



Research Article

Topic: Formulation and Evaluation of Poly Herbal Skin Care Cream

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The present study was focused on the formulation and evaluation of a Poly Herbal Skin Care Cream using natural herbal ingredients possessing beneficial effects on the skin. The cream was prepared using Neem extract, Tulsi extract, Papaya pulp, glycerine, lemon oil, rose oil, gum tragacanth, and distilled water. Herbal cosmetics have gained significant importance due to their safety, effectiveness, biocompatibility, and fewer side effects compared to synthetic cosmetic products. The selected herbal ingredients were chosen because of their antimicrobial, antioxidant, anti-inflammatory, moisturizing, skin nourishing, and wound healing properties. Neem and Tulsi extracts were incorporated for their antimicrobial and skin protective activities, while Papaya pulp was used for exfoliating and rejuvenating effects. Gum tragacanth served as a natural emulsifying and stabilizing agent, whereas glycerine acted as a humectant to maintain skin hydration. The cream was prepared by a simple homogenization method and evaluated for various physicochemical parameters including color, odor, appearance, pH, homogeneity, spreadability, washability, irritancy, viscosity, and stability. The formulated cream showed smooth texture, pleasant herbal odor, good homogeneity, satisfactory spreadability, and acceptable washability. The pH of the formulation was found to be 6.47, which is suitable for topical skin application. No irritation or phase separation was observed during evaluation studies. The study concluded that the formulated Poly Herbal Skin Care Cream is safe, stable, economical, and effective for skin care applications. The formulation demonstrated promising cosmetic and therapeutic benefits due to the synergistic activity of multiple herbal ingredients and may serve as a suitable alternative to synthetic skin care products.

Keywords: Poly Herbal Cream, Herbal Cosmetics, Neem Extract, Tulsi Extract, Papaya Pulp, Skin Care Cream, Herbal Formulation, Evaluation Parameters, Natural Cosmetics, Topical Preparation.

INTRODUCTION

1.1 Introduction to Herbal Cosmetics

Herbal cosmetics are products formulated using natural ingredients obtained from plants such as herbs, roots, leaves, flowers, fruits, and essential oils. These products are mainly used for enhancing beauty, maintaining healthy skin, and preventing various skin disorders without causing harmful side effects. Herbal cosmetics have gained significant popularity due to increasing awareness regarding the adverse effects of synthetic chemicals present in conventional cosmetic products. Skin is the largest organ of the human body

and acts as a protective barrier against environmental pollutants, microorganisms, ultraviolet radiation, and chemical substances. Proper skin care is essential for maintaining healthy and attractive skin. Herbal skin care formulations provide nourishment, hydration, protection, and rejuvenation to the skin through naturally active phytoconstituents such as flavonoids, tannins, alkaloids, glycosides, vitamins, and essential oils. A cream is a semisolid dosage form intended for external application on the skin. Herbal creams are commonly used for moisturizing, anti-aging, anti-inflammatory, antimicrobial, antioxidant, and skin-

lightening purposes. Poly herbal creams contain more than one herbal ingredient, which enhances therapeutic efficacy due to synergistic action among the herbs. These formulations are considered safer, economical, biodegradable, and compatible with the skin compared to synthetic preparations. In recent years, the demand for herbal cosmetic products has increased worldwide because consumers prefer natural and eco-friendly products. Herbal creams formulated with ingredients such as aloe vera, turmeric, neem, sandalwood, cucumber, licorice, and rose extract are widely used in skin care preparations. These herbs possess medicinal properties that help in soothing the skin, reducing acne, improving complexion, and preventing infections. The present project focuses on the formulation and evaluation of a poly herbal skin care cream using selected herbal ingredients with beneficial effects on the skin. The formulated cream will be evaluated for various parameters such as appearance, pH, spreadability, viscosity, homogeneity, washability, irritancy, and stability to ensure its quality, safety, and effectiveness.

1.2 History of Herbal Skin Care Preparations

The use of herbs and natural substances for skin care dates back to ancient civilizations. Since early times, humans have relied on medicinal plants and natural products for maintaining beauty and treating skin ailments. Herbal skin care preparations have been an important part of traditional systems of medicine such as Ayurveda, Unani, Siddha, Chinese medicine, and Egyptian medicine. In ancient Egypt, natural ingredients such as aloe vera, olive oil, honey, milk, and essential oils were used for maintaining healthy and glowing skin. Cleopatra, the queen of Egypt, was known for using herbal baths and natural cosmetics for beauty enhancement. Similarly, in ancient Greece and Rome, herbal oils, perfumes, and creams were commonly used for skin nourishment and protection. In India, Ayurveda has played a major role in the development of herbal cosmetics. Ayurvedic texts such as Charaka Samhita and Sushruta Samhita describe the use of herbs like turmeric, sandalwood, neem, saffron, and aloe vera for skin care and treatment of skin disorders. Traditional Indian women used herbal face packs, ubtans, and oils prepared from natural ingredients to maintain skin health and beauty.

