

Therapeutic uses and action of Neem on Skin diseases Vs InnoVision Neem capsule/Tablet

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Abstract: Skin is the largest organ which protects the inner organs from external environment. The Conditions of the human integumentary system constitute a broad spectrum of diseases, also known as dermatoses, as well as many nonpathologic conditions. While only a small number of skin diseases accounts for most visits to the physician, the description of skin disease are numerous. Medicinal plants are part and parcel of human society to combat diseases, since the time immemorial. Neem has been extensively used in ayurveda, unani and homoeopathic medicine and has become a cynosure of modern medicine.

Key Words: Neem, Skin, effect, antioxidant, herbal products, formulation.

INTRODUCTION:

Human skin is the largest organ in the body which constitutes the first line of defence. Skin is made of specialized cells and structures. The skin guards the underlying muscles, bones, ligaments and internal organs.¹ skin plays a key role in protecting the body against pathogens and excessive water loss.^{2, 3} it's other functions are insulation, temperature regulation, sensation, storage and absorption of oxygen and drugs⁴ and water resistance.⁵

As it interfaces with the environment, skin tends to get damaged by external environmental changes, trauma and microbes, resulting in Skin disease. There are more than a thousand conditions that may affect the skin in all the age group from infants to elderly. but most skin diseases can be categorized into nine common types like Rashes, Viral infections, Bacterial infections, fungal infections, parasitic infections, pigmentation disorders, Tumours and cancers, Trauma, Other conditions.²

The World Health Organization (WHO) has estimated that as many as 80% of the world population is dependent on traditional medicine for their primary health needs⁶. People living in the developing countries like India rely mainly on traditional medicine for primary health care.⁷ According to some studies about 65% of Indians are dependent on the traditional system of medicine for maintaining health.⁸ Skin diseases like eczema, leucoderma, ringworm, scabies, and many other conditions are treated mainly with herbal drugs in India.

Natural medicines are gaining popularity because of several advantages such as often having fewer side-effects, better patient tolerance, and these provide rational means for the treatment of many diseases that are obstinate and chronic which are not treated in other systems of medicine. There are several plants which are used to treat skin diseases but neem is considered as the best herb in skin diseases for centuries. It is a highly esteemed tree with several beneficial properties, especially known for its incredible therapeutic values for mankind. Each part of the Neem tree has some medicinal property and is thus commercially exploitable.⁹

ETHNOPHARMACOLOGICAL ASPECTS OF NEEM:

Neem (*Azadirachta indica*) is a versatile medicinal plant having widespread traditional uses in treating various ailments.¹⁰ The Sanskrit names 'nimba' comes from the term 'nimbat swasthyam dadati' which means 'to give good health' and 'Arishtha' meaning 'reliever of sicknesses. Hence is considered as

‘Sarbaroganibarini’. The benefits of neem are listed in ancient documents ‘Charak-Samhita’ and ‘Susruta-Samhita’, which form the foundation of the Indian system of natural treatment, Ayurveda.¹²

In ayurveda Neem is used in Leprosy, eye problem, epistaxis, intestinal worms, anorexia, biliousness, and skin ulcers. Its Bark is used as analgesic, alternative and curative of fever. Flower is used for elimination of intestinal worms and phlegm. Fruit Relieves piles, intestinal worms, urinary disorder, epistaxis, eye problem, diabetes, wounds and leprosy. Gum is Effective against skin diseases like ringworms, scabies, wounds and ulcers.

PHYTOCEUTICAL COMPOSITION:

Biologically active principles isolated from different parts of the plant include: Azadirachtin, meliacin, gedunin, nimbidin, nimbolides, salanin, nimbin, forms the bitter principles of *Neem* Limonoids contain insecticidal and pesticidal activity.^{16,17}

BITTERS AND ITS HEALTH BENEFITS:

Bitters are heterogeneous vegetative compounds which possess a characteristic bitter taste.

Bitter is primarily an action. When referring to bitter as a constituent it is referred to as ‘The Bitter Principle’ and is often a volatile oil, alkaloid or sesquiterpene (or some combination).

They act as general stimulation of the flow of digestive juices, anti-inflammatory and anti-microbial actions.

InnoVision’s Neem capsule is standardized to 300 mg of Bitters. These leaf extract of Neem has antibacterial, antifungal, anti-inflammatory and antioxidant activities which are supported by following studies.

