

**MEDICINAL USES OF NEEM (AZADIRACHTA INDICA): A REVIEW ARTICLE****Dr. Bindu Ahlawat\*<sup>1</sup> and Dr. Jagdish Mohan Onkar<sup>2</sup>**<sup>1</sup>PG Scholar Deptt of Dravyaguna, Sriganganagar College of Ayurvedic Science and Hospital, Tanta University, Sriganganagar – 335001, India.<sup>2</sup>Associate Professor Deptt of Dravyaguna, Sriganganagar College of Ayurvedic Science and Hospital, Tanta University, Sriganganagar – 335001, India.**\*Corresponding Author: Dr. Bindu Ahlawat**

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**ABSTRACT**

For thousands of years, humans have sought to fortify their health and cure various ills with herbal remedies. The search for a true panacea or cure-all has been undertaken by virtually every civilization. While hundreds of substances have been tried and tested, few have withstood modern scientific scrutiny. Perhaps no other botanical better meets the true definition of a panacea than Neem, a tropical evergreen primarily native to India and a Ayurveda herbal product. The large number of conditions and treatments using Neem are the result of eons of work by Indian herbalists and healers. They have been supported by modern scientific studies which continue to provide evidence of the effectiveness of Neem in preventing and treating illness and disease. What is so different about the Neem Tree? The Neem tree or margosa is a botanical cousin of mahogany and belongs to the family Maliaceae. Its botanical name is Azadirachta Indica which literally means “the free tree of India.” Native to Indo-Burma region, Neem is distributed throughout South and Southeast Asia, India, Pakistan, Bangladesh, Sri Lanka, Burma, Thailand, Malaysia and Indonesia. In addition Neem is found in several other countries spread over continents and has become now a global tree.

**INTRODUCTION**

The mythology of Neem underlies the long history of Ayurveda’s use of Neem against numerous diseases and conditions. Where the modern system of medicine emphasizes fighting pathogens inside the body, the ancient Indian system of Ayurvedic medicine prescribed particular healing herbs that also helped the body develop a strong resistance to disease-causing agents. Neem is considered a major element in preventing and healing diseases among Ayurvedic practitioners.

Every part of this fascinating tree has been used, from ancient to modern times, to treat hundreds of different maladies. While it is still revered in India for its superior healing properties, recent investigation has dramatically increased worldwide interest in Neem and many products are now manufactured using this miraculous herb. More than any other Indian herb, Neem proved useful in helping the body resist diseases and restore the proper balance to the body’s systems.

Indentured laborers from India carried Neem with them as part of the Indian heritage to many countries to which they migrated such as Fiji, Mauritius and the Caribbean. The tree is now also well established in the Middle East and South America. Recently Neem has been introduced into Saudi Arabia, Yemen, China (Hainan Island) and

Philippines. Small plantings of Neem are also found in USA (South Florida and Hawaii), Brazil and Australia. This presence is, however, scattered and exploratory.

**Basic Scientific Facts:** Neem is an attractive broad-leaved evergreen, fast growing tree with can grow up to 30m tall and 2 1/2 m girth. Its trunk straight is 30-80cm in diameter. It spreading branches form a rounded crown of deep-green leaves and honey-scented flowers as much as 20m across. Neem grows on almost all type of soils, but does particularly well on black cotton soils and deep well drained soil with good sub-soil water. It even thrives well on dry, infertile soils. It performs better than most other multipurpose tree species where soils are sterile, stony and shallow. The tree also grows well on some acid soils. In fact, the fallen Neem leaves, which are slightly alkaline, change the acidic soils into neutral. Neem performs better than many fast growing species in the arid regions. It tolerates high temperatures and low rainfall. It remains in leaf throughout the year except during extreme drought, when it may shed its leaves for a short time. This versatility is valuable for poorly endowed regions.

It thrives well in extremely hot conditions, even when maximum shade temperature is as high as 50 degrees centigrade. It tolerates up to 0 degree centigrade, however, it will not withstand freezing temperatures or

extended cold spells. It performs well in areas where annual rainfall is in the range of 400 mm to 1200 mm. It grows successfully even in areas where the annual rainfall is as low as 250 mm. It, however, cannot withstand poorly drained soils. Neem does best where drainage is good and subsoil water is fairly high. It quickly dies if the site becomes waterlogged. Excessive moisture has negative effect on its growth. Interestingly, Neem does well at elevations from sea level to 1000 m. This then is a tree for almost all the regions of India, particularly for areas which are not too hospitable for most other plant species.

A key advantage to using Neem, as opposed to some medical treatment and other herbs, is its compliance with the first tenant of the Hippocratic Oath taken by all physicians: "First, do no harm." Over thousands of years, Neem has been used by hundreds of millions of people and no hazards have been documented for normal dosages. Neem offers its users the ability to take action against diseases with the safe and time-proven herb. Indian mythology has several stories that relate how Neem became a sacred tree blessed with the ability to heal all diseases. The most common story tells the time Indra, the king of the Celestials, was returning from heaven with a golden pot filled with Ambrosia he had taken from the demons. Some of the precious Ambrosia spilled from the pot and landed on the Neem trees thereby making the Neem trees blessed with miraculous healing properties for all eternity.

