

Azadirachta Indica: Medicinal and Industrial Use of Tree

Mahala Vrushali R.

Dr. Yashwant Singh Parmar University of Horticulture and Forestry, Nauni. (Solan), Himachal Pradesh

SUMMARY

One of nature's most adaptable plants, the neem tree is best recognized for its powerful insecticidal oil. Because of its curative qualities, it has been utilized in Ayurvedic medicine for more than 4,000 years. A neem tree needs lots of sunlight and not much water. The majority of plant parts, including fruits, seeds, bark, leaves, and roots, include substances that have been shown to have antiseptic, ulcer-curing, viral, inflammatory, and fungal properties. Neem has enormous relevance in the agricultural industry since it is a natural source of eco-friendly pesticides, fertilizers, and agrochemicals.

INTRODUCTION

One of nature's wonders is the tropical evergreen neem tree, which is native to the Indian subcontinent. It typically works best where there is 400 to 1200 mm of annual rainfall. It thrives in the hottest conditions, where the daily maximum temperature is more than 500 °C. Neem has been used in Ayurvedic medicine for more than 4,000 years because of its healing properties. The vast majority of plant materials, such as fruits, seeds, bark, leaves, and roots, include elements that have to have antiseptic, ulcer-healing, antiviral, anti-inflammatory, and antifungal activities. Neem tree growth requires a pH range between 4 and 10. Calcium mining has a unique quality that allows it to neutralize acidic soils. The best attribute of neem trees is that they can thrive in any soil, including rocky soils. It found that different parts of the plant contain the physiologically active chemical constituents Melian, Salinan, azadirachtin, gedunin, Nimbin, Valassis, and many more. Melanin contributes to the bitterness of neem seed oil, and the seeds also have tignic acid (5-methyl-2 butanoic acid), which gives the oil its characteristic smell.

Family: Meliaceae

Local Names: Neem (Hindi, Assamese), Kadulimba/Nimbara (Marathi), Veppai (Tamil), Bevu (Kannada), Dhanujhada/ Limbda (Gujrati), Nimmh (Punjabi), Vepa (Telugu) and Nim (Bengali).

Distribution of Neem tree

India has an estimated 25 million neem trees, with Karnataka accounting for 5.5% of them, making it third overall behind Tamil Nadu (17.8%) and Uttar Pradesh (55.7%). Among other states in India, Andhra Pradesh, Assam, Bihar, Delhi, Gujrat, Himachal Pradesh, Haryana, Kerala, Maharashtra, Madhya Pradesh, Meghalaya, Orisha, and Punjab are places where neem trees have been found.

Medicinal uses of Neem

Neem, the most advantageous of India's traditional medicinal plants, has many medical applications for its leaves, fruits, seeds, bark, and roots. It is treated as malarial fever in the ayurvedic medical system. In addition, it improves the health of skin, especially in terms of acne, and helps to lessen foul breath. Increase the immune system's capacity.

Pharmacological actions of Neem

The neem tree, which has gained popularity in modern medicine, is heavily utilized in ayurvedic, homeopathic, and Unani medicine. Neem is used for home treatment in traditional medicine for several human ailments.

Antibacterial Activity

Neem leaf oil has antibacterial properties that make it effective against a variety of Gram-positive and Gram-negative infections, including Mycobacterium TB and streptomycin-resistant strains.

Antifungal Activity

Some human fungi, including candida, Trichophyton, Microsporum, and Epidermophyton, can be successfully treated with neem leaf extract.

Antimalarial Activity

It has demonstrated that the elements of the alcoholic extract of leaves can make malarial parasite strains that are both chloroquine-sensitive and -resistant to the drug vulnerable.

Industrial Uses of Neem

Indian Ayurvedic medicine businesses make extensive use of neem. Numerous cosmetic items, such as conditioner, face cream, nail paint, shampoo, and nail polish remover, contain neem oil and powdered neem leaves. The world's most produced tree, neem, is grown in India, where 540,000 tonnes of seeds are used to make 107,000 tonnes of neem oil and 425,000 tonnes of neem cake each year (Kumar, 2003). Numerous industries, including the cosmetic, pharmaceutical, and textile ones, use neem oil. Neem-based toothpaste is highly well-liked in Europe and India. It is a fantastic place to get materials oral hygiene and dental care. The bark generates gum and tannins used in tanning and dyeing, while the seed pulp is used as a rich source of carbohydrates in fermentation industries and for the production of methane gas.

CONCLUSION

Neem, a tropical evergreen tree that is native to the Indian subcontinent, is one of nature's wonders. It has been used in Ayurvedic medicine for more than 4,000 years because of its healing properties. It plays a significant role in the agricultural sector as a natural supply of safe insecticides, fertilizers, and agrochemicals. Neem trees are thought to number 25 million in India. Homeopathy and Unani medicine have become popular trends in modern healthcare, and it is use in Ayurveda. They have many medicinal properties, including antibacterial, antifungal, and antimalarial ones. Ayurvedic medicine, cosmetics, and textiles all make extensive use of them.

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