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Review on Role of Neem in Skin Disorder

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Abstract

Neem, or Azadirachta indica, is a popular medicinal plant that is used to treat a variety of skin conditions in traditional medical systems. Antibacterial, antifungal, anti-inflammatory, antioxidant, wound healing, anti-pruritic, and moisturizing properties are only a few of its many pharmacological actions. Its abundant phytochemical components, including limonoids, triterpenoids, flavonoids, sterols, and polyphenols, are primarily responsible for these actions. Neem has demonstrated efficacy against a variety of skin pathogens that cause wound-related problems, psoriasis, eczema, acne, and fungal infections. Its regenerative and antioxidant qualities aid in oxidative stress defense and skin restoration. The current review emphasizes neem's use in dermatological applications and raises the possibility that it could be a safe and efficient natural medicinal substance. However, more clinical research is needed to standardize and validate its long-term effectiveness.

Keywords: Neem, Azadirachta indica, Skin Disorders, Dermatology, Phytochemicals.

Introduction

The skin, the biggest organ in the body, acts as a crucial barrier to protect against physical trauma, microbial invasion, and environmental harm. Skin conditions such wounds, psoriasis, acne, eczema, and fungal infections are very common and can have a big impact on one's quality of life. Despite the widespread use of traditional treatments including corticosteroids, antibiotics, and antifungals, their adverse effects—such as skin thinning, resistance, or irritation—have led to an increase in interest in alternative remedies made from natural sources. In traditional medical systems like Ayurveda, Siddha, and Unani, Azadirachta indica, or neem, is a well-known medicinal plant. Neem, which is native to the Indian subcontinent, has long been valued for its many medicinal uses, especially for the treatment of skin conditions [1].

Neem belongs to the family Meliaceae, which includes maghogany. It is mostly grown in the subcontinent of India. Neem, or Azadirachta indica as it is known botanically, is a fast-growing evergreen tree that is widely distributed in America, Africa, and India. The neem tree thrives in tropical and subtropical climates and is indigenous to East India and Burma. Ayurvedic, Siddha, and herbal medicine practitioners in India recommend various portions of the neem tree because of its well-known therapeutic qualities. Antibacterial, antiparasitic, anti-inflammatory, and antioxidant are just a few of the qualities of neem leaf [2].

Eczema and scabies can be treated topically with an indica decoction or poultice. Ringworm infection, psoriasis, and scrofula illness during tuberculosis have all been proven to be effectively treated by leaf oil [3]. Another scientist has reported applying neem and turmeric lotion on the skin's mucous membrane at night to treat scabies, eczema, and other dermatological issues without seeing any negative side effects. The remarkable herbal potential of neem in reducing various skin allergens is demonstrated by the use of neem oil as a cosmeceutical for rejuvenating and beautifying skin against skin infections such as eczema and acne [4-5].

Botanical Description

Scientific Name: Azadirachta indica A. Juss.
Common Name: Neem, Indian Lilac
Family: Meliaceae
Sanskrit Name: Nimba
Hindi Name: Neem
Parts Used: Leaves, bark, seeds, flowers, fruits

Neem is a tropical evergreen that grows quickly and belongs to the Maghogany family. India, Bangladesh, Pakistan, and Nepal are among the tropical and semitropical areas where it is abundant [6]. It will flourish in regions with 450–1200 mm of precipitation [7]. The yearly mean temperature of this

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typical tropical to subtropical tree is between 21 and 32 °C. Although neem trees may grow in a variety of soil types, deep, sandy soils with good drainage are ideal for their growth. Their lifespan is said to reach 200 years [8]. The neem tree grows to a height of 20 to 23 meters, with a straight trunk that is about 4 to 5 feet in diameter. Each of the compound, alternating, imparipinnate leaves has five to fifteen leaflets [6]. Neem trees have short petioles. Early in the summer, the tree is frequently covered in exquisite blossoms. The blooms are grouped in axillary panicles, which can reach a length of 25 cm and are typically more or less drooping. The neem tree produces green drupes that turn golden yellow when they ripen between June and August.

Morphology of Neem (Azadirachta Indica)

Neem, or Azadirachta indica, is a fast-growing evergreen tree in the Meliaceae family. Particularly in the Indian subcontinent, it is extensively found in tropical and subtropical areas.

i). **Routine:** Typically reaching a height of 15 to 20 meters, neem is a medium to large-sized evergreen tree. It offers substantial shade thanks to its widely spreading crown.

ii). **The Trunk and Bark:** The bark is fissured and rough, and the trunk is sturdy and straight. As it ages, the dark grey to brown bark develops deeper cracks.

iii). **Exits:** The alternating, pinnately complex leaves range in length from 20 to 40 cm. Each leaf has seven to seventeen leaflets.

iv). **The Flyers are:** Shaped like a lance (lanceolate) A vivid shade of green Smooth surface with serrated edges and a distinctively bitter taste.

v). **Blooming:** Little, fragrant flowers range in color from white to creamy-white. They are grouped in panicles along the axilla. Every flower smells pleasant and is bisexual.

vi). **Citrus:** The fruit is a smooth, olive-like drupe that becomes yellow when ripe from green when it is young. There is only one seed inside.

vii). **Seed The firm,** long seeds are contained inside the fruit. The oil found in neem seeds, also referred to as neem oil, has therapeutic properties.

viii). **System Root:** Because of its deep taproot system, neem is able to withstand dry and droughty conditions [9].

