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“MEDICINAL USE OF NIMBA (AZADIRACHTA INDICA) IN AYURVEDA: AN INTEGRATED REVIEW”**Dr. Janhavi Patil¹, Dr. Mamta Narvekar², Dr. Sanjay Nandedkar³**

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YMT Ayurvedic Medical College, Kharghar, Navi Mumbai.**ABSTRACT:**

Nimba (*Azadirachta indica*) is a prime medicinal plant in Ayurveda, widely used for skin diseases, fevers, infections, prameha, and chronic inflammatory conditions. Classical texts describe Nimba as tikta, sheeta, ruksha, and laghu, with predominant action on kapha-pitta doshas and utilities as krimighna, kushtaghna, jvaraghna, and raktashodhaka. Modern phytochemical studies reveal a rich liminoid profile (azadirachtin, nimbin, nimbidin, etc.), along with flavonoids, phenolics, saponins, and alkaloids, which underlie its broad-spectrum pharmacological activities. Experimental evidence supports antimicrobial, antidiabetic, anti-inflammatory, wound-healing, hepatoprotective, anticancer, immunomodulatory, and anthelmintic effects of Nimba extracts. This integrated review summarises standard Ayurvedic dosages and formulations (e.g., Nimba churna, Pancha Nimba Churna, Nimbamritasavam, Nimbadi Churna) alongside their alignment with modern pharmacological findings, highlighting Nimba as a model example of synergy between classical Ayurvedic knowledge and contemporary scientific validation.

KEY WORDS:- Nimba, Ayurveda, Phytochemistry, Antimicrobial Activity, Raktashodhaka**Corresponding Details:****Dr. Janhavi Patil**

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INTRODUCTION

Nimba (*Azadirachta indica*), commonly known as neem, is one of the most widely used medicinal plants in Ayurveda, referred to traditionally as the “village pharmacy” due to its multiform therapeutic potential. The plant is used internally and externally for conditions ranging from skin diseases, fevers, and infections to metabolic disorders such as prameha and diabetes. Classical Ayurvedic texts describe Nimba as predominantly bitter (tikta), cooling (sheeta), and light (laghu), with strong action on Pitta and Kapha doshas. In recent decades, modern pharmacological research has validated many of these traditional claims, demonstrating antimicrobial, antidiabetic, anti-inflammatory, wound-healing, and immunomodulatory activities of its extracts and constituents. This article presents an integrated review of Nimba’s medicinal use, focusing on dosage, formulations, phytochemistry, and pharmacological actions, viewed from both classical Ayurvedic and modern scientific perspectives.

Classical reference (single line):

“निम्बः तिक्तशीतो रूक्षः कटुविपाकः कफपित्तघ्नः कुष्ठकृमिज्वरहरः” – Bhavaprakasha Nighantu, Nimba varga.

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Materials and Methods

This review is based on a structured collation of: **National Journal of Ayurveda & Yoga**

Classical Ayurvedic texts such as Charaka Samhita, Sushruta Samhita, and Bhavaprakasha Nighantu focus on the description of Nimba under Rasa-Guna-Virya-Vipaka-Karma and therapeutic indications.

Modern pharmacological and phytochemical reviews on *Azadirachta indica* from PubMed, PMC, and peer-reviewed journals (2012–2024).

Data extraction was limited to:

Standard Ayurvedic formulations and dosages.

Major phytochemical constituents.

Key pharmacological activities (antimicrobial, antidiabetic, anti-inflammatory, wound healing, hepatoprotective, anticancer, immunomodulatory, anthelmintic).

Results: Traditional Uses

Classical Ayurvedic compendia describe Nimba as the following:

Rasa: Tikta (bitter), with some authors noting a kashaya (astringent) character, especially in bark and seed.

Guna: Ruksha (dry), laghu (light), teekshna (sharp).

Virya: Sheeta (cooling).

Vipaka: Katu (pungent) or amla (sour), depending on the part and preparation.

Karma: Kapha–Pitta-hara, krimighna, kushtaghna, jvaraghna, pramehahara (especially in surameha-pradhana types), and raktashodhaka.

Nimba is indicated in kushtha, vicharchika, vranasotha, krimi-roga, jvara, prameha, and chronic inflammatory conditions.

Dosages and formulations in Ayurveda

Typical dosages and formulations used in clinical practice are listed below:

Leaf powder (Nimba churna): 2–4 g once or twice daily with warm water or honey.

Leaf decoction (Nimba kashaya): 5–10 g dried leaves boiled in 200 ml water, reduced to 50–100 ml; 50–100 ml once or twice daily.

Leaf juice (Nimba svarasa): 10–20 ml once or twice daily.

Stem bark decoction: Similar to leaf decoction, used in pitta-kapha-dominant skin and prameha-related conditions.

Leaf paste (Nimba lepa): 10–20 g fresh leaf paste applied externally for wounds, eczema, and acne.

Nimba oil (Nimba taila): 1–10 drops (as part of medicated oil) externally for wounds and skin lesions; avoid high internal doses in pregnancy and vata-prakriti.

