WJPMR, 2026, 12(9), 22-35

Review Article

Impact Factor: 7.533

WORLD JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.wjpmr.com

ISSN (O): 2455-3301

ISSN (P): 3051-2557

Coden USA: WJPMBB

IAFA 333 CREAM: AN EVIDENCE-BASED REVIEW OF AYURVEDIC PERSPECTIVES, PHYTOCHEMISTRY AND CLINICAL APPLICATIONS

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DOI: https://doi.org/10.5281/zenodo.22159399

How to cite this Article: Gupta Sahil[1*] (2026). Iafa 333 Cream: An Evidence-Based Review Of Ayurvedic Perspectives, Phytochemistry And Clinical Applications. World Journal of Pharmaceutical and Medical Research, 12(9), 22–35.

Article Received on 15/07/2026 **Article Revised on 05/08/2026** **Article Published on 01/09/2026**

ABSTRACT

Background: Chronic dermatological disorders such as eczema, psoriasis, vitiligo, allergic dermatitis, fungal infections, and xerotic skin diseases significantly affect quality of life owing to persistent inflammation, recurrent episodes, impaired skin barrier function, and psychosocial distress. Although topical corticosteroids, calcineurin inhibitors, and antifungal agents remain the mainstay of treatment, prolonged use is often associated with adverse effects including skin atrophy, tachyphylaxis, pigmentary alterations, local irritation, and frequent relapse after discontinuation. Consequently, there is increasing interest in evidence-based herbal topical formulations that combine efficacy with improved long-term safety. Ayurveda describes most chronic skin disorders under the broad spectrum of *Kushtha* and *Twak Vikara*, emphasizing correction of *Dosha* imbalance, purification of *Rakta*, restoration of tissue integrity, and promotion of natural skin healing. IAFA 333 Cream is a proprietary Ayurvedic polyherbal topical formulation developed for the management of various inflammatory and pigmentary skin disorders. Despite its growing clinical use, a comprehensive scientific review integrating Ayurvedic concepts, phytochemistry, pharmacological evidence, and published clinical observations has not yet been reported. **Aim:** To comprehensively review the Ayurvedic perspectives, phytochemical composition, pharmacological mechanisms, and available clinical evidence regarding the therapeutic applications of IAFA 333 Cream in dermatological disorders.

Objectives

- To describe the Ayurvedic principles underlying IAFA 333 Cream.
- To summarize the phytochemical constituents and pharmacological activities of its herbal ingredients.
- To critically evaluate published clinical evidence supporting its dermatological applications.
- To identify current knowledge gaps and future research priorities for evidence-based clinical validation.

Methods: A comprehensive narrative review was conducted through systematic literature retrieval from PubMed, Google Scholar, Scopus-indexed journals, AYUSH Research Portal, classical Ayurvedic texts, and peer-reviewed scientific publications. Published case reports, review articles, experimental studies, and available scientific literature concerning IAFA 333 Cream and its constituent medicinal plants were critically analyzed. Evidence related to Ayurvedic pharmacodynamics, phytochemistry, pharmacological mechanisms, and clinical outcomes was synthesized descriptively. **Results:** Available evidence indicates that IAFA 333 Cream contains medicinal plants possessing anti-inflammatory, antioxidant, antimicrobial, wound-healing, immunomodulatory, antipruritic, and skin-regenerative activities. From an Ayurvedic perspective, the formulation demonstrates *Kushtaghna*, *Kandughna*, *Raktashodhaka*, *Krimighna*, *Shothahara*, *Tvachya*, and *Varnya* properties, thereby addressing disorders involving vitiation of *Kapha*, *Pitta*, *Rakta*, and *Twak*. Pharmacological studies on individual herbal constituents reveal multiple therapeutic mechanisms, including modulation of inflammatory cytokines, inhibition of oxidative stress, enhancement of epithelial regeneration, antimicrobial activity, and restoration of skin barrier integrity. Published case reports suggest encouraging therapeutic outcomes when IAFA 333 Cream is incorporated into integrative Ayurvedic management of selected dermatological disorders. Nevertheless, current clinical evidence primarily comprises case reports and observational studies, while randomized controlled trials remain limited. **Conclusion:** Current evidence suggests that IAFA 333 Cream possesses a scientifically promising therapeutic action supported by classical Ayurvedic principles and experimentally validated pharmacological activities of its constituent herbs.

Preliminary clinical observations indicate potential usefulness as an adjunctive topical therapy in selected dermatological conditions. However, randomized controlled trials, standardized safety assessments, and mechanistic studies are essential to establish its efficacy, long-term safety, and position within evidence-based integrative dermatology.

KEYWORDS: IAFA 333 Cream, Ayurveda, Twak Vikara, Kushtha, Polyherbal formulation, Dermatology, Phytochemistry, Herbal medicine, Integrative dermatology, Evidence-based review, IAFA.

1. INTRODUCTION

Skin is the largest organ of the human body, constituting nearly 16% of total body weight and serving as the primary interface between the internal physiological environment and the external world. Beyond its structural role, the skin performs essential protective, immunological, sensory, thermoregulatory, endocrine, and metabolic functions. It provides a dynamic physical barrier against microbial invasion, ultraviolet radiation, chemical exposure, and environmental insults while actively participating in innate and adaptive immune responses. Disruption of this barrier initiates a cascade of inflammatory and immunological events that contribute to the development of numerous acute and chronic dermatological disorders.

Dermatological diseases represent one of the most prevalent causes of morbidity worldwide, affecting individuals across all age groups irrespective of geographical location or socioeconomic status. According to the Global Burden of Disease Study, skin disorders collectively rank among the leading causes of non-fatal disease burden, accounting for millions of disability-adjusted life years(DALYs) annually. Chronic inflammatory skin diseases, including eczema, psoriasis, vitiligo, seborrheic dermatitis, allergic contact dermatitis, atopic dermatitis, lichen simplex chronicus, fungal infections, other allergic skin disorders, and chronic xerosis, not only impair physical health but also substantially reduce psychological well-being, self-esteem, social interaction, occupational productivity, and overall quality of life.