Today, herbal skin care preparations are gaining worldwide acceptance because they are considered safer, more effective, and environmentally friendly. Modern herbal cosmetic industries combine traditional herbal knowledge with scientific research to develop advanced poly herbal formulations with improved quality and therapeutic benefits.

1.3 Importance of Poly Herbal Formulations

Poly herbal formulations are preparations containing two or more herbal ingredients combined in a definite proportion to achieve enhanced therapeutic activity. The concept of poly herbalism has been widely practiced in traditional systems of medicine such as Ayurveda because combining different herbs provides better efficacy compared to a single herb formulation. The major importance of poly herbal formulations lies in their synergistic effect. In synergism, the combined action of multiple herbs produces greater therapeutic benefits than individual herbs alone. Each herb contains various active phytoconstituents that contribute to different pharmacological activities such as antimicrobial, antioxidant, anti-inflammatory, moisturizing, and wound-healing effects. When these herbs are combined, they work together to improve the overall effectiveness of the formulation. Poly herbal skin care creams provide multiple benefits to the skin simultaneously. For example, aloe vera provides hydration and soothing action, neem possesses antimicrobial activity, turmeric acts as an anti-inflammatory and antioxidant agent, while sandalwood helps in cooling and improving complexion. The combination of such herbs helps in maintaining healthy skin and preventing skin disorders. Another important advantage of poly herbal formulations is reduced toxicity and side effects. Since herbal ingredients are natural in origin, they are generally safer and better tolerated by the skin. Combining herbs in suitable proportions may also reduce the dose of individual ingredients, thereby minimizing irritation and adverse reactions.

1.4 Advantages of Herbal Creams

Herbal creams are widely used in cosmetic and pharmaceutical preparations because of their natural origin and reduced side effects compared to synthetic products. These creams contain plant-based ingredients that provide nourishment, protection, and

therapeutic benefits to the skin. The major advantages of herbal creams are as follows:

1. Natural and Safe:

Herbal creams are prepared using natural plant extracts, which are generally safe and compatible with the skin.

2. Fewer Side Effects:

Unlike synthetic cosmetics, herbal creams cause minimal irritation, allergic reactions, or toxicity.

3. Skin Nourishment:

Herbal ingredients provide essential nutrients, vitamins, antioxidants, and minerals that help maintain healthy skin.

4. Moisturizing Effect:

Herbal creams help in maintaining skin hydration and prevent dryness.

5. Anti-aging Properties:

Many herbal ingredients possess antioxidant properties that reduce wrinkles, fine lines, and signs of aging.

6. Antimicrobial Activity:

Herbal extracts such as neem, turmeric, and aloe vera exhibit antibacterial and antifungal properties that protect the skin from infections.

7. Eco-friendly and Biodegradable:

Herbal products are environmentally friendly and biodegradable in nature.

1.5 Skin Structure and Functions

The skin is the largest organ of the human body and acts as a protective barrier against external

environmental factors. It covers the entire body and performs various physiological functions essential for maintaining health.

Structure of Skin

The skin consists of three major layers:

1. Epidermis

The epidermis is the outermost layer of the skin. It protects the body from microorganisms, chemicals, and dehydration. It contains keratinized cells and melanin pigments responsible for skin color.

2. Dermis

The dermis lies below the epidermis and contains connective tissues, blood vessels, nerves, sweat glands, sebaceous glands, and hair follicles. It provides strength, elasticity, and nourishment to the skin.

3. Hypodermis (Subcutaneous Layer)

This is the deepest layer of the skin composed mainly of adipose tissue and connective tissue. It helps in insulation, energy storage, and cushioning of internal organs.

Functions of Skin

- Protection against physical, chemical, and microbial damage.
- Regulation of body temperature.
- Prevention of water loss.
- Sensory perception such as touch, pain, and temperature.
- Synthesis of Vitamin D.
- Excretion of sweat and waste materials.
- Storage of fats and water.

Healthy skin is essential for maintaining proper body function and overall well-being.

