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A Review on Formulated Herbal cream

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ABSTRACT

Herbal creams represent a vital intersection of traditional botanical knowledge and modern dermatological science. This overview explores the formulation principles, therapeutic potential, and scientific validation of herbal creams developed using a range of medicinal plants. Seventeen herbs including Aloe barbadensis, Azadirachtaindica, Ocimum sanctum, Curcuma longa, and Calendula officinalis were selected based on their documented antimicrobial, anti-inflammatory, antioxidant, and wound-healing properties. The herbal cream was prepared using emulsion-based methods and evaluated for key physical attributes such as spreadability, pH, and stability. Furthermore, its efficacy was tested through in vitro antibacterial studies using agar well and disc diffusion techniques against pathogens like Staphylococcus aureus and Escherichia coli, showing notable zones of inhibition. The findings support the growing relevance of polyherbal topical formulations as safe, natural alternatives to synthetic products, reinforcing their value in both cosmetic and therapeutic skin care.

KEYWORDS: Herbal cream,anti-bacterial studies, anti-microbial studies, anti-fungal studies.

I. INTRODUCTION

Herbal creams have become increasingly popular in modern skincare due to their natural origin, reduced side effects, and therapeutic efficacy [(1)]. These formulations are semisolid emulsions applied topically, combining herbal extracts with a suitable base to treat various skin disorders and maintain overall skin health[(2)]. Unlike chemical-based cosmetics, herbal creams aim to nourish the skin while also offering medicinal properties rooted in traditional systems such as Ayurveda, Siddha, and Unani [(3)].

Common herbs used in these creams include Aloe vera, Amla, Tulsi, Neem, and Cucumber peel, all of which are known for their bioactive compounds such as flavonoids, alkaloids, phenols, and tannins [(4)]. These phytochemicals contribute to antibacterial, antifungal, antioxidant, and anti-inflammatory effects, making herbal creams suitable for addressing conditions like acne, eczema, dryness, hyperpigmentation, and minor wounds[(5)].For instance, Aloe vera is rich in vitamins, enzymes, and amino acids that support hydration, soothe irritation, and assist in skin regeneration [(6)]. Amla is valued for its high vitamin C content and anti-aging potential, while cucumber peels provide a cooling effect and improve skin tone through their silica and flavonoid composition [(7)].

These herbal formulations are generally made as oil-in-water (O/W) emulsions, offering advantages like better skin absorption, non-greasiness, and easy wash-ability [(8)]. Additionally, their minimal risk of causing irritation or allergic reactions makes them a safer alternative to synthetic creams [(9)]. With rising consumer demand for clean-label, natural skincare products, herbal creams are gaining attention for their ability to blend traditional remedies with contemporary cosmetic science [(10)].

Commonly Used Ingredients in Herbal Creams[(11)]

Herbal creams are prepared by blending medicinal plant extracts with suitable semi-solid bases that support absorption and stability. These ingredients are selected based on their therapeutic action, skin compatibility, and role in the formulation. Typically, an herbal cream contains:

- Aloe vera
- Neem
- Turmeric
- Tulsi
- Calendula
- Emulsifying wax
- Glycerine
- Coconut oil

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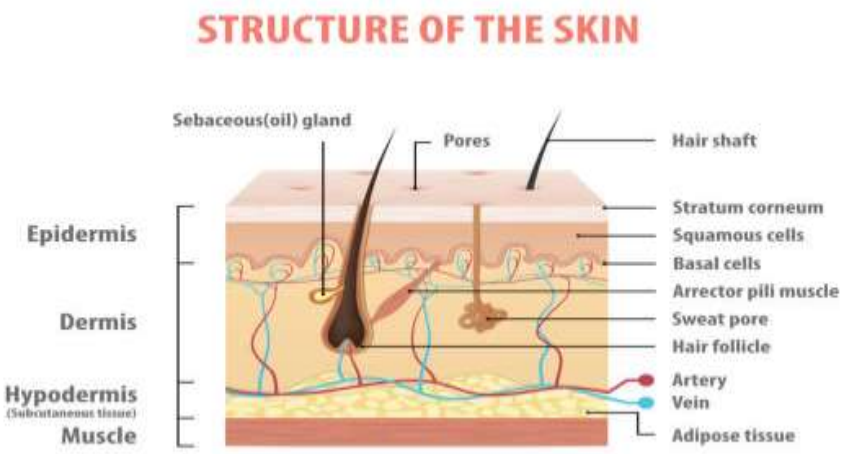
- Shea butter
- Vitamin E