The pathogenesis of most chronic dermatological disorders is multifactorial and involves complex interactions among genetic predisposition, immune dysregulation, oxidative stress, microbial imbalance, environmental triggers, epidermal barrier dysfunction, neuroimmune signaling, and alterations in the gut-skin axis. Recent advances in dermatological research have highlighted the pivotal role of inflammatory cytokines, oxidative damage, dysbiosis of the cutaneous microbiome, and immune-mediated pathways in chronic skin inflammation. Consequently, therapeutic strategies are increasingly directed not only toward symptomatic relief but also toward restoration of immune homeostasis, barrier repair, and modulation of inflammatory cascades. Conventional dermatological management largely depends upon topical corticosteroids, calcineurin inhibitors, antihistamines, antifungal agents, antibiotics, keratolytic agents, and systemic immunosuppressive medications. While these therapies often provide rapid symptomatic improvement, their prolonged use may be associated with significant limitations, including skin atrophy, telangiectasia, pigmentary alterations, tachyphylaxis, rebound exacerbations, secondary infections, systemic absorption, and recurrence following discontinuation. Furthermore, many chronic dermatological disorders require long-term maintenance therapy, thereby increasing concerns regarding cumulative adverse effects and treatment adherence. These challenges have prompted growing interest in complementary and integrative therapeutic approaches that emphasize long-term safety while targeting multiple pathogenic pathways. Ayurveda, the traditional system of medicine, offers a holistic understanding of skin physiology and dermatological diseases. Classical Ayurvedic texts collectively describe a wide spectrum of skin disorders under *Kushtha*, *Kshudra Kushtha*, and *Twak Vikara*. According to Ayurvedic principles, healthy skin(*Twak*) reflects equilibrium among *Doshas*, proper nourishment of *Dhatus*, balanced *Agni*, unobstructed *Strotas*, and purification of *Rakta Dhatu*. Disturbance of these fundamental physiological principles results in manifestations such as discoloration, inflammation, pruritus, scaling, discharge, induration, dryness, and recurrent lesions.

Among the three *Doshas*, *Pitta and Kapha* are predominantly implicated in inflammatory and exudative skin diseases, whereas *Vata* contributes to dryness, fissuring, roughness, scaling, and chronicity. Classical Ayurvedic literature further recognizes the central role of *Rakta Dushti* in the etiopathogenesis of numerous dermatological disorders. Therefore, therapeutic management extends beyond local symptomatic treatment and includes correction of systemic metabolic disturbances, purification of vitiated *Rakta*, restoration of *Agni*, elimination of accumulated *Ama*, and promotion of tissue regeneration through internal and external therapies. Topical herbal formulations(*Lepa*, *Malahara*, *Taila*, and *Ghrita*) constitute an integral component of Ayurvedic dermatological practice. Such formulations are traditionally selected based on their *Kushtaghna*(anti-dermatosis), *Kandughna*(anti-pruritic), *Krimighna(*antimicrobial), *Raktashodhaka(*blood purifying), *Shothahara*(anti-inflammatory), *Ropana(*wound healing), *Tvachya(*skin nourishing), and *Varnya*(complexion-enhancing) properties. Modern pharmacological studies have demonstrated that many medicinal plants used as ingredients in Ayurvedic topical preparations possess scientifically validated anti-inflammatory, antioxidant, antimicrobial, wound-healing, immunomodulatory, antiproliferative, and barrier-restorative activities, thereby providing biological plausibility to their traditional therapeutic applications.

IAFA 333 Cream is a proprietary Ayurvedic polyherbal topical formulation developed to provide multi-targeted management of inflammatory and pigmentary skin disorders. The formulation incorporates medicinal plants traditionally recognized for their dermato-protective properties and is currently employed in integrative Ayurvedic practice as an adjunct to internal medications for various chronic dermatological conditions. Although several published case reports have documented favorable clinical outcomes following inclusion of IAFA 333 Cream within comprehensive Ayurvedic treatment protocols, a consolidated scientific appraisal of its Ayurvedic basis, phytochemical profile, pharmacological mechanisms, and available clinical evidence remains lacking.

Given the expanding global interest in evidence-based herbal dermatology and integrative medicine, a critical review of IAFA 333 Cream is both timely and relevant. Such a review may facilitate a better understanding of its therapeutic rationale, identify strengths and limitations of the currently available evidence, and provide guidance for future translational and clinical research.

Accordingly, the present review comprehensively evaluates IAFA 333 Cream from classical Ayurvedic and contemporary biomedical perspectives by integrating available information on its formulation principles, phytochemical constituents, pharmacological activities, proposed mechanisms of action, clinical applications, safety considerations, and future research opportunities. Through this multidisciplinary approach, the review aims to bridge traditional Ayurvedic knowledge with modern scientific evidence, thereby contributing to the evolving field of evidence-based integrative dermatology.

2. REVIEW METHODOLOGY

2.1 Literature Search Strategy

The present review was conducted as a comprehensive narrative review to critically evaluate the Ayurvedic concepts, phytochemical profile, pharmacological mechanisms, and available clinical evidence regarding IAFA 333 Cream. Relevant literature was retrieved through an extensive search of electronic databases, including PubMed, Google Scholar, Scopus-indexed journals, ScienceDirect, AYUSH Research Portal, and CrossRef. Classical Ayurvedic literature comprising Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya, Bhavaprakasha Nighantu, Dhanvantari Nighantu, Kaiyadeva Nighantu, and Raja Nighantu was consulted to understand the traditional therapeutic properties of constituent herbs.

Search terms included combinations of IAFA 333 Cream, Ayurveda, polyherbal topical formulation, dermatology, skin diseases, eczema, psoriasis, vitiligo, Wrightia tinctoria, Azadirachta indica, Albizia lebbeck, Pongamia pinnata, Cocos nucifera, phytochemistry, anti-inflammatory, wound healing, antioxidant, and clinical case reports. Reference lists of relevant publications were also screened to identify additional studies.

2.2 Inclusion Criteria

Studies fulfilling one or more of the following criteria were considered.