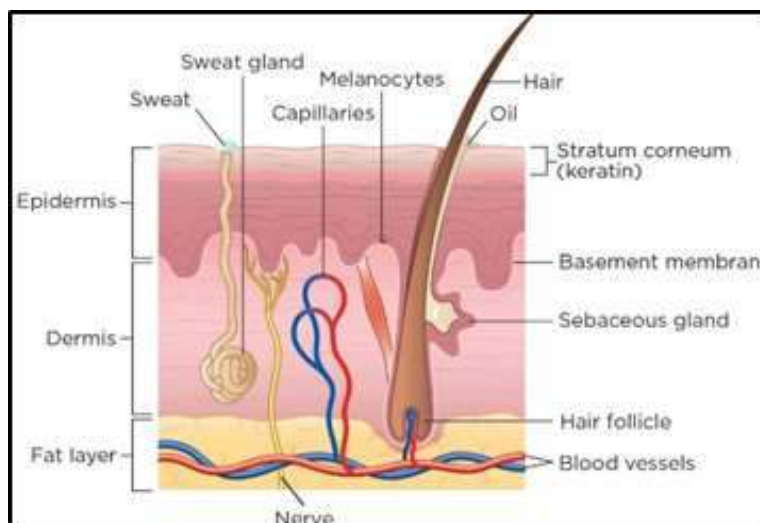


Figure 1 Skin Structure

1.6 Causes of Skin Disorders

Skin disorders are conditions that affect the appearance, structure, or function of the skin. These disorders may occur due to internal or external factors.

Common Causes of Skin Disorders

1. Microbial Infections

Bacterial, fungal, and viral infections can cause skin diseases such as acne, ringworm, and dermatitis.

2. Allergic Reactions

Certain cosmetics, chemicals, foods, and drugs may produce allergic skin reactions resulting in redness, itching, and inflammation.

3. Environmental Factors

Exposure to pollution, UV radiation, dust, and harsh climatic conditions can damage the skin.

4. Hormonal Imbalance

Hormonal changes during puberty, pregnancy, or stress may lead to acne and pigmentation.

5. Poor Hygiene

Improper skin care and poor hygiene can increase the risk of infections and skin irritation.

6. Nutritional Deficiency

Deficiency of vitamins, minerals, and essential fatty acids affects skin health and healing.

7. Stress and Lifestyle

Mental stress, lack of sleep, smoking, and unhealthy diet negatively affect the skin.

8. Genetic Factors

Certain skin disorders such as eczema and psoriasis may be hereditary.

1.7 Role of Herbal Ingredients in Skin Care

Herbal ingredients play a vital role in maintaining healthy skin due to their medicinal, antioxidant, antimicrobial, and anti-inflammatory properties. Natural herbs contain phytochemicals that help in protecting and rejuvenating the skin.

Role of Herbal Ingredients

Moisturizing Effect

Herbs such as Aloe vera and cucumber help in maintaining skin hydration and softness.

Antimicrobial Activity

Neem, turmeric, and tulsi possess antibacterial and antifungal properties that help prevent infections and acne.

Antioxidant Action

Herbs rich in flavonoids and phenolic compounds protect the skin from oxidative stress and premature aging.

Anti-inflammatory Property

Herbal ingredients reduce redness, irritation, and inflammation of the skin.

Wound Healing Activity

Certain herbs promote faster healing of cuts, burns, and damaged skin tissues.

Skin Brightening Effect

Natural ingredients help improve complexion and reduce pigmentation.

1.8 Scope of Herbal Cosmetic Industry

The herbal cosmetic industry is rapidly growing worldwide due to increasing consumer preference for natural and safer cosmetic products. People are becoming more aware of the harmful effects of synthetic chemicals present in conventional cosmetics.

Scope of Herbal Cosmetics

- Increasing demand for natural and organic skin care products.
- Rising awareness regarding side effects of synthetic cosmetics.
- Expansion of Ayurvedic and herbal product markets.
- Growing research and development in herbal formulations.
- Availability of medicinal plants and traditional knowledge.
- High market potential in pharmaceutical and cosmetic industries.
- Export opportunities for herbal cosmetic products.
- Increased acceptance of eco-friendly and sustainable products.

India has a rich heritage of medicinal plants and Ayurveda, which provides significant opportunities for the development of innovative herbal cosmetic formulations. Poly herbal creams have great commercial and therapeutic potential due to their effectiveness, safety, and consumer acceptance.

