaluate the cream's colour, odour, texture, and stability.
b. **Viscosity:** Basically, the purpose of this test is to determine how the ingredients in cream will behave in real life. Its primary purpose is to evaluate efficacy.
c. **Washability:** The quality of cream is also tested using this method. In this first of all we have to add small amount of cream which was applied on the hand. We must then wash with tap water after that.
d. **Irritancy:** The cream was applied on left hand dorsal side surface of 1 sq.cm and observed in equal intervals up to 24hrs for irritancy, redness and edema. The did not produce any irritation or redness on skin.
e. **Spreadability:** The spread ability test showed that the formulated cream has good spreadable property.
f. **Greasiness:** This test is mostly used to determine whether cream is greasy or oily in nature. We can conclude from the results that none of the formulations were greasy.
g. **pH test:** Basically, this is talking about how acidic different compounds are. The pH (cream) range is often between 4 and 7. Either a digital pH metre or pH paper was used to measure the results of this test.[13,23]
h. **Phase separation:** Prepared cream was kept in a closed container at a Temperature of 25 to 100 degree centigrade away from light Then phase separation was checked for 24 hour. Any change In phase separation observed. According to results no phase Separation was observed in all the formulations.[15]
i. **Stability Testing:** Stability testing is performed to check the physical stability and quality of the cream during storage. The prepared formulations were stored in closed containers and observed for changes in colour, odour, texture, consistency, and phase separation. No significant changes were observed, indicating good stability of the herbal moisturizing cream.[26]

OBSERVATIONS

After formulation and evaluation of herbal moisturizing cream, we observed following various types of results –

1. Result of physical evaluation

Table No. 9: Physical Evaluation.

Sr.No.	Parameters	F1	F2	F3	F4	F5	F6
1	Colour	Cream	Light yellow	Cream colour	Skin colour	Whitish colour	Cream colour
2	Odour	Pleasant	Pleasant	Pleasant	Pleasant	Pleasant	Pleasant
3	Texture	Smooth	Smooth	Smooth	Smooth	Smooth	Smooth
4	State	Semisolid	Semisolid	Semisolid	Semisolid	Semisolid	Semisolid

2. Irritability

After the application of the Herbal cream in all formulation, the irritability test shows no indication of Irritation.[14]

Table No. 10: Irritability.

Sr. No.	Formulation	Observations
1	F1	Non-irritant
2	F2	Non-irritant
3	F3	Non-irritant
4	F4	Non-irritant
5	F5	Non-irritant
6	F6	Non-irritant

3. Washability

Formulation was applied on the skin and then ease extends of washing with water was checked.

Table No. 11: Washability.

Sr. No.	Formulation	Observations
1	F1	Easily washable
2	F2	Easily washable
3	F3	Easily washable
4	F4	Easily washable
5	F5	Easily washable
6	F6	Easily washable

4. 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.[15]

Table No. 12: Greasiness.

Sr. No.	Formulation	Observations
1	F1	Slightly greasy
2	F2	greasy
3	F3	Slightly greasy
4	F4	Non-greasy
5	F5	Non-greasy
6	F6	Non-greasy

5. Determination of pH

The pH determination test is carried out to evaluate the acidity or alkalinity of a moisturizing cream. The pH of a cream is important because it affects the stability of the formulation and its compatibility with skin. A pH range of about 5 to 7 is generally considered suitable for skin creams.

Table No. 13: pH determination test.

Sr. No.	Formulation	Observations
1	F1	pH 5.5
2	F2	pH 5.1
3	F3	pH 5.9
4	F4	pH 4.6
5	F5	pH 5.2
6	F6	pH 4.9

6. Phase separation test

The phase separation test is performed to evaluate the physical stability of a moisturizing cream. It helps determine whether the oil phase and water phase of the cream remain uniformly mixed during storage or if they separate over time.

Table No. 14: Phase separation test.

Sr. No.	Formulation	Observations
1	F1	No phase separation
2	F2	No phase separation
3	F3	No phase separation
4	F4	No phase separation
5	F5	No phase separation
6	F6	No phase separation

7. Stability Testing

The stability testing of the formulated herbal moisturizing cream was carried out to evaluate the physical stability and appearance of the cream during storage. The prepared formulations (F1–F6) were stored in clean, closed containers at room temperature and observed for

changes in colour, odour, texture, phase separation, and consistency for a period of 7 days. The formulations were also kept at slightly elevated temperature conditions (around 40°C) to check the effect of temperature on the stability of the cream.

Table No. 15: Stability Test Observation.