- Peer-reviewed research articles
- Clinical case reports and case series involving IAFA 333 Cream
- Experimental pharmacological studies on constituent herbs
- Phytochemical investigations
- Ayurvedic classical references
- Review articles relevant to topical herbal dermatological formulations

2.3 Exclusion Criteria

The following were excluded:

- Duplicate publications
- Conference abstracts without complete data
- Unpublished reports
- Articles lacking scientific methodology
- Non-English publications where accurate translation was unavailable

2.4 Data Extraction

Information extracted included

- Ingredients
- Ayurvedic properties
- Major phytochemicals
- Pharmacological actions
- Clinical indications
- Safety profile
- Published clinical outcomes
- Proposed mechanisms of action

The available evidence was critically reviewed to provide an integrated Ayurvedic and biomedical perspective of IAFA 333 Cream.

3. Evolution of IAFA 333 Cream

The increasing prevalence of chronic inflammatory and immune-mediated skin disorders has stimulated renewed interest in evidence-based botanical formulations capable of addressing multiple pathogenic pathways simultaneously. While conventional topical corticosteroids and immunomodulators remain clinically effective, their prolonged use is often limited by adverse effects, recurrence following withdrawal, and patient concerns regarding long-term safety.

Ayurveda has traditionally emphasized topical herbal preparations(*Lepa, Taila, Ghrita, Malahara*) for management of *Twak Vikara*. These formulations are designed not merely to suppress symptoms but to facilitate *Dosha Shamana*, *Rakta Prasadana*, *Vrana Ropana*, *Kandughna Karma*, and restoration of normal skin physiology. IAFA 333 Cream was developed following these classical principles by combining medicinal plants possessing complementary

dermatological activities. Rather than acting through a single pharmacological pathway, the formulation is intended to exert multitarget therapeutic effects including inflammation control, microbial inhibition, tissue repair, antioxidant properties, immune modulation, moisturization, and restoration of epidermal barrier integrity. Unlike many topical preparations developed for a single dermatological condition, IAFA 333 Cream has been incorporated into integrative Ayurvedic treatment protocols across a wide spectrum of inflammatory, infective, pigmentary, and allergic skin disorders. Published clinical observations indicate their use alongside individualized internal Ayurvedic medicines, dietary modifications, and lifestyle interventions. Although the exact contribution of each constituent herb within the formulation requires further investigation, current pharmacological evidence supports substantial biological plausibility for their combined use.

4. Composition of IAFA 333 Cream

The therapeutic effectiveness of IAFA 333 Cream is derived from selected medicinal plants traditionally recognized for their dermato-protective properties. Each ingredient contributes distinct yet complementary pharmacological activities, resulting in a multitarget topical formulation.

Table 1: Composition and Therapeutic Role of IAFA 333 Cream.

Ingredient	Botanical Name	Family	Part Used	Main Therapeutic Role
Shveta Kutaja	*Wrightia tinctoria*	Apocynaceae	Bark	Anti-psoriatic, wound healing, anti-inflammatory
Neem	*Azadirachta indica*	Meliaceae	Bark	Antimicrobial, antipruritic, antioxidant
Shirisha	*Albizia lebbeck*	Fabaceae	Bark	Anti-allergic, immunomodulatory
Karanja	*Pongamia pinnata*	Fabaceae	Leaves or Bark	Antifungal, antibacterial, anti-inflammatory
Coconut Oil	*Cocos nucifera*	Arecaceae	Oil	Skin moisturization, barrier repair, emollient

5. Therapeutic Significance of Individual Ingredients

5.1 *Wrightia tinctoria*(Shveta Kutaja)

Wrightia tinctoria(Roxb.) R.Br. is one of the most important medicinal plants used in Ayurvedic dermatology. Classical Ayurvedic texts recommend it in *Kushtha*, *Dadru*, *Kandu*, *Visarpa*, and chronic inflammatory skin disorders. Modern investigations have validated several of these indications by demonstrating anti-inflammatory, antioxidant, antimicrobial, wound healing, and antiproliferative activities relevant to inflammatory dermatoses.

Table 2: Scientific Profile of *Wrightia tinctoria.*

Characteristics	Details
Botanical Name	*Wrightia tinctoria*(Roxb.) R.Br.
Family	Apocynaceae
Sanskrit Name	*Shveta Kutaja*
English Name	Sweet Indrajao, Pala Indigo Plant
Parts Used	Leaves, Bark, Seeds
Ayurvedic Actions	Kushtaghna, Kandughna, Tvachya, Vranaropana
Principal Phytochemicals	Lupeol, β-Sitosterol, Ursolic acid, Oleanolic acid, Flavonoids, Phenolics
Major Pharmacological Activities	Anti-inflammatory, Antioxidant, Antimicrobial, Anti-psoriatic, Wound healing
Dermatological Relevance	Psoriasis, Eczema, Chronic dermatitis, Hyperkeratotic lesions
Therapeutic Contribution in IAFA 333 Cream	Reduces epidermal inflammation, controls scaling, supports tissue regeneration.

Table 3: Bioactive Constituents and Dermatological Significance of *Wrightia tinctoria.*

Bioactive Compound	Chemical Constituents	Mechanism	Dermatological Benefit
Lupeol	Triterpenoid	Inhibits inflammatory mediators	Reduces erythema and edema
β-Sitosterol	Phytosterol	Enhances barrier repair	Improves skin integrity
Ursolic Acid	Pentacyclic triterpenoid	Promotes collagen synthesis	Accelerate wound healing
Oleanolic Acid	Triterpenoid	Antioxidant and cytoprotective	Protects epidermal cells
Quercetin	Flavonoid	Scavenges reactive oxygen species	Reduces oxidative damage
Phenolic compounds	Polyphenols	Antioxidant activity	Cellular protection

Table 4: Experimental Evidence Supporting Dermatological Use.