ANATOMY OF SKIN[12]

The skin is the largest organ of the human body, forming a continuous protective layer that separates the internal environment from the external world. It performs several essential functions such as regulation of body temperature, sensory perception, prevention of water loss, and defence against pathogens and mechanical injury. Structurally, the skin is composed of three main layers: the **epidermis**, **dermis**, and **hypodermis**, each containing specific components that contribute to the skin's overall function.



HUMAN SKIN LAYERS[13]

1. EPIDERMIS LAYER

The outermost layer, the epidermis, is mainly made up of stratified squamous epithelial cells. It is a non-vascular layer responsible for forming the primary barrier to environmental elements. The stratum corneum, the topmost layer, is made up of dead keratinised cells that are frequently shed and replaced. Beneath this are

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multiple living layers, including the stratum basale, where new cells are generated. Specialized cells within the epidermis include melanocytes, which produce melanin responsible for pigmentation, and Langerhans cells, which participate in immune defence.

2. DERMIS LAYER

Beneath the epidermis lies the dermis, a dense connective tissue layer that provides structural strength and elasticity. It contains collagen and elastin fibres, as well as a rich supply of blood vessels, lymphatic vessels, and nerve endings. Within the dermis are sweat glands, which aid in thermoregulation; sebaceous glands, which secrete sebum to lubricate the skin; and hair follicles surrounded by erector pili muscles. The dermis supports both the functional and nutritional needs of the epidermis and houses sensory receptors responsible for detecting pressure, pain, and temperature.

3. HYPODERMIS LAYER

The hypodermis, also known as the subcutaneous layer, lies beneath the dermis and is primarily composed of adipose tissue and loose connective tissue. This layer serves as an energy store, shock absorbent, and thermal insulator. It also assists in anchoring the skin to underlying muscles and bones while supporting the passage of larger blood vessels and nerves that extend into the dermis.

Note: Overall, the skin is a highly organized, multi-layered organ that plays a crucial role in both physiological regulation and protective function. Each layer and structure contribute to maintaining internal homeostasis and adapting to external changes.

TYPES OF SKINS AND ITS BASIC CARE [(14)]

Skin types vary from person to person due to genetics, climate, diet, age, and lifestyle factors. Identifying the correct skin type is essential before selecting skincare routines or topical applications. Generally, human skin is classified into five main types: **normal**, **oily**, **dry**, **combination**, and **sensitive**. Each skin type has unique characteristics and requires specific care strategies to maintain its health and balance.

1. NORMAL SKIN

Characteristics: Smooth, well-balanced, and evenly textured.Not too oily or dry, with minimal blemishes.Pores are small and barely visible.
Basic Care: Use mildcleanser, apply lightweight moisturizers, protect with sunscreen, avoid over-exfoliation, Maintain hydration.

2. OILY SKIN

Characteristics: Very shine, particularly in theforehead, nose, and chin. Enlarged pores and prone to acne and blackheads. Caused by overactive sebaceous glands.
Basic care: Use herbal face wash with neem or lemon, apply oil-free gel or lotion, avoidcomedogenicproducts, Use clay-based face packs, Rinse with cool water.

3. DRY SKIN

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Characteristics: Flaky, rough, or tight feeling.Low oil production, often leading to irritation.Visible fine lines and dull complexion.
Basic care: Use alcohol-free cleansers, apply moisturizing creams with glycerine or aloe vera, Avoid hot water on the face, use hydrating masks, Protect with gentle SPF sunscreen.