Formulation Table

Table 1 Formulation Table

Sr. No.	Ingredients	Quantity	Use
1	Neem Extract	3 gm	Helps to fight skin infections, promotes wound healing, and acts as anti-aging agent
2	Tulsi Extract	3 gm	Prevents blackheads, acne, and relieves skin infections
3	Papaya Pulp	10 gm	Exfoliates dead skin cells and eases skin impurities
4	Glycerine	2 ml	Used as humectant
5	Lemon Oil	1.5 ml	Anti-microbial agent
6	Rose Oil	1 ml	Used for fragrance
7	Gum Tragacanth	4.5 gm	Used as emulsifier and stabilizer
8	Distilled Water	30 ml	Used as vehicle

MATERIAL AND METHOD OF PREPARATION

1. Neem Extract

Biological Source

Neem consists of the dried leaves, bark, seeds, and oil obtained from *Azadirachta indica* belonging to the family **Meliaceae**.

Synonyms

- Neem
- Indian Lilac
- Margosa

Scientific Classification

Table 2 Scientific Classification of Neem

Category	Details
Botanical Name	<i>Azadirachta indica</i>
Family	Meliaceae
Kingdom	Plantae
Part Used	Leaves, Seeds, Bark, Oil

Chemical Constituents Neem contains various active phytoconstituents such as:

- Nimbidin
- Nimbin
- Azadirachtin
- Quercetin
- Gedunin
- Flavonoids
- Tannins
- Saponins
- Essential oils

Description

Neem is a well-known medicinal plant widely used in herbal and cosmetic preparations. It possesses strong antimicrobial, anti-inflammatory, antioxidant, and wound healing properties. Neem extract is commonly incorporated into skin care creams for the treatment of acne, pimples, skin infections, dryness, and irritation.

Role of Neem Extract in Poly Herbal Skin Care Cream

Table 3 Role of Neem Extract in Poly Herbal Skin Care Cream

Property	Function
Antibacterial Activity	Prevents bacterial skin infections and acne
Antifungal Activity	Protects skin from fungal infections
Anti-inflammatory Action	Reduces redness, irritation, and swelling
Antioxidant Property	Protects skin from oxidative damage and aging
Wound Healing Property	Promotes healing of damaged skin
Skin Purifying Action	Removes impurities and excess oil

Uses of Neem Extract in Cosmetics

- Anti-acne creams
- Face wash
- Herbal soaps
- Moisturizers
- Skin protection creams
- Anti-aging formulations

Neem extract should be stored in a cool, dry place away from direct sunlight in tightly closed containers to prevent degradation of active constituents.

Advantages of Neem Extract

1. Natural and safe herbal ingredient
2. Effective against acne-causing microorganisms
3. Helps maintain healthy skin
4. Reduces skin irritation and inflammation
5. Provides antioxidant protection

Storage



Figure 2 Neem Extract

2. Tulsi Extract

Synonyms

Biological Source Tulsi consists of the fresh and dried leaves of *Ocimum sanctum* Linn. (also known as *Ocimum tenuiflorum*), belonging to the family **Lamiaceae**.

- Holy Basil
- Sacred Basil
- Tulasi

Scientific Classification

Table 4 Scientific Classification

Category	Details
Kingdom	Plantae
Family	Lamiaceae
Genus	Ocimum
Species	<i>Ocimum sanctum</i>

Chemical Constituents

Tulsi contains various active constituents such as:

- Eugenol
- Ursolic acid
- Rosmarinic acid
- Carvacrol
- Linalool
- Flavonoids
- Tannins
- Saponins
- Essential oils

Tulsi is an aromatic medicinal herb widely used in Ayurvedic preparations. The leaves possess strong antimicrobial, antioxidant, anti-inflammatory, and healing properties beneficial for skin care formulations.

Uses in Poly Herbal Skin Care Cream

- Helps prevent acne and pimples
- Reduces skin infections
- Provides antioxidant protection
- Helps soothe skin irritation and inflammation
- Improves skin freshness and glow
- Acts as a natural antimicrobial agent

Description

Pharmacological Activities

Table 5 Pharmacological Activities Tulsi

Activity	Role
Antimicrobial	Prevents bacterial and fungal growth
Anti-inflammatory	Reduces redness and irritation
Antioxidant	Protects skin from oxidative damage
Antiseptic	Prevents skin infections
Wound Healing	Promotes repair of damaged skin

Advantages in Skin Care Formulation

- Natural and safe herbal ingredient
- Suitable for sensitive skin
- Less side effects compared to synthetic chemicals
- Enhances therapeutic value of cream
- Improves overall skin health

Tulsi extract should be stored in a well-closed container, protected from light, moisture, and excessive heat.