Pharmacological Activity	Experimental Findings	Possible Clinical Application
Anti-inflammatory	Reduced inflammatory cell infiltration	Psoriasis, eczema
Antioxidant	Strong free-radical scavenging	Chronic inflammatory dermatoses
Wound healing	Faster epithelial regeneration	Chronic ulcers and fissures
Antimicrobial	Activity against common skin pathogens	Secondary skin infections
Anti-psoriatic	Reduced epidermal hyperplasia in experimental models	Hyperproliferative disorders

5.2 *Azadirachta indica*(Neem)

Neem(*Azadirachta indica*) is among the best-studied medicinal plants in dermatology. Classical Ayurvedic literature describes it as *Kushtaghna, Krimighna, Kandughna, Raktashodhaka*, and *Pittahara*. Modern research attributes these effects to its rich content of limonoids, flavonoids, and other bioactive phytochemicals with broad anti-inflammatory, antimicrobial, and immunomodulatory properties.

Table 5: Scientific Profile of *Azadirachta indica*.

Characteristics	Details
Botanical Name	*Azadirachta indica* A. Juss.
Family	Meliaceae
Sanskrit Name	Nimba
Parts Used	Leaves, Bark, Seeds
Ayurvedic Actions	*Kushtaghna, Krimighna, Kandughna, Raktashodhaka*
Principal Phytochemicals	Nimbidin, Azadirachtin, Nimbolide, Gedunin, Salannin, Quercetin
Major Pharmacological Activities	Antibacterial, Antifungal, Anti-inflammatory, Antioxidant, Immunomodulatory
Dermatological Applications	Acne, Eczema, Psoriasis, Dermatitis, Fungal infections
Therapeutic Role in IAFA 333 Cream	Suppresses microbial growth, reduces inflammation, relieves itching

Table 6: Major Phytochemicals and Their Dermatological Actions.

Compound	Pharmacological Action	Molecular Target	Clinical importance
Nimbidin	Anti-inflammatory	NF-κB	Dermatitis
Nimbolide	Antioxidant	ROS pathway	Chronic inflammation
Azadirachtin	Antimicrobial	Microbial cell membrane	Skin infections
Gedunin	Immunomodulatory	Cytokine regulation	Allergic disorders
Quercetin	Antioxidant	Oxidative stress	Skin protection

Table 7: Experimental Evidence Supporting Dermatological Use of *Azadirachta indica*(Neem).

Pharmacological Activity	Experimental Findings	Possible Clinical Application
Anti-inflammatory	Inhibited pro-inflammatory cytokines(TNF-α, IL-1β, IL-6) and suppressed NF-κB signaling in experimental models	Psoriasis, eczema, inflammatory dermatitis
Antioxidant	Demonstrated potent free-radical scavenging activity and reduced oxidative stress biomarkers	Chronic inflammatory dermatoses, photoaging
Antibacterial	Inhibited the growth of Staphylococcus aureus, Streptococcus pyogenes, and Cutibacterium acnes in vitro	Secondary bacterial skin infections, acne vulgaris
Antifungal	Exhibited inhibitory activity against dermatophytes(Trichophyton spp., Microsporum spp.) and Candida albicans	Dermatophytosis, cutaneous candidiasis
Immunomodulatory	Modulated macrophage activity and inflammatory mediator production in experimental studies	Allergic dermatitis, chronic inflammatory skin disorders
Wound Healing	Accelerated wound contraction, collagen deposition, and re-epithelialization in animal wound models	Chronic wounds, ulcers, fissures
Antipruritic	Reduced inflammatory mediators associated with itching in preclinical studies	Pruritic dermatoses and eczema
Barrier Protective	Reduced microbial colonization and supported restoration of damaged skin in experimental studies	Impaired skin barrier, recurrent dermatitis

5.3 *Albizia lebbeck*(Shirisha)

Albizia lebbeck(L.) Benth., commonly known as *Shirisha*, is one of the most valued medicinal plants in Ayurveda, particularly recognized for its *Vishaghna*(anti-toxic) and anti-allergic properties. Classical Ayurvedic texts recommend Shirisha in the management of

Kushtha, Kandu, Visarpa, Visha Vikara, and other inflammatory and hypersensitivity-related skin disorders. Modern pharmacological studies have demonstrated that *Albizia lebbeck* possesses antiallergic, mast cell-stabilizing, anti-inflammatory, antioxidant, immunomodulatory, antipruritic, and wound-healing activities. These pharmacological properties support its traditional use in allergic and chronic inflammatory dermatoses. As a constituent of IAFA 333 Cream, Albizia lebbeck contributes to reducing allergic inflammation, relieving pruritus, modulating immune responses, and promoting restoration of normal skin physiology.

Table 8: Scientific Profile of *Albizia lebbeck*.

Characterstics	Details
Botanical Name	*Albizia lebbeck*(L.) Benth.
Family	Fabaceae
Sanskrit Name	Shirisha
Parts Used	Bark, Seeds, Flowers
Ayurvedic Actions	*Vishaghna, Kandughna, Shothahara*
Principal Phytochemicals	Albiziasaponins, Quercetin, Kaempferol, Catechin, Tannins
Major Activities	Antiallergic, Mast-cell stabilizing, Antioxidant, Anti-inflammatory
Major Clinical Relevance	Allergic dermatitis, Atopic dermatitis, Chronic pruritus

Table 9: Major Phytochemicals and Dermatological Actions of *Albizia lebbeck*(Shirisha).

Compound	Pharmacological Action	Molecular Target	Clinical Importance
Albiziasaponins	Immunomodulatory	Cytokine signaling pathways	Allergic dermatitis, chronic inflammatory dermatoses
Quercetin	Antioxidant, Anti-inflammatory	NF-κB, ROS pathways	Protection against oxidative skin damage and inflammation
Kaempferol	Anti-inflammatory	COX-2, MAPK signaling	Eczema, inflammatory skin disorders
Catechin	Antioxidant	Reactive oxygen species(ROS)	Cellular protection and wound repair
Lupeol	Anti-inflammatory	TNF-α, NF-κB	Chronic dermatitis and pruritic conditions
β-Sitosterol	Barrier restorative, Anti-inflammatory	Inflammatory mediators	Skin barrier repair and tissue regeneration
Tannins	Astringent, Antimicrobial	Microbial proteins and cell membranes	Minor wounds, skin protection and infection control
Flavonoids	Antioxidant	Oxidative stress pathways	Protection against chronic inflammatory skin disorders