4. COMBINATION SKIN

Characteristics: Oily in the nose, forehead and chin, dry or normal on the cheeks. May be shiny in some places, dry in others, and have blackheads.
Basic care: Use balanced cleanser, apply gel on oily areas, cream on dry areas, Use Exfoliate mildly, avoid harsh alcohol-based toners, Choose non-greasy sunscreen.

5. SENSITIVITY SKIN

Characteristics: Easily irritated, prone to redness, burning, or itching. Can react to new products, weather changes, or fragrances.Often associated with thin skin barrier.
Basic care: Use fragrance-free herbal products, apply soothing herbs like chamomile or calendula, avoid alcohol, parabens, and synthetic dyes, Keep skincare routine min

CLASSIFICATION OF CREAM [15]

s/no	CATEGORY	TYPES OF CREAMS	DESCRIPTION
1.	Based on Emulsion Type	Oil-in-Water (O/W) Creams	Water is the continuous phase; non-greasy, easily washable.
		Water-in-Oil (W/O) Creams	Oil is the continuous phase; greasy, more occlusive.
2.	Based on Site of Application	Topical Creams	Applied on the skin surface for local effects.
		Transdermal Creams	Designed for systemic absorption through the skin.
		Mucosal Creams	Used on mucous membranes (e.g., vaginal, rectal).
3.	Based on Therapeutic Purpose	Antibacterial Creams	Treat bacterial infections (e.g., mupirocin).
		Antifungal Creams	Treat fungal infections (e.g., clotrimazole).
		Anti-inflammatory Creams	Reduce inflammation (e.g., hydrocortisone).
		Analgesic Creams	Provide pain relief (e.g., lidocaine cream).
		Antiviral Creams	Treat viral infections (e.g., acyclovir).
		Wound Healing Creams	Promote tissue repair (e.g., silver sulfadiazine).
		Vanishing Creams	Non-greasy, leave little to no residue after application.

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4.	Based on Compositions andConsistency	Cold Creams	Emollient, greasy, used for dry skin.
		Hydrophilic Creams	Water-attracting, suitable for aqueous drug bases.
		Hydrophobic Creams	Oil-based, repel water, suitable for lipid-soluble drugs.
5.	Based on Drug Release	Conventional Creams	Immediate release of active ingredient
		Controlled Release Creams	Slow and sustained drug release over time.

PHARMACEUTICAL EXCIPIENTS USED IN CREAM[16]

In Cream formulations require a combination of active ingredients and excipients, which provide the base structure, stability, spreadability, and skin compatibility. The following are key categories of excipients commonly used in pharmaceutical creams:

1. Emulsifying agents
2. Emollients
3. Humectants
4. Preservatives
5. Thickening agents / Gelling agents
6. Antioxidants
7. pH Adjusters / Buffers
8. Colorants **(optional)**

1. EMULSIFYING AGENTS

Emulsifying agents are surface-active substances (surfactants) used in cream formulations to stabilize the mixture of immiscible phases—typically oil and water. They reduce the interfacial tension between the oil and water layers, allowing a uniform and stable emulsion to form and preventing phase separation during storage or use.

Types of Emulsifying Agents:

Depending on the type of cream, either oil-in-water (O/W) or water-in-oil (W/O) emulsifiers are selected.

- O/W emulsifiers: Suitable for light, non-greasy creams (e.g., cosmetic creams).
- W/O emulsifiers: Suitable for greasy, protective creams (e.g., therapeutic or winter creams).

[Ex]: Emulsifying wax, Ceto stearyl alcohol, Poly sorbates (e.g., Tween 80), Glyceryl monostearate, etc.,**3**

Function: Stabilize emulsions by forming a cohesive interfacial film, improve texture and consistency of the cream, prevent separation of oil and water phases, Enhance spreadability and absorption.

2. EMOLLIENTS

Emollients are excipients used in cream formulations to soften, smooth, and moisturize the skin. They work by forming an occlusive layer over the skin surface, which reduces transepidermal water loss (TEWL) and helps maintain hydration. Emollients are essential in improving the feel, spreadability, and texture of creams.