Sr. No.	Formulation	Refrigerator Temp. (4 ± 2^0 C)	Room Temp. (25 ± 2^0C)	Result
1	F1	Stable	Stable	Good
2	F2	Stable	Highly Stable	Excellent
3	F3	Slightly Stable	Stable	Good
4	F4	Slightly Stable	Slightly Oily	Moderate
5	F5	Highly Stable	Highly Stable with Smooth Texture	Best
6	F6	Stable	Stable	Good

Final Product

Fig. No. 9: Final Formulation of Herbal Moisturizing Cream.

RESULT AND DISCUSSION

The herbal moisturizing cream formulations were successfully prepared using natural ingredients such as Kokum Butter, Aloe Vera Gel, Glycerine, Vitamin E, Rose Water, and Beeswax. All formulations showed acceptable physicochemical properties and good appearance characteristics.

The physical evaluation revealed that all formulations possessed pleasant odour, smooth texture, and semisolid consistency. The colour varied slightly among formulations due to differences in ingredient composition, but all creams showed good homogeneity and aesthetic appearance.

The pH of all formulations was found between 4.6 and 5.9, which is close to the normal skin pH and indicates suitability for topical application without causing irritation. The irritancy test showed that all formulations were non-irritant and safe for skin application.

Washability studies indicated that the creams were easily washable with water, suggesting good user convenience and non-sticky nature. Greasiness evaluation demonstrated that formulations F4, F5, and F6 were non-greasy and therefore may provide better consumer acceptability compared to slightly greasy formulations.

The phase separation and stability studies confirmed that all formulations remained stable during storage, with no signs of separation or instability. This indicates proper emulsification and compatibility among ingredients.

Overall, the formulated herbal moisturizing cream showed satisfactory moisturizing properties, smooth consistency, skin compatibility, and good stability. The presence of Kokum Butter and Aloe Vera Gel contributed significantly to skin hydration and softness, while Glycerine improved moisture retention and Vitamin E provided antioxidant protection. The study supports the use of herbal ingredients for preparing safe and effective moisturizing creams for daily skin care use.

The evaluation results revealed that formulation F5 showed optimum physicochemical properties with suitable pH, non-greasy nature, smooth texture, good washability, and excellent stability. F5 passed all evaluation parameters including irritancy, phase separation, and stability testing without showing any defects or skin irritation. Therefore, F5 was considered as the optimized and final formulation due to its superior performance, safety, stability, and suitability for regular topical application.

CONCLUSION

The present study successfully formulated and evaluated a herbal moisturizing cream using natural ingredients such as Kokum Butter, Aloe Vera Gel, Glycerine, Vitamin E, Rose Water, Beeswax, and other suitable excipients. The prepared cream was designed to provide effective moisturization, skin softening, hydration, and protection against dryness while minimizing the side effects commonly associated with synthetic cosmetic products.

The formulation was prepared as a stable oil-in-water (O/W) emulsion and evaluated for different physicochemical parameters including colour, odour, texture, homogeneity, pH,

spreadability, greasiness, washability, irritancy, and phase separation. The evaluation results showed that all formulations possessed smooth texture, pleasant odour, semisolid consistency, good spreadability, and acceptable skin pH range suitable for topical application. The formulations were easily washable and showed no signs of phase separation, indicating good physical stability.

The skin irritation test confirmed that the prepared herbal cream was non-irritant and safe for skin application. Among the prepared formulations, non-greasy and stable formulations showed better consumer acceptability and suitability for regular use. Kokum Butter played a major role in improving skin softness and moisture retention, while Aloe Vera Gel provided soothing and anti-inflammatory effects. Glycerine acted as an effective humectant, Vitamin E provided antioxidant protection, and Beeswax improved the consistency and stability of the cream.

Overall, the study concludes that the formulated herbal moisturizing cream is safe, stable, effective, and suitable for maintaining skin hydration and softness. The use of herbal ingredients makes the formulation a natural and economical alternative to synthetic moisturizing creams. Therefore, the developed cream can be recommended for daily skin care and protection against dry skin conditions.[25]

REFERENCES

1. Shah RN, Methal BM, A Hand book of Cosmetics.
2. Rawlings AV, Harding CR. Moisturization and skin barrier function. Dermatol Ther., 2004; 17: 43-8.
3. Marty JP. NMF and cosmetology of cutaneous hydration. Ann Dermatol Venereol, 2002; 129: 131-6.
4. Edward M. Jakson Moisturizers: What's in Them? How Do They Work?, 1992; 3(4).
5. M. Loden The clinical benefit of moisturizers, 2005.
6. Katherine Nolan, Ellen Marmur Moisturizers: Reality and the skin benefits, 2012.
7. A. V. Rawlings, David A. Canestrari. Moisturizer technology versus clinical performance, 2004.
8. Zeo Diana Draelos Md. Therapeutic Moisturizer, 2005.
9. Sethi, Anisha, Kaur, Moisturizer the slippery road, 2016.
10. Hani Yousef; Mandy Alhajj; Adebanjo O. Fakoya; Sandeep Sharma. Anatomy of skin epidermis, 2024.