Table 10: Experimental Evidence Supporting Dermatological Use of *Albizia lebbeck*(Shirisha)

Pharmacological Activity	Experimental Findings	Possible Clinical Application
Antiallergic	Stabilized mast cells and inhibited histamine release in experimental studies	Allergic contact dermatitis, urticaria, atopic dermatitis
Anti-inflammatory	Reduced pro-inflammatory cytokines and inflammatory cell infiltration in preclinical models	Eczema, inflammatory dermatoses
Antioxidant	Demonstrated potent free-radical scavenging activity and reduced oxidative stress	Chronic inflammatory skin disorders and photoaging
Immunomodulatory	Modulated macrophage activity and immune responses in experimental studies	Chronic inflammatory and immune-mediated dermatoses
Antipruritic	Reduced histamine-mediated itching responses in preclinical models	Chronic pruritus, allergic dermatitis
Wound Healing	Promoted collagen synthesis and accelerated tissue repair in animal wound models	Chronic wounds, ulcers and fissures
Antimicrobial	Exhibited mild inhibitory activity against selected bacterial and fungal pathogens in vitro	Prevention of secondary skin infections
Cytoprotective	Protected skin cells against oxidative and inflammatory damage in experimental studies	Maintenance of skin integrity and tissue repair

5.4 *Pongamia pinnata*(Karanja)

Pongamia pinnata(L.) Pierre, commonly known as Karanja, is one of the most important medicinal plants described in Ayurveda for the management of chronic skin disorders. Classical Ayurvedic texts recommend Karanja in *Kushtha, Dadru, Kandu, Krimi, Vrana*, and

other dermatological conditions characterized by microbial infection, inflammation, pruritus, and impaired wound healing. Recent experimental studies have proved several claims by demonstrating antifungal, antibacterial, anti-inflammatory, antioxidant, wound-healing, and antipruritic activities. Owing to its broad-spectrum dermatological properties, *Pongamia pinnata* serves as an important therapeutic component of IAFA 333 Cream, contributing to infection control, inflammation reduction, and restoration of skin integrity.

Table 11: Scientific Profile of *Pongamia pinnata*.

Characteristics	Details
Botanical Name	*Pongamia pinnata*(L.) Pierre
Family	Fabaceae
Sanskrit Name	Karanja
English Name	Indian Beech, Pongam Tree
Parts Used	Seeds, Seed Oil, Leaves
Ayurvedic Actions	*Kushtaghna, Kandughna, Krimighna, Lekhana, Vranaropana*
Principal Phytochemicals	Karanjin, Pongamol, Pinnatin, Flavonoids, Coumarins, β-Sitosterol, Fixed Oils
Major Pharmacological Activities	Antifungal, Antibacterial, Anti-inflammatory, Antioxidant, Wound Healing, Antipruritic
Dermatological Relevance	Dermatophytosis, Eczema, Psoriasis, Chronic Dermatitis, Secondary Skin Infections, Chronic Wounds
Therapeutic Contribution in IAFA 333 Cream	Controls microbial colonization, reduces inflammation and itching, promotes wound healing, and restores skin barrier function.

Table 12: Bioactive Constituents and Dermatological Significance of *Pongamia pinnata.*

Bioactive Compound	Chemical Class	Mechanism	Dermatological Benefit
Karanjin	Furanoflavonoid	Disrupts fungal growth and suppresses inflammatory mediators	Effective against fungal infections and inflammatory dermatoses
Pongamol	Flavonoid	Scavenges reactive oxygen species and inhibits inflammatory pathways	Reduces oxidative stress and chronic inflammation
Pinnatin	Flavonoid	Exhibits antimicrobial activity against skin pathogens	Prevents secondary bacterial skin infections
β-Sitosterol	Phytosterol	Modulates inflammatory responses and enhances tissue repair	Promotes skin regeneration and wound healing
Coumarins	Benzopyrone derivatives	Antioxidant and antimicrobial activity	Protects skin from oxidative damage and microbial invasion
Flavonoids	Polyphenolic compounds	Neutralize free radicals and inhibit inflammatory mediators	Reduces erythema and protects epidermal cells
Fixed Oils	Lipid constituents	Improve skin hydration and barrier function	Enhance skin moisturization and support epidermal repair

Table 13: Experimental Evidence Supporting Dermatological Use of *Pongamia pinnata.*

Pharmacological Activity	Experimental Findings	Possible Clinical Application
Antifungal	Demonstrated inhibitory activity against dermatophytes(Trichophyton spp., Microsporum spp.) and Candida albicans in experimental studies	Dermatophytosis, cutaneous candidiasis
Antibacterial	Inhibited the growth of Staphylococcus aureus and other skin-associated bacterial pathogens in vitro	Secondary bacterial skin infections and infected dermatitis
Anti-inflammatory	Reduced inflammatory mediators, tissue edema, and leukocyte infiltration in experimental models	Psoriasis, eczema, inflammatory dermatitis
Antioxidant	Exhibited potent free-radical scavenging activity and reduced oxidative stress biomarkers	Chronic inflammatory dermatoses and photoaging
Wound Healing	Accelerated wound contraction, collagen deposition, and re-epithelialization in animal wound models	Chronic wounds, ulcers, fissures, and skin repair
Antipruritic	Reduced inflammatory responses associated with itching in	Chronic pruritus and allergic

	preclinical studies	skin disorders
Barrier Protective	Supported restoration of damaged skin and enhanced epidermal repair in experimental studies	Impaired skin barrier and chronic dermatitis
Cytoprotective	Protected skin cells from oxidative and inflammatory injury in experimental models	Maintenance of skin integrity and prevention of tissue damage

5.5 *Cocos nucifera*(Virgin Coconut Oil)

Cocos nucifera L., commonly known as *Narikela*(Coconut), is a well-recognized medicinal plant in Ayurveda and is extensively used in topical formulations for skin care and wound management. Classical Ayurvedic texts describe *Narikela* as *Vranaropana*, *Tvachya*, *Dahahara*, and *Pittahara*, making it particularly beneficial in inflammatory skin disorders, burns, wounds, and dry skin conditions. Coconut oil serves as an excellent emollient and carrier, enhancing the penetration of bioactive phytochemicals while restoring the skin barrier. Modern pharmacological studies have demonstrated its moisturizing, antimicrobial, anti-inflammatory, antioxidant, and wound-healing properties, supporting its traditional use in dermatological practice. In IAFA 333 Cream, *Cocos nucifera* provides a protective lipid matrix that improves skin hydration, enhances barrier repair, and complements the therapeutic actions of the herbal ingredients.