[Ex]: Mineral oil, Isopropyl myristate, Lanolin, Stearic acid, etc.,

Function: Fill in gaps between desquamating skin cells, leaving skin smoother, reduce dryness, flakiness, and irritation, enhance skin barrier function, Improve aesthetic appeal and application comfort of creams.

3. HUMECTANTS

Humectants are hydrophilic (water-attracting) substances used in cream formulations to draw moisture from the atmosphere or deeper skin layers to the outermost skin layer (stratum corneum). They play a key role in maintaining skin hydration, improving skin elasticity, and preventing dryness and flaking.

[Ex]: Glycerine, Sorbitol, Propylene glycol, etc.,

Function: Attract and retain moisture in the skin, enhance hydrating effect of the cream, improve skin smoothness and flexibility, Help prevent drying of the cream during storage, Aid in the delivery of active ingredients by improving skin permeability.

4. PRESERVATIVES

Preservatives are substances added to cream formulations to inhibit the growth of microorganisms such as bacteria, fungi, and molds. Since creams typically contain aqueous and lipid phases, they provide an ideal environment for microbial contamination during manufacturing,

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storage, or use. Preservatives help maintain the microbiological stability and safety of the product throughout its shelf life.
[Ex]: Methylparaben, Propylparaben, Phenoxyethanol,Benzyl alcohol, etc.,
Function: Prevent microbial contamination during storage and use, extend shelf life of the formulation, ensure consumer safety, Maintain product integrity under various storage conditions.

5. THICKENING / GELLING AGENTS

Thickening or gelling agents are excipients used in cream formulations to increase viscosity, improve consistency, and ensure the semi-solid nature of the product. These agents contribute to the physical stability, spreadability, and overall aesthetic of the cream by providing uniform texture and preventing phase separation.
[Ex]: Carbopol, Cetyl alcohol, Xanthan gum, Stearyl alcohol, et.,
Function: Enhance viscosity and texture, provide stability by suspending active ingredients uniformly, Control spreadability and application feel, prevent run-off or liquefaction during storage, Help maintain homogeneity in emulsified systems

6. ANTIOXIDANTS

Antioxidants are excipients added to cream formulations to prevent oxidation of oils, fats, and active ingredients. Many cream components, especially natural oils and vitamins, are prone to oxidative degradation when exposed to air, light, or heat. Antioxidants inhibit this process, thereby preserving the chemical integrity, stability, and efficacy of the product.
[Ex]:BHA (Butylated hydroxyanisole), BHT (Butylated hydroxytoluene), Tocopherol (Vitamin E), etc.,
Function: Prevent rancidity of oils and fatty substances, maintain potency of active ingredients (e.g., vitamins, herbal extracts), Extend shelf life of the cream, protect against colour, odour, and texture changes, Improve product safety and quality over time.

7. PH ADJUSTERS / BUFFERS

PH adjusters and buffering agents are excipients used in cream formulations to maintain an appropriate pH level that is compatible with the skin and ensures stability of the formulation. The typical pH of the human skin ranges from 4.5 to 6.5, so creams must fall within this range to avoid irritation, enhance product performance, and preserve active ingredients.
[Ex]: Citric acid, Sodium hydroxide, Triethanolamine, etc.,
Function: Maintain pH within skin-friendly range, enhance physical and chemical stability of the formulation, prevent pH-sensitive degradation of active ingredients, improve tolerability and comfort for the user, assist in preservative efficacy, as many preservatives are pH-dependent.

8. COLORANTS(optional)

Colorants are added to creams primarily for aesthetic purposes, especially in cosmetic products. They make the product visually appealing and may help differentiate between formulations. However, their use is avoided in medicated or sensitive-skin creams to prevent allergic or irritant reactions.
[Ex]: Titanium dioxide (white pigment), Herbal colorants like turmeric (yellow), beetroot extract (pink), Iron oxides (used in tinted creams), etc.,
Function: Enhance the aesthetic appearance of the product, help in product identification and differentiation, improve consumer appeal and marketability, sometimes indicate active ingredient presence (e.g., yellow for turmeric-based creams).