Storage



Figure 3 Tulsi Extract

3 Papaya Pulp

- **Common Name** Papaya

- **Biological Name** *Carica papaya*
- **Family** Caricaceae
- **Synonyms** Pawpaw, Papita

Papaya is a tropical fruit widely used in herbal cosmetic and skin care formulations due to its exfoliating, moisturizing, antioxidant, and skin rejuvenating properties. The pulp of ripe papaya contains enzymes, vitamins, and minerals that help maintain healthy skin and improve complexion.

Taxonomical Classification

Table 6 Taxonomical Classification of papaya

Category	Classification
Kingdom	Plantae
Division	Magnoliophyta
Class	Magnoliopsida
Order	Brassicales
Family	Caricaceae
Genus	<i>Carica</i>
Species	<i>Carica papaya</i>

Source

Papaya pulp is obtained from the ripe fruits of *Carica papaya*.

Geographical Source Papaya is commonly cultivated in:

- India
- Brazil
- Mexico
- Sri Lanka
- Indonesia
- Tropical and subtropical regions worldwide

Papaya pulp contains:

- Papain enzyme
- Chymopapain
- Vitamin A
- Vitamin C
- Vitamin E
- Flavonoids
- Carotenoids
- Lycopene
- Potassium
- Magnesium

Properties of Papaya Pulp

Chemical Constituents

Table 7 Properties of Papaya Pulp

Property	Function
Exfoliating	Removes dead skin cells
Antioxidant	Protects skin from free radicals
Moisturizing	Maintains skin hydration
Skin Brightening	Improves skin complexion
Anti-aging	Reduces wrinkles and fine lines
Healing Property	Supports skin repair

Uses in Poly Herbal Skin Care Cream

1. Helps remove dead skin cells.
2. Improves skin smoothness and softness.
3. Reduces acne marks and blemishes.
4. Enhances natural skin glow.
5. Provides nourishment to the skin.
6. Acts as a natural skin rejuvenator.

Role in Formulation

In Poly Herbal Skin Care Cream, papaya pulp acts as:

- Natural exfoliating agent
- Skin nourishing agent
- Moisturizing component
- Anti-aging ingredient

Advantages

- Natural and safe for skin
- Rich source of vitamins
- Suitable for herbal cosmetic formulations
- Improves texture of cream
- Enhances skin appearance naturally

Storage

Papaya pulp should be stored:

- In airtight containers
- At cool temperature
- Away from direct sunlight
- Under hygienic conditions to avoid microbial contamination



Figure 4 papaya pulp

4. Glycerine

Table 8 All Information about Glycerine

Parameter	Information
Name	Glycerine / Glycerol
Category	Humectant
Chemical Formula	$C_3H_8O_3$
Molecular Weight	92.09 g/mol
Nature	Colorless, odorless, sweet, viscous liquid
Source	Obtained from vegetable oils and animal fats
Solubility	Freely soluble in water and alcohol
pH	Neutral to slightly acidic
Role in Cream Formulation	Moisturizing agent and skin softener
Function in Herbal Cream	Helps retain moisture in skin and prevents dryness
Mechanism of Action	Attracts water from the environment and deeper skin layers to hydrate the skin surface
Advantages	Improves skin hydration, enhances smoothness, increases spreadability, and prevents cracking of cream
Uses in Cosmetics	Used in creams, lotions, soaps, moisturizers, face wash, and ointments
Skin Benefits	Maintains skin elasticity, softens rough skin, and provides soothing effect
Concentration Used	2 ml
Appearance in Formulation	Provides smooth texture and glossy appearance
Storage Condition	Store in tightly closed container at room temperature
Safety Profile	Safe and non-irritant when used in suitable concentration
Incompatibility	Strong oxidizing agents
Importance in Present Study	Acts as a humectant in Poly Herbal Skin Care Cream and improves moisturizing efficiency and overall stability of the formulation



Figure 5 Glycerine

Introduction

Lemon oil is a natural essential oil obtained mainly from the peel of lemon fruits (*Citrus limon*). It is widely used in herbal cosmetic and skin care formulations due to its antimicrobial, antioxidant, cleansing, and refreshing properties. In poly herbal skin care cream, lemon oil improves skin appearance, reduces excess oil, and provides a pleasant fragrance.