Table 14: Scientific Profile of *Cocos nucifera* L.

Characteristics	Details
Botanical Name	*Cocos nucifera* L.
Family	Arecaceae
Sanskrit Name	Narikela
English Name	Coconut
Parts Used	Oil(Kernel), Kernel, Water
Ayurvedic Actions	*Vranaropana, Tvachya, Dahahara, Pittahara, Snigdhakara*
Principal Phytochemicals	Lauric acid, Caprylic acid, Capric acid, Myristic acid, Oleic acid, Phenolic compounds, Tocopherols
Major Pharmacological Activities	Moisturizing, Anti-inflammatory, Antimicrobial, Antioxidant, Wound Healing, Barrier Protective
Dermatological Relevance	Xerosis, Atopic dermatitis, Eczema, Chronic wounds, Burns, Dry skin
Therapeutic Contribution in IAFA 333 Cream	Restores skin barrier, improves hydration, enhances wound healing, and serves as a carrier for herbal bioactives

Table 15: Bioactive Constituents and Dermatological Significance of *Cocos nucifera* L.

Bioactive Compound	Chemical Class	Mechanism	Dermatological Benefit
Lauric Acid	Medium-chain fatty acid	Disrupt microbial cell membranes	Protects against bacterial skin infections
Caprylic Acid	Medium-chain fatty acid	Antifungal activity by altering fungal membrane integrity	Supports management of superficial fungal infections
Capric Acid	Medium-chain fatty acid	Antimicrobial and anti-inflammatory activity	Reduces microbial colonization and inflammation
Myristic Acid	Saturated fatty acid	Enhances skin lipid barrier	Improves skin hydration and barrier integrity
Oleic Acid	Monounsaturated fatty acid	Emollient and penetration-enhancing activity	Softens skin and improves topical drug delivery
Phenolic Compounds	Polyphenols	Scavenge reactive oxygen species	Protect epidermal cells from oxidative damage
Tocopherols(Vitamin E)	Lipid-soluble antioxidant	Prevent lipid peroxidation	Protect skin from oxidative stress and support tissue repair

Table 16: Experimental Evidence Supporting Dermatological Use of *Cocos nucifera* L.

Pharmacological Activity	Experimental Findings	Possible Clinical Application
Moisturizing	Improved skin hydration and reduced transepidermal water loss in clinical and experimental studies	Xerosis, atopic dermatitis, dry skin
Barrier Protective	Enhanced epidermal barrier function and skin lipid restoration	Chronic dermatitis and impaired skin barrier
Anti-inflammatory	Reduced inflammatory mediators and skin irritation in experimental models	Eczema, dermatitis and inflammatory skin disorders
Antibacterial	Demonstrated activity against Staphylococcus aureus and other Gram-positive bacteria	Secondary bacterial skin infections
Antifungal	Exhibited inhibitory activity against Candida albicans and selected fungal pathogens in vitro	Cutaneous candidiasis and superficial fungal infections
Antioxidant	Reduced oxidative stress through free-radical scavenging and prevention of lipid peroxidation	Photoaging and chronic inflammatory dermatoses
Wound Healing	Accelerated wound contraction, collagen synthesis, and re-epithelialization in animal wound models	Chronic wounds, burns, ulcers and fissures
Skin Conditioning	Improved skin softness, elasticity, and moisture retention with topical application	Maintenance of healthy skin and adjunctive therapy in chronic dermatoses

6. Phytochemistry of IAFA 333 Cream

The therapeutic potential of IAFA 333 Cream is largely attributed to the diverse phytochemical constituents present in its herbal ingredients. Unlike synthetic topical agents that often act through a single molecular target, polyherbal formulations contain numerous bioactive compounds capable of acting synergistically on multiple inflammatory, oxidative, microbial, and regenerative pathways. Modern phytochemical investigations have identified flavonoids, terpenoids, limonoids, iridoids, coumarins, triterpenoids, phenolic acids, fatty acids, phytosterols, tannins, and glycosides within the constituent plants of IAFA 333 Cream. These compounds collectively contribute to modulation of inflammatory mediators, enhancement of antioxidant defense, inhibition of pathogenic microorganisms, promotion of epithelial regeneration, and restoration of skin barrier function.

The multitarget nature of these phytochemicals aligns closely with the Ayurvedic concept of Samyoga(synergistic combination), wherein the combined action of multiple herbs produces superior therapeutic efficacy compared with isolated constituents. Furthermore, the use of coconut oil as the formulation base not only provides emollient effects but also enhances dermal penetration and bioavailability of lipophilic phytochemicals.

7. Synergistic Pharmacology of IAFA 333 Cream

One of the features of IAFA 333 Cream is its polyherbal design, which reflects the Ayurvedic concept of *Yogavahi* and *Samyoga*. Rather than relying on a single active molecule, the formulation combines herbs with complementary actions to treat multiple aspects of skin pathology simultaneously.

Table 17: Functional Contribution of Each Ingredient

Ingredient	Primary Contribution	Secondary Contribution
Wrightia tinctoria	Anti-inflammatory, keratinocyte regulation	Wound healing, antioxidant
Azadirachta indica	Antimicrobial, anti-inflammatory	Immunomodulation, antipruritic
Albizia lebbeck	Antiallergic, mast-cell stabilization	Antioxidant, anti-inflammatory
Pongamia pinnata	Antifungal, antibacterial	Wound healing, antioxidant
Cocos nucifera	Barrier repair, moisturization	Enhanced penetration of herbal actives

8. Clinical Applications of IAFA 333 Cream in Dermatological Disorders

The therapeutic application of IAFA 333 Cream extends across a broad spectrum of dermatological conditions characterized by inflammation, pruritus, microbial colonization, impaired barrier function, dysregulated immune responses, and delayed tissue repair. Based on Ayurvedic principles and available experimental evidence on its constituent herbs, the formulation may exert beneficial effects through simultaneous modulation of multiple pathogenic mechanisms. However, it is important to distinguish between conditions for which evidence is currently limited to pharmacological rationale and case reports and those supported by stronger clinical data. At present, most published evidence for IAFA 333 Cream consists of individual case reports and observational clinical use rather than randomized controlled trials. Therefore, the therapeutic applications discussed below should be interpreted within the context of the available level of evidence.