USES OF HERBAL CREAM[(17)]
COSMETICS USE:

- Herbal creams are used to moisturize and hydrate the skin.
- Herbal creams are used to lighten dark spots and pigmentation.
- Herbal creams are used to reduce wrinkles and signs of aging.
- Herbal creams are used to enhance complexion and natural glow.
- Herbal creams are used to soothe and cool sun-damaged skin.

THERAPEUTIC USE:

- Herbal creams are used to promote healing of cuts, wounds, and abrasions.
- Herbal creams are used to treat skin infections caused by bacteria or fungi.
- Herbal creams are used to reduce skin inflammation, redness, and itching.
- Herbal creams are used to control acne and excess sebum production.
- Herbal creams are used to restore the skin barrier and repair damage.

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HERBS USED IN THE FORMULATION OF HERBAL CREAM[1-26]

S. No	DESCRIPTION	PLANT PHOTO
1.	**Herb Name:** Aloe **Biological Source:** Aloe barbadensis Miller **Family:**Liliaceae **Part Used:** Gel **PhytoConstituents:**Acemannan, Aloin, Emodin, Saponins, Sterols, Vitamins **Uses/Activity:** Healing, Anti-inflammatory, Antioxidant, Moisturizing, Antibacterial, Antiviral	
2.	**Herb Name:** Neem **Biological Source:** Dried leaves of Azadirachtaindica. **Family:** Meliaceae **Part Used:** Leaves **PhytoConstituents:**Nimbin, Nimbidin, Azadirachtin, Quercetin, Nimbolide **Uses/Activity:** Antibacterial, Antifungal, Anti-inflammatory, Antiseptic, Antioxidant	
3.	**Herb Name:**Tulsi **Biological Source:** Leaves of Ocimum sanctum Linn. (also known as Ocimumtenuiflorum) **Family**: Lamiaceae **Part Used**: Leaves **PhytoConstituents:** Eugenol, Ursolic acid, Rosmarinic acid, Caryophyllene, Flavonoids **Uses/Activity:** Antimicrobial, Antioxidant, Anti-inflammatory, Adaptogenic, Immunomodulatory	

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4.	**Herb Name:** Pigeon Pea **Biological Source:** Seeds and leaves of Cajanuscajan (L.) **Family:** Fabaceae **Part Used:** Seeds, Leaves **PhytoConstituents:** Flavonoids, Isoflavones, Cajanol, Genistein, Luteolin, Phenolic acids **Uses/Activity:** Antibacterial, Antioxidant, Anti-inflammatory, Hepatoprotective, Antidiabetic	
5.	**Herb Name:** Railway Creeper **Biological Source:**Ipomoea cairica (L.) **Family:** Convolvulaceae **Part Used:** Root, whole plant **PhytoConstituents:** Alkaloids, Tannins, Saponins, Flavonoids, Phenolic compounds **Uses/Activity:** Anthelmintic, Anti-inflammatory, Analgesic, Antimicrobial, Wound healing	
6.	**Herb Name:**carrot **Biological Source:**Daucuscarota **Family:** Apiaceae (Umbelliferae) **Part Used:** Root **Phytoconstituents:**Carotenoids, β-carotene,Flavonoids,Phenolic acids, Volatile oils **Uses/Activity:** Antioxidant, Diuretic, Hepatoprotective, Digestive stimulant, Vision enhancement (due to provitamin A content)	
7.	**Herb Name:** Custard Apple **Biological Source:** Annona squamosa **Family:** Annonaceae **Part Used:** Leaves **Phytoconstituents:**Acetogenins, Alkaloids, Flavonoids, Tannins, Saponins **Uses/Activity:** Antidiabetic, Antioxidant, Anti-inflammatory, Antimicrobial, Anticancer, Wound healing	