***Azadirachta indica* (Neem) Phytochemical Components**

Triterpenoids, limonoids, flavonoids, sterols, fatty acids, and polyphenols are among the many phytochemicals that are abundant in neem and contribute to its therapeutic qualities [10].

Neem's Main Phytochemical Classes

i). **Limonoids:** Important limonoids found in neem, including nimbin, salannin, gedunin, and azadirachtin, are well known for their antibacterial, anti-inflammatory, and insect-repelling qualities [10, 11].

ii). **Triterpenoids:** Nimbidin, nimbosterol, and margolone are examples of compounds that have potent antibacterial, antifungal, and anti-inflammatory properties [10, 11].

iii). **Flavonoids:** Quercetin and kaempferol, two flavonoids found in neem, have anti-allergic and antioxidant properties and shield the skin from oxidative damage [11].

iv). **Polymers:** Polyphenolic substances are potent antioxidants that counteract free radicals that cause aging skin and chronic inflammation [11].

v). **Neem Oil, or Fatty Acids:** Fatty acids included in neem oil, including oleic acid, linoleic acid, and palmitic acid, hydrate the skin and aid in the healing of wounds [10,12].

vi). **Sterols:** Sterols, including β-sitosterol, have the ability to reduce inflammation and repair damaged skin [10].

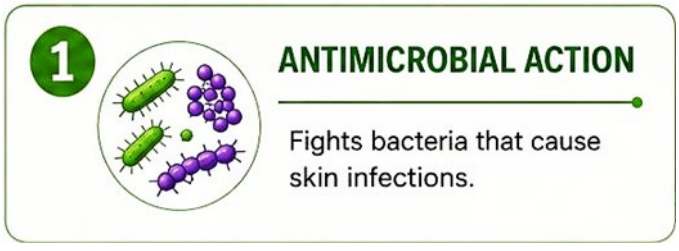
Pharmacological Reactions Associated with Skin Conditions

Neem, or Azadirachta indica, has shown a variety of pharmacological properties that are especially helpful in the treatment of several skin conditions. Its rich phytochemical content, which includes flavonoids, polyphenols, limonoids, and triterpenoids, is mainly responsible for these effects.

1. Antimicrobial Action

Strong antibacterial activity is demonstrated by neem, which successfully targets a variety of microorganisms that cause skin diseases. It is effective against the three main bacteria that cause acne, boils, and other skin infections: Propionibacterium acnes, Streptococcus pyogenes, and Staphylococcus aureus. Bacterial growth and biofilm formation are inhibited by neem leaf, bark, and neem oil extracts [13].

Use: Beneficial for cellulitis, folliculitis, acne, and infected wounds.



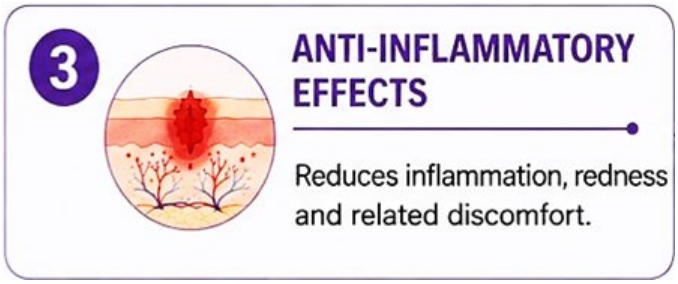
2. The Antifungal Effect

Neem has broad-spectrum antifungal qualities that work against species of Microsporum, Trichophyton, Candida albicans, and Epidermophyton. It prevents fungal growth and disrupts the integrity of the fungal cell membrane.[13, 14].

Use: For cutaneous candidiasis, ringworm, athlete's foot, and onychomycosis.

3. Impacts on Inflammation

Inflammatory pathways are modulated by neem chemicals such nimbolide, nimbidin, and quercetin. They lessen inflammation and related discomfort by inhibiting the cyclooxygenase (COX) and lipoxygenase (LOX) enzymes [14].
Use: Helpful for inflammatory acne, allergic dermatitis, psoriasis, and eczema.



4. Activity of Antioxidants

Antioxidants found in neem help to counteract free radicals. Vitamin E, flavonoids, and polyphenols shield skin cells from photoaging and oxidative damage [15].
Use: Promotes skin restoration and stops hyperpigmentation and early aging.