8.1 Psoriasis(*Kitibha Kushtha / Eka Kushtha*)
Psoriasis is a chronic immune-mediated inflammatory disorder characterized by excessive keratinocyte proliferation, erythematous plaques, scaling, and recurrent exacerbations. Contemporary understanding implicates activation of the IL-23/IL-17 axis, TNF-α, oxidative stress, and epidermal hyperproliferation in disease pathogenesis.

According to *Ayurveda*, psoriasis exhibits clinical similarities with *Kitibha Kushtha* and *Eka Kushtha*, involving predominance of *Vata* and *Kapha Dosha* along with vitiation of *Rakta Dhatu*. Several constituent herbs of IAFA 333 Cream demonstrate pharmacological activities relevant to psoriasis.

- Suppression of inflammatory cytokines
- Normalization of keratinocyte proliferation
- Antioxidant protection
- Reduction in scaling
- Wound healing
- Restoration of epidermal barrier

Among these, *Wrightia tinctoria* has received particular attention because experimental and clinical studies on formulations containing this herb have suggested improvement in psoriatic lesions through modulation of epidermal hyperproliferation and inflammation. Neem and Karanja further contribute antimicrobial and anti-inflammatory actions that may reduce secondary infection and irritation associated with chronic plaques. Although these findings are encouraging, well-designed randomized controlled trials evaluating IAFA 333 Cream specifically in psoriasis are currently lacking.

8.2 Atopic Dermatitis and Eczema(*Vicharchika*)
Atopic dermatitis is characterized by chronic relapsing eczema associated with intense pruritus, xerosis, impaired skin barrier function, and immune dysregulation. In Ayurveda, the condition closely resembles *Vicharchika*, in which *Kapha, Pitta,* and *Rakta* play predominant pathogenic roles.

The therapeutic rationale of IAFA 333 Cream includes.

- Reduction in itching
- Restoration of barrier integrity
- Suppression of inflammatory mediators
- Moisturization
- Antimicrobial protection
- Promotion of epithelial repair

Neem and *Albizia lebbeck* may contribute to suppression of allergic inflammation through inhibition of histamine release and inflammatory cytokines. Coconut oil improves hydration and reduces trans-epidermal water loss, while Wrightia and Karanja may assist in reducing chronic inflammation and microbial colonization. Collectively, these mechanisms suggest that IAFA 333 Cream may serve as a supportive topical intervention in chronic eczema; however, further controlled clinical studies are required.

8.3 Vitiligo(*Shwitra*)
Vitiligo is an acquired pigmentary disorder characterized by progressive destruction or dysfunction of melanocytes. Ayurveda describes *Shwitra* as a disorder involving disturbances of *Bhrajaka Pitta, Rakta, Mamsa,* and *Tridosha.*

Although IAFA 333 Cream is not a melanocyte-stimulating formulation in the conventional sense, its antioxidant, anti-inflammatory, wound-healing, and skin-restorative properties may create a favorable local environment for adjunctive management when combined with internal Ayurvedic medicines.

8.4 Allergic Contact Dermatitis
Allergic dermatitis results from delayed hypersensitivity reactions mediated by T lymphocytes, inflammatory cytokines, and epidermal immune activation. *Albizia lebbeck* possesses well-documented antiallergic and mast-cell stabilizing properties, while neem and Wrightia exhibit anti-inflammatory activities.

Collectively, the formulation may contribute to.

- Reduction of erythema
- Relief of itching
- Decreased inflammatory response
- Accelerated skin repair

These properties support its use as an adjunctive therapy in allergic inflammatory dermatoses.

8.5 Superficial Fungal Infections
Dermatophyte infections remain among the most common dermatological disorders globally. *Karanja* and *Neem* possess experimentally validated antifungal activity against several dermatophytes and Candida species.

Potential therapeutic mechanisms include.

- Disruption of fungal cell membranes
- Inhibition of fungal proliferation
- Reduction of inflammatory response
- Prevention of secondary bacterial infection

Although recent studies demonstrate antifungal activity of individual herbs, clinical evidence evaluating IAFA 333 Cream as monotherapy for dermatophytosis is currently insufficient.

8.6 Chronic Xerosis and Barrier Dysfunction
Chronic xerosis contributes to pruritus, fissuring, eczema, and recurrent inflammation. Coconut oil improves.

- Hydration
- Epidermal lipid content
- Barrier repair
- Elasticity

- Reduction of transepidermal water loss

This emollient effect complements the anti-inflammatory properties of herbal constituents.

8.7 Chronic Pruritic Disorders

Pruritus is one of the most distressing symptoms encountered in dermatology.

Ayurveda describes *Kandu* as an important manifestation of *Kapha-Pitta-Rakta* vitiation.

Several ingredients demonstrate *Kandughna* activity through:

- Reduction of inflammatory mediators
- Suppression of histamine release
- Improvement of skin hydration
- Restoration of epidermal integrity

9. Clinical Evidence Supporting IAFA 333 Cream

Although the pharmacological properties of the individual herbal ingredients of IAFA 333 Cream have been extensively investigated in experimental studies, direct clinical evidence for the proprietary formulation remains limited. The currently available evidence primarily consists of peer-reviewed case reports and institutional clinical case studies conducted at the Institute of Applied Food Allergy(IAFA). These reports suggest that IAFA 333 Cream may provide therapeutic benefits in inflammatory, allergic, infectious, and pigmentary skin disorders when used as part of a comprehensive Ayurvedic treatment protocol. However, the available evidence is largely observational, highlighting the need for well-designed randomized controlled trials to establish definitive efficacy and safety.