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8.	**Herb name:** Papaya **Biological source:**Carica papaya **Family:**Caricaceae **Part used:** Leaves **Phytoconstituents:** Papain, flavonoids, alkaloids, saponins, tannins, phenolics **Uses/Activity:** Antiviral, antimalarial, antioxidant, anti-inflammatory, anticancer, platelet enhancer	
9.	**Herb name:** Mexican Poppy **Biological source:**Argemonemexicana **Family:** Papaveraceae **Part used:** Seeds **Phytoconstituents:** Alkaloids, berberine, protopine, sanguinarine, dihydrosanguinarine **Uses/Activity:**Antimicrobial, anti-inflammatory, analgesic, wound healing, antimalarial, laxative	
10.	**Herb name:** Shankhavel **Biological source:**Evolvulusalsinoides **Family:** Convolvulaceae **Part used:** Leaves **Phytoconstituents:** Alkaloids, flavonoids, tannins, phytosterols, triterpenoids **Uses/Activity:** Nootropic, anxiolytic, antidepressant, antioxidant, anti-inflammatory.	

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11.	**Herb name:** Calendula **Biological source:** Calendula officinalis **Family:**Asteraceae **Part used:** Flower **PhytoConstituents:** Flavonoids, triterpenoids, saponins, carotenoids, essential oils **Uses/Activity:** Anti-inflammatory, wound healing, antimicrobial, antioxidant, antispasmodic, skin soothing	
12.	**Herb name:** Indian Jujube **Biological source:**Ziziphusmauritiana **Family:**Rhamnaceae **Part used:** Leaves **Phytoconstituents:** Alkaloids, flavonoids, tannins, saponins, glycosides **Uses/Activity:** Antibacterial, antioxidant, anti-inflammatory, antipyretic, wound healing, hepatoprotective	
13.	**Herb name:** Liquorice **Biological source:**Glycyrrhizaglabra **Family:** Fabaceae **Part used:** Root **Phytoconstituents:** Glycyrrhizin, flavonoids, saponins, coumarins, phytosterols **Uses/Activity:** Expectorant, anti-inflammatory, demulcent, antioxidant, hepatoprotective, antiulcer	

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14.	**Herb name:**Ashwagandha **Biological source:**Withaniasomnifera **Family:**Solanaceae **Partused:** Root **Phytoconstituents:**Withanolides, alkaloids, saponins, flavonoids, steroidal lactones **Uses/Activity:**Adaptogenic, anti-stress, anxiolytic, immunomodulatory, anti-inflammatory, antioxidant	
15.	**Herb name:**Nirgundi **Biological source:**Vitexnegundo **Family:**Lamiaceae **Part used:** Leaves **Phytoconstituents:** Flavonoids, alkaloids, glycosides, iridoids, tannins **Uses/Activity:** Anti-inflammatory, analgesic, antiasthmatic, antibacterial, antioxidant, hepatoprotective	
16.	**Herb name**: Baheda **Biological source:** Terminalia bellirica **Family:**Combretaceae **Part used:** Fruit **Phytoconstituents:** Tannins, gallic acid, ellagic acid, flavonoids, lignans **Uses/Activity:** Astringent, antioxidant, antimicrobial, laxative, anti-inflammatory, hepatoprotective	

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17.	**Herb name:** Curry Leaves **Biological source:**Murrayakoenigii **Family:**Rutaceae **Part used:** Leaves **Phytoconstituents:** Alkaloids, flavonoids, carbazole alkaloids, terpenoids, tannins **Uses/Activity:** Antioxidant, antidiabetic, antimicrobial, hepatoprotective, anti-inflammatory, hypocholesterolemic	

INVITRO ANTI-BACTERIAL, ANTI-MICROBIAL AND ANTI-FUNGAL STUDIES OF THE ABOVE-MENTIONEDPLANS[1-24]

In vitro studies play a critical role in assessing their antimicrobial potential. Medicinal plants incorporated into topical formulations are often rich in bioactive compounds such as flavonoids, alkaloids, terpenoids, and tannins—each contributing to the inhibition of pathogenic microorganisms. The herbal cream under investigation was formulated using selected plant extracts known for their antimicrobial and antifungal activities. Laboratory tests were conducted to evaluate its effectiveness against clinically relevant microbial strains.