Biological Source

5. Lemon Oil

Table 9 Biological Source of Lemon Oil

Parameter	Information
Biological Name	<i>Citrus limon</i>
Family	Rutaceae
Common Name	Lemon
Part Used	Fruit Peel
Nature	Essential Oil

Synonyms

- Citrus Oil
- Lemon Essential Oil
- Lemon Peel Oil

1. Cold Pressing Method

2. Steam Distillation Method

The oil is extracted mainly from the outer peel of fresh lemons.

Method of Extraction

Lemon oil is generally obtained by:

Chemical Constituents

Table 10 Chemical Constituents of lemon oil

Sr. No.	Chemical Constituent	Activity
1	Limonene	Antioxidant and fragrance
2	Citral	Antimicrobial activity
3	Linalool	Soothing effect
4	β -Pinene	Anti-inflammatory action
5	Terpineol	Skin conditioning agent

Properties of Lemon Oil

Table 11 Properties of Lemon Oil

Property	Description
Appearance	Pale yellow liquid
Odor	Fresh citrus smell
Solubility	Soluble in alcohol and oils
Nature	Volatile oil
pH Nature	Slightly acidic

Uses of Lemon Oil in Poly Herbal Skin Care Cream

1. Acts as an antimicrobial agent.
2. Helps reduce acne and skin infections.
3. Removes excess oil from the skin.
4. Provides refreshing fragrance.
5. Helps in skin cleansing and toning.
6. Possesses antioxidant activity that protects skin from damage.

- Natural skin cleanser
- Improves skin freshness
- Helps brighten dull skin
- Reduces bacterial growth on skin
- Enhances fragrance of cream formulation

Role in Formulation

In the formulated Poly Herbal Skin Care Cream, lemon oil acts mainly as:

Advantages of Lemon Oil

Table 12 Role of lemon oil in formulation

Function	Role
Antimicrobial Agent	Prevents microbial growth
Fragrance Agent	Provides pleasant aroma
Skin Cleansing Agent	Removes impurities and oil

Storage

Lemon oil should be stored:

- In airtight containers
- Away from sunlight
- In a cool and dry place

Precautions

1. Use in suitable concentration to avoid skin irritation.
2. Avoid direct exposure to sunlight immediately after application due to photosensitivity.
3. Store properly to prevent oxidation of oil.



Figure 6 Lemon oil

6. Rose Oil

Introduction

Rose oil is a natural essential oil obtained from the petals of roses, mainly *Rosa damascena* and *Rosa centifolia*. It is widely used in herbal cosmetics and skin care formulations because of its pleasant fragrance, soothing effect, and skin nourishing properties.

General Information of Rose Oil

Table 13 General Information of Rose Oil

Parameter	Information
Common Name	Rose Oil
Biological Source	Obtained from fresh petals of <i>Rosa damascena</i>
Family	Rosaceae
Type	Essential Oil

Appearance	Pale yellow to light golden liquid
Odor	Pleasant characteristic rose fragrance
Nature	Volatile aromatic oil
Method of Extraction	Steam distillation
Solubility	Soluble in alcohol and oils
Storage	Store in airtight container away from light and heat

Chemical Constituents of Rose Oil

Table 14 Chemical Constituents of Rose Oil

Sr. No.	Chemical Constituents
1	Citronellol
2	Geraniol
3	Nerol
4	Phenyl Ethyl Alcohol
5	Farnesol
6	Eugenol

Uses of Rose Oil in Poly Herbal Skin Care Cream

Table 15 Uses of Rose Oil in Poly Herbal Skin Care Cream

Sr. No.	Uses
1	Provides pleasant fragrance
2	Acts as skin soothing agent
3	Helps in moisturizing the skin
4	Reduces skin irritation and redness
5	Gives cooling and refreshing effect
6	Improves skin texture and softness

Advantages of Rose Oil in Skin Care Formulation

- Natural fragrance enhancer
- Suitable for sensitive skin
- Possesses mild antimicrobial activity
- Helps maintain skin hydration
- Improves overall acceptability of cream formulation

Role of Rose Oil in Present Formulation

In the present study, Rose oil was used as a fragrance and skin conditioning agent in the Poly Herbal Skin Care Cream. It improved the aroma, soothing effect, and cosmetic elegance of the formulation while providing mild moisturizing and calming action on the skin.



Figure 7 Rose oil

7. Gum Tragacanth

Introduction

Gum Tragacanth is a natural gum obtained from the dried gummy exudation of various species of *Astragalus*. It is widely used in pharmaceutical,

cosmetic, and food formulations as a thickening, suspending, stabilizing, and emulsifying agent.