While legendary herbs such as ginseng are far better known, comprehensive research has proven that Neem has a far wider array of uses than any other herb. The first recorded use of Neem is attributed to ancient Indian culture. They added the plant to dozens of health and beauty aids some 5000 years ago. The centuries-old healing system known as Ayurvedic medicine has utilized these timeless Neem formulations as mainstays of the Ayurvedic pharmacy. Medicinal attributes of Neem were extolled in the oldest Sanskrit writings. Its usefulness as a natural non-toxic insecticide among other fascinating properties, further increases its phenomenal applications.

Some Westerners are familiar with Neem as culinary spice, while others have purchased Neembased toothpaste sold in health food stores. Now products containing Neem such as creams, lotions, tinctures, extracts, shampoo, soaps, oil and capsules are becoming more common. While Western medical doctors have considered Neem to be nothing more than a "native folklore", many are now giving Neem serious consideration as a potent and safe ingredient for use in diverse health treatments. The lack of negative side effects certainly enhances Neem's appeal to doctors, particularly Naturopathic doctors and doctors of Natural Medicine and consumer alike. Ongoing scientific research is validating what Ayurvedic practitioners have known for millennia; that Neem is a dynamic and useful

plant which can solve dozens of health problems, while enhancing overall well-being.

The bark, seeds, leaves, fruit, extracts and oils of the Neem tree contain pharmacological constituents which offer some impressive therapeutic qualities, including the following:

Anti-viral: capable of destroying viruses  
Anti-fungal: able to destroy fungi  
Anti-microbial: able to inhibit or destroy the growth of disease-causing organisms  
Anti-bacterial: able to destroy or inhibit the growth of bacteria  
Anti-pyretic: able to lower body temperature or prevent or alleviate fever  
Anti-inflammatory: able to reduce inflammation  
Anti-tumour: able to reduce the risk of tumour growth  
Analgesic: able to relieve pain  
Alterative: able to cure or restore health  
Anthelmintic: capable of expelling or destroying parasitic worms  
Anti-emetic: able to prevent or stop nausea or vomiting  
Immune system booster and stimulator  
Anti-arthritis: effective in treatment of arthritis  
Anti-gastric: able to prevent or destroy ulcers  
Anti-carcinogenic: reduces the occurrence of cancers  
Anti-anxiety: capable of preventing depression  
Anti-oxidant: preventing atherosclerosis, diabetes, heart disease, Alzheimer's and Parkinson's disease, keeps free radical (cancer cells) under control  
Anti-fertility: prevents unwanted pregnancy  
Anti-histamine: agent that serves to inhibit the release or action of histamine and serves to reduce or neutralize the effects of histamine in an allergic response  
Anti-feedant: a substance that deters or inhibits feeding by an insect but does not kill it

Therefore we can see that Neem boosts the immune system on all levels while helping the body fight infections. It stimulates the production of T-cells to mount a head-on attack against infections. Unlike synthetic antibiotics, Neem does not destroy beneficial bacteria and other micro-organisms needed to maintain optimum health. Some medical experts believe that the overuse of chemical antibiotics is contributing to the breakdown of the human immune function. Neem offers a non-toxic, zero-harm alternative to powerful and sometimes damaging prescription medicines.

Numerous active compounds have been isolated from the Neem plant. Some of the most studied include gedunin, sodium nimbin, salannin, nimbin, azadirachtin, nimbidiol, quercetin and nimbidin. Neem leaves contain fibre, carbohydrates and at least ten amino acid proteins.

They also contain calcium and other nourishing minerals. Analysis also reveals the presence of carotenoids, nutritive compounds being hailed for their ability to ward off many types of cancer. Neem oil is especially high in important fatty acids, and contains all of these vital nutrients in significant quantities. Researchers believe the high fatty acid content of the oil may be why Neem is so effective for treating many skin ailments. Neem has a very powerful skin rejuvenating quality and absorbs

quickly into the skin. The uses of Neem to cure human ailments, boost immunity and fortify human health are almost endless. Neem is one of the most powerful known blood purifiers and detoxifiers. Hundreds of specific health maladies respond favourably to the proper application of Neem. This does not include the countless uses of Neem as a natural insect repellent or as a component in beauty aids. Some of the more common current uses for Neem products are:

**Skin Conditions:** Neem has an almost magical effect on chronic skin conditions that often fail to respond with classical treatments. Acne, psoriasis, eczema, itching, rosacea, shingles, ringworm, athlete's foot, herpes, fungal infections, cold sores, dandruff, dry skin, hemorrhoids, rash, skin ulcers, rheumatism, sprains, pain, warts, wrinkles are among the conditions that clear up consistently when a high quality organic chemical-free, zero harm Neem product is utilized. Synthetic chemicals used to treat these conditions can produce negative side effects such as rashes, allergic reactions and redness of the skin. Studies are currently underway to try and understand the skin rejuvenating properties of Neem. It relieves the itching and pain of psoriasis while reducing the scale and redness of the patchy lesions.