❖ **ANTI-BACTERIAL STUDIES:**

The antibacterial efficacy of the herbal cream was determined using the agar disc diffusion method. Pathogenic strains including Staphylococcus aureus, Bacillus subtilis, and Escherichia coli were cultured in Tryptic Soy Broth (TSB) and uniformly inoculated onto Tryptic Soy Agar (TSA) plates.Sterile discs (6 mm) were soaked with varying concentrations of the herbal cream formulated with extracts from Neem, Aloe vera, Tulsi, Ashwagandha, and Baheda, then placed onto the inoculated agar surface. Sterile distilled water was considered the negative control. The plates were incubated for 24 hours at 37 °C, after which zones of inhibition (mm) were measured. Results showed moderate to significant inhibition, indicating strong antibacterial properties.

❖ **ANTI-MICROBIAL STUDIES:**

Antimicrobial evaluation was conducted using the well diffusion method on Mueller Hinton Agar for bacterial strains and Sabouraud Dextrose Agar (SDA) for fungal strains. The test organisms included Staphylococcus aureus, Escherichia coli, Pseudomonas aeruginosa, and Candida albicans.

Wells (6 mm) were created and filled with herbal formulations containing extracts of Nirgundi, Calendula, Liquorice, Curry leaf, and Papaya. The plates were incubated at 37 °C for 24 hours and zones of microbial inhibition were recorded. The data indicated concentration-dependent activity comparable to commonly used antimicrobial topical products.

❖ **ANTI-FUNGAL STUDIES:**

The antifungal activity of the herbal cream was tested against strains such as Candida albicans, Trichophyton rubrum, Aspergillus fumigatus, and Trichophyton mentagrophytes using the agar dilution and well diffusion methods on SDA.Formulations incorporated Mexican poppy, Evolvulusalsinoides, Annona squamosa, Neem, and Ziziphusmauritiana.

Wells were filled with test samples and incubated at 28 °C for 48 hours. Fluconazole was used as a positive control. The inhibition zones observed confirmed the presence of significant antifungal activity.

II. CONCLUSION

The skin serves as the body's first line of defence and is frequently exposed to environmental stress, pathogens, and various dermatological conditions such as infections, inflammation, acne, eczema, and dryness. Herbal creams, formulated with plant-derived actives, offer a natural and effective solution for protecting and restoring skin health. The selected herbs used in these formulations possess scientifically proven antibacterial, antifungal, and anti-inflammatory properties. Compared to synthetic creams, herbal creams are safer, more compatible with the skin,

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and rich in therapeutic benefits. With minimal side effects and high tolerability, they represent a sustainable approach to skin care. We conclude that may be, Future research and formulation advancements may further enhance the clinical efficacy and application range of herbal creams in both therapeutic and cosmetic dermatology.

REFERENCES

[1]. Badwaik CB, et al. Formulation and Evaluation of Herbal Face Cream. International Journal Pharmaceutical Research Application. [2022];7(1):955–960.

[2]. Chauhan L, Gupta S. Creams: A review on classification, Preparation method, evaluation and its application. Journal of Drug Delivery and Therapeutics. [2020];10(1):281-289.

[3]. MV Vishvanathan, PM Unnikrishnan, Kalsuko Komatsu, Hirotoshi Fushimi. A Brief introduction to Ayurvedic system of Medicine and some of its problems. Indian Journal Traditional Knowledge [2003]; 2:159-69.

[4]. Krishnaveni M, Mirunalini S. Therapeutic Potential of Phyllanthusemblica (amla): The Ayurvedic wonders. JournalBasic clinical Physiology Pharmacology [2010]; 21:93-105.

[5]. Grace XF, Vijetha RJ, Shanmuganathan S, Chamundeeswari D. Formulation and Evaluation of poly Herbal cosmetic cream. Advances in Journal of Pharmaceutical Life Sciences Research. [2014];2(1):14-17.