Table 18: Published Clinical Evidence on IAFA 333 Cream in Dermatological Disorders.

Publication	Disease	Study Design	Role of IAFA 333 Cream	Major Clinical Outcome
Ayurvedic Management of Sun Allergy(Solar Urticaria). International Journal of Advanced Research(2025)	Solar Urticaria	Published single case report	Used as external topical therapy to reduce erythema, inflammation, pruritus, and support skin healing along with internal Ayurvedic medicines	Complete clinical remission with improved sun tolerance and no recurrence during follow-up
Clinical Management of Pityriasis Alba(Hypo-Pigmentary Dermatosis) with Allergy March Through Ayurveda. World Journal of Pharmaceutical and Medical Research(2025)	Pityriasis alba with Allergic March	Published single case study	IAFA 333 Oil followed by IAFA 333 Cream(3–5 g, 2–3 times daily) to restore pigmentation, reduce dryness, improve epidermal barrier and promote tissue repair	Near complete repigmentation, disappearance of scaling and dryness, improvement of associated eczema and allergic manifestations with sustained remission.
23-Year-Old Female Patient Recovered from Pityriasis Alba(IAFA Clinical Repository)	Pityriasis alba	Institutional case report	External application of IAFA 333 Cream as part of multimodal Ayurvedic therapy	Significant improvement in hypopigmented lesions, skin texture and dryness
34-Year-Old Female Patient Recovered from Eczema and Sun Allergy(IAFA Clinical Repository)	Eczema with Solar Allergy	Institutional case report	Topical application over affected lesions throughout treatment	Reduction in erythema, pruritus, xerosis, and photosensitivity with clinical recovery
3-Year-Old Child Recovered from Allergic March(IAFA Clinical Repository)	Atopic dermatitis / Allergic March	Institutional pediatric case report	Used as external therapy to restore skin barrier and reduce eczema	Improvement in eczema severity, itching, and skin dryness
4-Year-Old Child Recovered from Allergic March(IAFA Clinical Repository)	Atopic dermatitis / Allergic March	Institutional pediatric case report	Applied after IAFA 333 Oil as maintenance topical therapy	Progressive reduction in eczema, itching, and recurrence with restoration of skin barrier
14-Year-Old Child Recovered from Chronic Urticaria(IAFA Clinical Repository)	Chronic Urticaria	Institutional case report	Applied over urticarial lesions to reduce inflammation and itching	Reduction in wheals, erythema, and pruritus with symptomatic improvement
12-Year-Old Child(United Kingdom) Recovered from Pityriasis Alba with Allergic March(IAFA Clinical Repository)	Pityriasis alba with Allergic March	Institutional pediatric case report	Used as part of external Ayurvedic management	Improvement in pigmentation, eczema, and allergic symptoms

Clinical Evidence

Collectively, the currently available clinical evidence indicates that IAFA 333 Cream has been utilized in the management of a broad spectrum of dermatological conditions, including eczema, atopic dermatitis, pityriasis alba, solar urticaria, chronic urticaria, and allergic skin disorders. Across the available reports, the cream was consistently employed as an adjunctive topical formulation rather than as monotherapy. The reported therapeutic benefits include reduction in erythema, pruritus, scaling, xerosis, and inflammation, improvement in skin-barrier integrity, promotion of repigmentation in hypopigmented lesions, and acceleration of tissue repair. The formulation also appeared to contribute to long-term disease control when combined with individualized Ayurvedic internal medications and dietary modifications.

Despite these encouraging observations, the present body of evidence is limited to individual case reports and institutional clinical experiences. No randomized controlled trials, comparative clinical studies, or multicenter investigations evaluating IAFA 333 Cream have yet been published. Consequently, while the preliminary findings are promising, further high-quality clinical research is necessary to validate its efficacy, establish standardized treatment protocols, and define its role in evidence-based integrative dermatology.

10. Safety Profile of IAFA 333 Cream

IAFA 333 Cream is a polyherbal topical formulation, and its anticipated safety profile is largely inferred from the traditional use of its constituent herbs and published data on those individual ingredients. However, dedicated long-term safety studies evaluating the complete IAFA 333 Cream formulation are currently lacking, and this distinction should be clearly acknowledged.

Potential Safety Advantages

Based on currently available information, IAFA 333 Cream may offer several practical advantages.

- Multi-target herbal formulation
- Topical local action
- Moisturizing base supporting barrier repair
- Suitable for prolonged supportive use under medical supervision
- Does not rely on topical corticosteroids for its therapeutic activity.
- May reduce the need for repeated steroid exposure in selected patients as an adjunctive therapy.

Precautions

Despite its herbal composition, appropriate precautions remain important:

- Perform a patch test before first application in individuals with highly sensitive skin.
- Avoid application to eyes and other mucosal surfaces.
- Do not apply over bleeding wounds unless specifically advised.
- Discontinue use if severe irritation or hypersensitivity develops.
- Use under physician supervision in pregnancy, lactation, or infants because formulation-specific safety studies are limited.

11. CONCLUSION

IAFA 333 Cream is a promising Ayurvedic polyherbal topical formulation developed on the classical principles of Kushthaghna, Kandughna, Krimighna, Tvachya, and Vranaropana. The individual herbal ingredients possess well-documented anti-inflammatory, antioxidant, antimicrobial, immunomodulatory, wound-healing, and skin barrier-restorative properties, providing a scientific rationale for their use in dermatological disorders. Available published case reports and observational evidence suggest that IAFA 333 Cream may be beneficial in the management of inflammatory, allergic, infectious, and pigmentary skin diseases, particularly when used as part of a comprehensive Ayurvedic treatment regimen that includes appropriate internal medications, dietary modifications, and lifestyle interventions.

However, the current evidence is largely limited to case reports and preclinical studies on individual ingredients, with limited clinical evaluation of the finished formulation. Therefore, large-scale randomized controlled trials, long-term safety studies, and mechanistic investigations are required to establish its efficacy, safety, and therapeutic role in evidence-based integrative dermatology.

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