Common compound formulations:

Pancha Nimba Churna

2–3 g once or twice daily for chronic skin diseases, sinus issues, fistula-in-ano, and recurrent infections.

Nimbamritasavam

12–24 ml once or twice daily after food for fever and pitta-kapha-dominant skin diseases.

Nimbadi Churna

1–3 g once or twice daily with Giloy decoction or honey for fever, prameha-related skin lesions, and inflammation.

Neem capsules (standardised extract)

500 mg per capsule, 1–2 capsules twice daily after meals for antimicrobial and detox indications.

Adjustments are made for age, prakriti, agni, and disease severity, with lower doses in vata-dominant and paediatric patients.

1. Phytochemical Composition

Phytochemical composition of Nimba

Modern analytical studies report that different parts of Nimba contain a rich blend of secondary metabolites:

Liminoids (tetranortriterpenoids):

Azadirachtin, nimbin, nimbolinin, nimbidin, salannin, gedunin, melianone, azadirachnol, nimbocin, and nimboctin.

Azadirachtin is the most abundant and biologically active liminoid, underpinning much of the antifeedant, insecticidal, and antiparasitic activity.

Other constituents:

Flavonoids (e.g., quercetin), alkaloids, steroids, saponins, tannins, phenolic compounds, diterpenes, triterpenes, fatty acids, and carbohydrates.

Phenolics and flavonoids contribute to antioxidant and anti-inflammatory effects.

The bitter, dry, and cooling properties described in Ayurveda closely parallel the high liminoid and phenolic content of nimba.

2. Pharmacological Activities

Experimental studies demonstrate a wide spectrum of pharmacological actions:

Antimicrobial: Antibacterial, antifungal, and antiviral activity against *Staphylococcus aureus*, *Candida* species, HSV, and other pathogens.

Antioxidant: Strong free-radical scavenging due to phenolics and flavonoids.

Anti-inflammatory and analgesic: Nimbidin and leaf extract suppress macrophage and neutrophil activity; the analgesic effect is confirmed in animal models.

Antidiabetic: Antihyperglycaemic effect and improved glucose tolerance and lipid profile in diabetic models.

Hepatoprotective: Protection against hepatotoxins such as CCl₄ and paracetamol.

Wound healing: Accelerated wound contraction and epithelialisation with nimba-leaf and seed-oil preparations.

Anticancer / cytotoxic: Liminoids induce antiproliferative and proapoptotic effects in several cancer cell lines.

Immunomodulatory: Modulation of macrophage activation and cytokine profile.

Anthelmintic / antiparasitic: Inhibition of intestinal worms and external parasites, linked to liminoid-based antifeedant action.

These activities directly parallel the classical karma of Nimba as krimighna, kushtaghna, jvaraghna, raktashodhaka, and pramehahara.

DISCUSSION

The medicinal use of Nimba in Ayurveda exemplifies the integration of simple, time-honoured plant-based therapeutics with modern mechanistic understanding. Classical descriptions of its bitter, cooling, and detoxifying properties align closely with the high content of liminoids and phenolics identified in modern phytochemical studies. The broad-spectrum pharmacological activities—antimicrobial, antidiabetic, anti-inflammatory, wound-healing, hepatoprotective, anticancer, and anthelmintic—support its traditional indications in skin diseases, fevers, prameha, krimi-roga, and chronic inflammatory conditions.

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Clinically, Nimba is most beneficial when used in appropriate part-specific formulations (leaf, bark, fruit, pancha-nimba, and liquids such as Nimbamritasavam) and at judicious doses, individualised to dosha, agni, and age. High or prolonged doses should be avoided in vata-dominant, undernourished, or pregnant patients, as the ruksha and teekshna gunas may aggravate vata and reduce strength.

From a postgraduate research perspective, standardised extracts, fixed-dose trials, long-term safety, and studies on synergy with conventional drugs are areas needing further exploration. At the same time, carefully framed, text-based Ayurvedic protocols (e.g., Pancha Nimba-based detox-relief-rehab sequences) can be validated in clinical settings, preserving the classical wisdom while integrating modern pharmacology.

CONCLUSION

Neem (*Azadirachta indica*) is a key drug in Ayurveda, used traditionally for skin diseases, fevers, infections, prameha, and inflammatory disorders. Its classical description as tikta, sheeta, ruksha, and laghu with kapha–pitta-hara and raktashodhaka action matches modern findings of liminoids, flavonoids, and phenolics that give antimicrobial, antidiabetic, anti-inflammatory, wound-healing, hepatoprotective, anticancer, and anthelmintic effects. Formulations like Nimba churna, Pancha Nimba Churna, Nimbamritasavam, and Nimbadi Churna, used in rational doses and individualised to prakriti and agni, remain clinically relevant today. For Ayurvedic postgraduates, further standardisation, dose-response studies, and integrative clinical trials can strengthen Nimba's place as a practical, evidence-based remedy in modern practice.

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