1. ANTIBACTERIAL AND ANTIFUNGAL ACTIVITY:

The extracts of the leaves of *Azadirachta indica* were screened for two Grampositive bacteria (*Bacillus subtilis* and *Staphylococcus aureus*) and four Gram-negative bacteria (*Escherichia coli*, *Proteus vulgaris*, *Pseudomonas aeruginosa* and *Salmonella typhi*). The susceptibility of the microorganisms to the extracts of plant was compared with selected antibiotics. The methanol extract of *Azadirachta indica* exhibited pronounced activity against *Bacillus subtilis* (28 mm).¹⁸

The leaf extracts of *Azadirachta indica* has great potential to strongly inhibit the members of the Trichophyton and *Microsporum* species causing superficial infection of the skin.^{19–23}

2. ANTI-INFLAMMATORY ACTIVITY

A. indica leaves at a dose of 200mg/kg, p.o., showed significant anti-inflammatory activity in cotton pellet granuloma assay in rats²⁴. Leaf extracts of *Azadirachta indica* promote wound healing activity through increased inflammatory response and neovascularization²⁵.

The anti-inflammatory effect of nimbidin was assessed and compared with phenylbutazone. Intramuscular administration of 40 mg/kg body weight of nimbidin reduced acute paw oedema in rats induced by carrageenan and kaolin. In the acute phase of inflammation, nimbidin at 40 mg/kg body weight was more active than phenylbutazone at 100 mg/kg body weight.²⁶

In a clinical study, administration of 100 mg of oil twice daily for 34 days completely healed chronic skin ulcers up to 1 cm deep.²⁷

3. ANTIOXIDANT ACTIVITY:

The antioxidant activity of neem seed extract has been demonstrated *in vivo* during horsegrain germination, which is associated with low levels of lipooxygenase activity and lipid peroxides. An antioxidant principle has also been isolated, which is a potent inhibitor of plant lipooxygenases.²⁸

Extracts from young flowers and leaves have strong antioxidant potential. An indicator of oxidative stress, malondialdehyde (MDA), was reduced by 46.0% and 50.6% for flower- and leaf-based extracts, respectively.²⁹

4. ACTION ON SKIN:

Regular consumption of *Azadirachta indica* leaves helps in enhancing blood circulation as well as preventing hormonal imbalance that are a major reason behind some skin and hair problems.³⁰

5. IMMUNOSTIMULANT ACTIVITY:

The aqueous extract of leaf at 100 mg/kg after three weeks of oral administration showed potent immune stimulant activity as evidenced by both humoral and cell-mediated responses. Leaf extract caused higher IgM and IgG levels along with increased titre of antiovalbumin antibody.³¹

Aqueous leaf extract possesses antiviral activity against Vaccinia virus,³² Chikungunya and measles virus.³³ The methanolic extract of neem leaves have recently been demonstrated virucidal effect against group-B Coxsackie Viruses.³⁴

CLINICAL STUDIES:

A double blind clinical drug trial study was performed to check the efficacy of drug made up of aqueous extract of neem leaves in 50 cases of uncomplicated psoriasis taking conventional coal tar regime and results revealed that patients taking drug in addition to coal tar had shown a quicker and better response in comparison to placebo group.³⁵

A clinical study of six weeks to check the efficacy of neem extract dental gel with chlorhexidine gluconate (0.2%w/v) mouthwash as positive control and results showed that the dental gel containing neem extract has significantly reduced the plaque index and bacterial count compared to that of the control group.³⁶

The leaf extracts and seed oil of the tree with their anti-microbial effect keep wound or lesion free from infection by bacteria, viruses, parasites and fungi. Clinical studies have also shown that *Azadirachta indica* plays another important role in wound healing by inhibiting inflammation as effectively as cortisone acetate.³⁷

These studies show that Neem acts as an effective anti-inflammatory, antiviral and antibacterial agent which is safe for the medicinal use.

SAFETY EVALUATION:

Nimbidin produces sub-acute toxicity in adult rats after daily administration of 25, 50 or 100 mg/kg for six weeks. A significant hypoglycaemic effect was observed by feeding nimbidin to fasting rabbits. Nimbidin also has spermicidal activity.^{38,39}

CONCLUSION:

As the global scenario is now changing towards the use of herbal products having traditional medicinal background and use, development of efficacious drugs from various plant sources should be emphasized for the control of various diseases. Quite a significant amount of research has already been carried out during the past few decades in exploring the chemistry of different parts of Neem. The above collected information regarding the use of *Azadirachta indica* in world is matched with available literature. This scientific information supported with traditional use and literature confirms the efficacy of Neem in various skin diseases.

InnoVision's Neem Capsule is a 100 % pure, single herb extract prepared from the finest quality of Neem. It is standardized to Standardized to Bitters of 300mg leaf extracts. The above studies support InnoVision's Neem capsules as a therapeutic agent in skin disease.

InnoVision's Neem Capsule/Tablet is standardized formulation that contains extracts standardized to Bitters prepared from the finest quality of Neem /Margosa leaves at the unit which is approved by US FSA Dietary supplement GMP (NSF GMP). The extractive value standardized not less than 10% of the total value of its addition to Bitters. The purest form of bitters which present in the Neem tablet/capsules ensure the highest efficacy in usage extending all its holistic approach as mentioned or referred in the various peer reviewed journals, and useful on all conditions with special emphasis on skin care, anti-acne, wound healing, anti-allergic activities etc.

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