General Information of Gum Tragacanth

Table 16 General Information of Gum Tragacanth

Parameter	Information
Biological Source	Dried gummy exudate obtained from <i>Astragalus gummifer</i> and related species
Family	Fabaceae
Common Name	Gum Tragacanth
Synonyms	Tragacanth Gum
Nature	Natural polysaccharide
Appearance	White to cream-colored flakes, ribbons, or powder
Odor	Odorless
Taste	Mucilaginous
Solubility	Swells in water to form colloidal gel; insoluble in alcohol
Category	Natural emulsifier and stabilizer
pH	Approximately 5–6
Storage Condition	Store in airtight container in cool and dry place

Chemical Constituents

Gum Tragacanth mainly contains:

- Bassorin
- Tragacanthin

- Arabinose
- Galacturonic acid
- Xylose
- Starch-like polysaccharides

Properties of Gum Tragacanth

Table 17 Properties of Gum Tragacanth

Property	Description
Thickening Property	Increases viscosity of formulation
Emulsifying Property	Helps in formation of stable emulsion
Stabilizing Property	Prevents phase separation
Suspending Property	Keeps ingredients uniformly dispersed
Non-toxic Nature	Safe for topical use
Biocompatibility	Compatible with herbal ingredients

Uses of Gum Tragacanth in Poly Herbal Skin Care Cream

1. Used as a **natural emulsifying agent**.
2. Provides **smooth consistency** to the cream.
3. Improves **stability** of the formulation.

Advantages of Gum Tragacanth

- Natural and biodegradable
- Non-irritant to skin
- Safe for cosmetic preparations
- Good viscosity enhancer
- Compatible with herbal extracts
- Provides long-term stability

Role in Present Formulation

In the present study on *Formulation and Evaluation of Poly Herbal Skin Care Cream*, Gum Tragacanth was used as a natural stabilizer and emulsifier to obtain a smooth, homogeneous, and stable cream formulation with good consistency and spreadability.

**Figure 8 Gum Tragacanth****8. Distilled Water****Table 18 All information about Distilled Water**

Parameter	Information
Ingredient Name	Distilled Water
Category	Vehicle / Solvent
Chemical Formula	H ₂ O
Appearance	Clear, colorless, odorless liquid
Nature	Purified water free from dissolved impurities and microorganisms
Role in Formulation	Used as aqueous phase and vehicle for preparation of cream
Function in Herbal Cream	Helps in dissolving and dispersing water-soluble ingredients uniformly
Advantages	Non-toxic, non-irritant, stable, and compatible with most pharmaceutical and cosmetic ingredients
Solubility	Miscible with many hydrophilic substances
pH	Approximately 6.5 – 7.0
Storage Condition	Store in clean, tightly closed container at room temperature
Uses in Cosmetics	Used in creams, lotions, gels, ointments, shampoos, and herbal formulations
Safety Profile	Safe for topical application and generally non-reactive
Importance in Formulation	Maintains consistency, smooth texture, and uniformity of cream
Quantity Used in Formulation	30 mL
Mechanism of Action	Acts as carrier medium for active herbal ingredients and improves spreadability of cream

METHOD OF PREPARATION**Step 1: Collection and Weighing of Ingredients****Table 19 weighing of ingredients**

Ingredient	Quantity
Neem Extract	3 gm
Tulsi Extract	3 gm
Papaya Pulp	10 gm
Glycerine	2 ml
Lemon Oil	1.5 ml
Rose Oil	0.5 ml
Gum Tragacanth	4.5 gm
Distilled Water	30 ml

Accurately weigh all the required ingredients according to the formulation table.

Step 2: Preparation of Aqueous Base

Take 30 ml of distilled water in a clean beaker. Slowly add gum tragacanth with continuous stirring to avoid lump formation. Allow it to soak and swell properly to form a smooth gel base.

Step 3: Preparation of Herbal Mixture

In another clean beaker, add Neem extract and Tulsi extract. Mix properly using a glass rod until a uniform mixture is obtained.

Step 4: Addition of Papaya Pulp

Add fresh papaya pulp to the herbal extract mixture and stir continuously to obtain a homogeneous herbal paste.

Step 5: Addition of Humectant

Add glycerine slowly into the herbal paste and mix thoroughly. Glycerine acts as a moisturizing and softening agent.

Step 6: Addition of Essential Oils

Add lemon oil followed by rose oil into the prepared mixture with continuous stirring for proper distribution and fragrance.