[6]. Atherton P. Aloe Vera revisited. Br J Phytotheraphy[1998]; 4: 176-183.

[7]. Sheila J, Priyadarshini S, et al. Antioxidant and Antimicrobial Properties of Cucumissativus L. Peel Extracts. International Research Journal Pharmacy. [2018];9(1):56–60.

[8]. Kamble M, et al. Formulation and Evaluation of Multipurpose Herbal-Based Cream. Journal Medicinal Plants Studies. [2025];13(3):122–127.

[9]. Rawlings A.V., Harding C.R. [2004]. Moisturization and skin barrier function. Dermatologic Therapy. 17(1):43-48.

[10]. Chen MX, Alexander KS. Formulation and evaluation of antibacterial cream and gel containing metal ions for topical application. J Pharmaceutics. [2016];6(1):1–10.

[11]. P.P. Sharma. Cosmetic Formulation, Manufacturing and Quality Control. 4th edition. Vandana Publications; [2018].

[12]. Anne Waugh, Allison Grant. Ross and Wilson Anatomy and Physiology in Health and Illness-11th Edition.

[13]. Tortora, G.J.andDerrickson, B.H (2022) Principles of Anatomy and Physiology (16th Edition).

[14]. Annapurna Jagannath Pradhan, et al.[2024] Formulation and evaluation of herbal Soap. International journal of research publication and reviews. 5(5); 11322-11340.

[15]. Remington: The Science and Practice of Pharmacy. 22nd edition. Pharmaceutical Press; [2012].

[16]. Autton, M.E, and Taylor, K. (2017) Aultons, Pharmaceutics; The Design and manufacture of mediocines (5th Edition). Elseiver health science.

[17]. Kaur, M., & Saini, S. [2018]. Herbal cosmetics: Trends in skin care formulation. International Journal of Pharmaceutical Sciences and Research, 9(5), 1800–1810.

[18]. Navindgikar, N. N., Kamalapurkar, K. A., &Chavan, P. S. [2022]. Formulation and evaluation of multipurpose herbal cream. *International Journal of Current Pharmaceutical Research*, 12(3), 25–30.

[19]. Modi, J., Rathore, S., Dwivedi, S., &Saraogi, G. [2024]. Formulation and evaluation of multipurpose herbal cream. *International Journal of Newgen Research in Pharmacy & Healthcare*, 2(1), 129–135.

[20]. Dhyani, A., Chander, V., & Singh, N. [2019]. Formulation and evaluation of multipurpose herbal cream. *Journal of Drug Delivery and Therapeutics*, 9(2), 341–343.

[21]. Gupta, N., Dubey, A., Prasad, P., & Roy, A. [2015]. Formulation and evaluation of herbal fairness cream comprising hydroalcoholic extracts. Pharmaceutical BioScience Journal, 5(1), 40–45.

[22]. Soumya, A., et al. [2020]. Formulation of herbal skin cream for wound healing. International Journal of Research in Phytochemical and Pharmacological Sciences, 1(2), 58–63.

[23]. Patel, S., & Desai, S. [2016]. Formulation and evaluation of topical herbal cream for cellulitis. Journal of Applied Pharmaceutical Science, 6(3), 100–105.
[24]. Sahu, R. K., Roy, A., Kushwah, P., &Sahu, A. [2012]. Formulation and development of face cream containing natural products. Research Journal of Topical and Cosmetic Sciences, 3(1), 16–19.
[25]. Maurya, S., Singh, S., Zaidi, Y., et al. [2022]. Formulation and evaluation of multipurpose herbal cream. World Journal of Pharmaceutical Research, 11(6), 798–805.
[26]. Sridhar, G., Kumar, P. D., Kumaran, V. B., Abdulrahiman, A., Gokulnathan, B., Sindhu, E., Suriya, V., & Ganesh, S. V. [2024]. Herbal soap: An overview. *YMER*, 23(12), 823-834.