11. Formulation and Evaluation of Herbal Moistiurizing Cream Kakade Sakshi Shivaji 1* Dr. Amol Navnath Khedkar, Assitant Prof. Kalyanee Gavande, Kakade Sakshi Vijay Departmant Of Pharmaceutical science, Saikrupa Institute of pharmacy Ghargaon, Ahmednagar, Maharashtra, India, 413728.
12. Formulation and Evaluation of a Herbal Moisturizing Cream Containing Aloe Vera. Vinayak D. Kale1 and Namrata L. Savalkar2 Assistant Professor, Department of Quality Assurance1 Student, JBVP'S Vidya Niketan College of Pharmacy, Lakhewadi. Indapur, Pune, Maharashtra, India2.
13. Formulation and Evaluation of Herbal Moisturizer Vaishnavi S. Chaudhari1, Shubham P. Jaiswal2, Sanjana S. Nagalkar3 Dhanashree K. Pawar41,3,4Student, Ishwar Deshmukh Institute of Pharmacy, Digras 2Assistant Professor, Department of Pharmaceutics, Ishwar Deshmukh Institute of Pharmacy, Digras.
14. "formulation and evaluation of multipurpose herbal cream" a research project submitted by ms. karishma umesh vast ms. aishwarya amar khadake ms. akshata ananda parit mr. kedar laxmansing rajput under the guidance of mr. s. d. gabale (assistant professor).
15. International Journal of Research in Pharmacy and Pharmaceutical Sciences www.pharmacyjournal.in ISSN: 2455-698X Received: 20-04-2023, Accepted: 06-05-2023, Published: 22-05-2023, 2023; 8(2): 74-77. Formulation and evaluation of herbal moisturizing cream Adake Dipali Sanjay Department of Pharmacognosy, Delonix Society', Baramati College of Pharmacy, Barhanpur, Maharashtra, India.
16. Draelos ZD. The science behind skin care: Moisturizers. Journal of Cosmetic Dermatology, 2018; 17(2): 138–144.
17. Lodén M. Role of topical emollients and moisturizers in the treatment of dry skin barrier disorders. American Journal of Clinical Dermatology, 2003; 4(11): 771–788.
18. Barel AO, Paye M, Maibach HI. Handbook of Cosmetic Science and Technology. 4th Edition, CRC Press, New York, 2014.
19. Eccleston GM. Functions of mixed emulsifiers and emulsifying waxes in dermatological lotions and creams. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 1997; 123–124: 169–182.
20. Surjushe A, Vasani R, Saple DG. Aloe vera: A short review. Indian Journal of Dermatology, 2008; 53(4): 163–166.
21. Ebrahimzadeh MA, Nabavi SF, Nabavi SM. Antioxidant activity of Vitamin E in dermatological formulations. Pharmacologyonline, 2013; 2: 80–88.

22. Kapoor VP. Herbal cosmetics for skin and hair care. Natural Product Radiance, 2005; 4(4): 306–314.
23. Ali SM, Yosipovitch G. Skin pH: From basic science to basic skin care. Acta DermatoVenereologica, 2013; 93(3): 261–267.
24. Puglia C, Bonina F. Effect of polyunsaturated fatty acids and Vitamin E in cosmetic formulations for skin protection. Journal of Cosmetic Dermatology, 2008; 7(2): 89–95.
25. Gavazzoni Dias MFR. Cosmetic dermatology and herbal products. Anais Brasileiros de Dermatologia, 2015; 90(4): 505–506.
26. Fernandes AR, Dario MF, Pinto CASO, Kaneko TM, Baby AR, Velasco MVR. Stability evaluation of organic herbal cosmetic formulations. Brazilian Journal of Pharmaceutical Sciences, 2013; 49(2): 245–253.
27. Kaur LP, Guleri TK. Topical gel: A recent approach for novel drug delivery. Asian Journal of Biomedical and Pharmaceutical Sciences, 2013; 3(17): 1–5.
28. Swami SB, Thakor NSJ, Patil MM, Haldankar PM. Kokum (Garcinia indica) and its many functional components as related to the human health: A review. Journal of Food Research and Technology, 2014; 2(4): 130–142.