**Hair and Nails:** When high quality, wild-crafted Neem extract and in some cases cold pressed Neem oil from the kernels of the olive shaped fruit is added to health and beauty preparations, it provides many benefits. Problem scalp conditions including dandruff and psoriasis, scaling and even hair loss respond to treatment with Neem shampoo, conditioners, creams, tinctures and capsules. Lethargic, damaged and overly oily hair appears to "come alive" when treated regularly with this most amazing plant. Nails, which have turned yellow or brittle due to the presence of yeast or fungi, often return to their normal condition when Neem is applied.

**Teeth and Gums:** It is estimated that over 90% of the US adult population has some type of gum disease. Infection, tooth decay, bleeding and sore gums have been treated very successfully through the daily application of Neem mouth rinse or Neem leaf extract added to water or using Neem toothpaste. German and American researchers have proven that Neem extract prevents tooth decay and periodontal disease. Some people report a total reversal of gum degeneration and gum bleeding after using Neem for only a few weeks or months. In India most people are using the twigs from the branches of the Neem tree and you can notice that these people have very healthy looking gums and white teeth.

**Fungi, Parasites and Viruses:** Neem has been successfully proven under stringent laboratory conditions to destroy harmful fungi, parasites and viruses. Even though its exact action on these "body predators" is not yet known, it does an excellent job of destroying them. Unlike its chemical counterparts, Neem does not kill beneficial intestinal flora nor produce the negative side

effects. Athlete's foot, thrush, candida infestations and herpes viruses are easily cleared up and prevented when Neem is used. Neem has been proven successful in treating stomach ulcers. Its antihistamine and antibacterial compounds appear to reduce inflammation and destroy the bacteria now believed responsible for the common ailments.

**Major Health Problems:** Professionally administered Neem solutions are being studied for their beneficial effects on AIDS, cancer, diabetes, heart disease and other medical conditions.

**AIDS:** The immune modulating polysaccharide compounds found in Neem are being researched as a way to stop this most debilitating illness. The polysaccharides may be responsible for increasing antibody production, while other elements in Neem appear to stimulate immune function by enhancing cellular mediated response. This dual action helps the body ward off the numerous infections so commonplace with AIDS. Neem leaf extracts, tincture and capsules are typically utilized when treating this condition. The National Institutes of Health reports encouraging results from *in vitro* tests for Neem as an antiviral agent against the AIDS virus.

**Cancer:** Neem has been tested on many types of cancers, including skin cancers, using Neem-based creams against lymphocytic cancer and using the Neem tincture or capsules internally. The polysaccharides and limonoids have reduced cancerous tumours in a number of scientific studies.

**Diabetes:** Neem has been found to reduce insulin requirements for diabetics by up to 50% for nonkeytonic, insulin fast and insulin-sensitive diabetes without altering blood glucose levels. This success has resulted in the Indian government approving the sale of Neem capsules and tablets through pharmacies and clinics. These preparations are essentially pure, powered Neem leaves.

**Heart Disease:** Neem has been scientifically tested for its ability to reduce blood pressure, blood clots, has delayed the coagulation of blood, heart irregularities (palpitation) inclusive calmed erratic heartbeats, helps reduce elevated heart rates and high cholesterol levels. The antihistamine effect helps reduce elevated blood pressure. A recent study showed that Neem lowered high cholesterol levels when either Neem leaf extract or capsules were taken for a month.

**Chronic Fatigue:** This is suspected of being caused by both viral and fungal infections. Neem attacks both, and reportedly helps fight this incredibly debilitating syndrome.

**Minor Skin Abrasions:** Use the cream or leaf extract applied topically. The anti-inflammatory and antibacterial attributes of Neem are delightfully soothing.

**Natural, Non-Toxic Insect Repellent:** Neem repels all types of annoying pests without being toxic to pets or humans. Studies have shown that one Neem compound is a more effective insect repellent than the widely used synthetic chemical known as DEET (N,N-diethyl-m toluamide), a suspected carcinogen with long periods of use.

**Insecticide:** Neem extract have been approved by the U.S. Environmental Protection Agency for use on food crops. It is non-toxic to birds, animals, beneficial to insects or man and protects crops from over 200 of the most costly pests.

**Sunburns:** Prevents sunburns from UV rays.

**Herpes:** Recent tests in Germany show that neem extracts (cream) are toxic to herpes virus and can aid in a rapid healing of cold sores.

**Allergies:** Neem has antihistamine properties that help inhibition of allergies.

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