5. Tissue Regeneration and Wound Healing

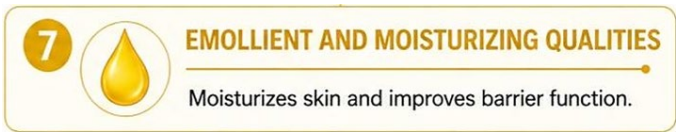
Neem increases angiogenesis, fibroblast proliferation, and collagen production to aid in wound healing. Additionally, it speeds up tissue regeneration and re-epithelialization by lowering the microbial burden in wounds and ulcers [14, 15].
Use: Beneficial for minor cuts, burns, diabetic ulcers, and chronic wounds.

6. Anti-allergic and Anti-pruritic Properties

By preventing the release of histamine and the degranulation of mast cells, neem relieves itching and allergic responses [15].
Use: Beneficial for itchy scalps, bug bites, allergic dermatitis, and eczema.

7. Emollient and Moisturizing Qualities

Essential fatty acids like oleic and linoleic acid found in neem oil help to keep skin hydrated and enhance barrier function [13].
Use: Helps with psoriatic plaques, eczema, and dry skin disorders.



Discussion

Skin conditions are quite common and frequently need long-term care, but traditional treatments can lead to resistance and unwanted effects. Herbal substitutes like Azadirachta indica, or neem, which has long been used to treat a variety of dermatological issues, have become more popular as a result.
Neem works well against the microorganisms that cause acne, fungal infections, and other skin conditions because of its potent antibacterial and antifungal qualities. Its anti-inflammatory properties aid in the reduction of redness, swelling, and irritation associated with psoriasis and eczema. Its antioxidant qualities also prevent premature aging and shield the skin from oxidative stress.
By boosting collagen synthesis and tissue regeneration, neem also aids in the healing of wounds. Particularly in dry and allergy skin diseases, its moisturizing and anti-pruritic properties enhance skin comfort and barrier restoration. Although further clinical research is required to standardize and validate its effectiveness, neem generally shows promise as a natural medicinal agent for treating a variety of skin conditions.

Conclusion

Neem, or Azadirachta indica, is a very useful medicinal plant with great potential for treating a variety of skin conditions. Its traditional application in dermatology is supported by its broad range of pharmacological actions, which include antibacterial, anti-inflammatory, antioxidant, wound healing, anti-pruritic, and moisturizing properties. For the treatment of wounds, fungal infections, psoriasis, acne, eczema, and other skin problems, neem provides a natural, somewhat safe, and affordable substitute for pharmaceutical medications. One important factor in its therapeutic efficacy is the presence of bioactive substances. However, to completely determine its efficacy and safety profile for contemporary dermatological usage, further carefully planned clinical trials and preparation standardization are needed. All things considered, neem shows promise as herbal remedy for integrative skin care.

References

1. Meena AK, Yadav AK, Pandey VK. Review on Neem (*Azadirachta indica*): Thousands of problems one solution. *Int Res J Pharm.* 2011;2(12):97–102.
2. Govindachari TR, Suresh G, Gopalakrishnan G,

Banumathy B, Masilamani S. Identification of antifungal compounds from the seed oil of *Azadirachta indica*. *Phytoparasitica.* 1998;26(2):109-116.
3. Bhowmik D, Chiranjib, Yadav J, Tripathi KK, Kumar KPS. Herbal Remedies of *Azadirachta indica* and its Medicinal Application. *J Chem Pharm Res.* 2010;2(1):62-72.
4. Biswas K, Chattopadhyay I, Banerjee RK, Bandyopadhyay U. Biological activities and medicinal properties of neem (*Azadirachta indica*). *Curr Sci.* 2002;82(11):1136-1345.
5. Satralkar S, Zagade TB. Effectiveness of Application of Neem Paste on Face Acne among Teenagers in Selected Area of Sangli, Miraj and Kupwad Corporation. *Intern J Sci Res.* 2019;8(6):1387-1396.
6. Girish K, Neem SBS. A green treasure. *Electronic Journal of Biology.* 2008;4:102-111.
7. Sonalkar MY, Nitave SA, Kagalkar AA. Review on Neem Plant. *World Journal of Pharmacy and Pharmaceutical Sciences.* 2014;3(4):590-598.
8. Maithani A, Parcha V, Pant G, Dhulia I, Kumar D. *Azadirachta indica* (Neem) Leaf: A Review. *Journal of Pharmacy Research.* 2011;6(4):1824-1827.
9. Kirtikar KR, Basu BD. *Indian Medicinal Plants.* Vol. 1. International Book Distributors; 1987.
10. Subapriya R, Nagini S. Medicinal properties of neem leaves: a review. *Current Medicinal Chemistry – Anti-Cancer Agents.* 2005;5(2):149–156.
11. National Research Council. *Neem: A Tree for Solving Global Problems.* Washington, DC: National Academies Press; 1992.
12. Tewari A, Jain PC. *International Journal of Pharmaceutical Sciences and Research.* 2011;2(8):1957–1962.
13. Koul O, Isman MB, Ketkar CM. *Canadian Journal of Botany.* 1990;68(1):1–11.
14. Sharma P, Verma R. *Journal of Pharmacognosy and Phytochemistry.* 2014;3(3):78–83.