Step 7: Incorporation into Base

Gradually add the prepared herbal mixture into the gum tragacanth gel base with continuous stirring and homogenization until a smooth semisolid cream consistency is achieved.

Step 8: Homogenization

Continue stirring the cream for 10–15 minutes to ensure uniform mixing and proper emulsification of all ingredients.

Step 9: Evaluation of Cream

The prepared cream was evaluated for:

- Color
- Odor
- Texture
- pH
- Spreadability
- Viscosity
- Washability
- Homogeneity
- Irritancy
- Stability

Step 10: Packaging and Storage

Transfer the prepared Poly Herbal Skin Care Cream into clean, dry, airtight containers and store at room temperature away from direct sunlight.

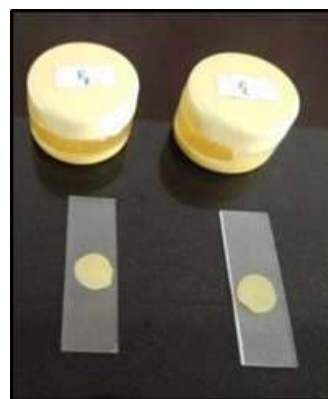


Figure 9 Formulation F1 And F2



Figure 10 Packaging Label

Evaluation of Herbal Skin Cream

Evaluation of Herbal Skin Care Cream

❖ **Colour:** - Visually observed

Observation: - ceramic reddish yellow colour

❖ **Odour:** - Smelled manually

Observation: - Pleasant herbal odour

❖ **Appearance:** - Checked visually



Figure 11 Evaluation of Colour, Odour, and Appearance

Observation: - Smooth and homogeneous cream

2. PH Determination

The pH of the cream was determined using a digital pH meter.



Figure 12 PH Determination

Observation: -

pH **6.47** is considered suitable for skin application.

3. Homogeneity Test

The cream was tested by visual appearance and touch.

Observation:

The cream should show good homogeneity without lumps.

4. Washability

Washability was determined by applying cream on the skin and washing with tap water.



Figure 13 Homogeneity Test and Washability Test

Observation: - The cream should be easily washable without leaving excessive oily residue.

5. Spreadability: -

Spread on glass slide



Figure 14. Spreadability test

Observation: - Easily spreadable

6. Irritancy Test

The formulation was checked for skin irritation.



Figure 15 Irritancy Test

Observation:

No irritation or redness should be observed.

Table 20 Evaluation Results

Sr. No.	Evaluation Parameter	Observation	Result
1	Colour	Ceramic reddish yellow colour	Acceptable
2	Odour	Pleasant herbal odour	Acceptable
3	Appearance	Smooth and homogeneous cream	Good
4	pH	6.47	Suitable for skin
5	Homogeneity	No lumps observed	Good homogeneity
6	Washability	Easily washable	Good
7	Spreadability	Easily spreadable	Satisfactory
8	Irritancy Test	No redness or irritation observed	Non-irritant
9	Stability	No phase separation observed	Stable formulation

Overall, the formulated Poly Herbal Skin Care Cream demonstrated good physicochemical properties, satisfactory stability, and acceptable cosmetic characteristics. The synergistic action of herbal ingredients provided moisturizing, antimicrobial, antioxidant, soothing, and skin nourishing effects, making the formulation suitable for routine skin care applications.

CONCLUSION

The present study on “Formulation and Evaluation of Poly Herbal Skin Care Cream” was successfully carried out using various herbal ingredients such as Neem extract, Tulsi extract, Papaya pulp, Lemon oil, and Rose oil. The prepared formulation was found to possess good appearance, smooth texture, pleasant odor, satisfactory spreadability, proper viscosity, and good homogeneity. The evaluation studies showed that the formulated cream had suitable pH for skin application, good washability, and did not produce any irritation or adverse effects on the skin. Stability studies indicated that the formulation remained stable

RESULT

The Poly Herbal Skin Care Cream was successfully formulated using Neem extract, Tulsi extract, Papaya pulp, Glycerine, Lemon oil, Rose oil, Gum tragacanth, and Distilled water. The prepared cream was evaluated for various physicochemical and stability parameters. The obtained results indicated that the formulation possessed satisfactory characteristics suitable for topical skin application.

without phase separation or significant changes in physical characteristics during storage. The use of herbal ingredients provides natural skin protection, moisturizing effect, antimicrobial activity, and nourishment with minimal side effects compared to synthetic cosmetic products. Therefore, the formulated Poly Herbal Skin Care Cream can be considered safe, effective, economical, and suitable for topical application.

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