

Ethnomedicinal properties of *Azadirachta indica*. (Neem Tree)

Rakesh kumar Singh

Department of botany Jai Prakash University Chapra(Saran) Bihar, India

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ABSTRACT

Neem (*Azadirachta indica*) is cultivated in the almost all over the world. and it is used in treating various diseases due to many medicinal values. Neem is linked with the symbols of goddess in India that is traditionally being worshipped by the various region. In the first millennium BC the neem tree was called the Sanjivani Roga Nivarini. (one that could cure all elements and illness). Neem is a large evergreen tree in mahogany family it is compound which is being used for a long history. It is naturally grown in India and it is used as medicine. Neem (*Azadirachta indica*) hold an immense importance in the traditional culture of India. All parts of the neem tree, leaves, roots, flowers, fruits, seeds, bark, have been used traditionally for the treatment of inflammation, infections, skin diseases, fever, and dental disorders. present review paper is to collect complete report on the status, distribution, cultivation and uses of neem from different localities of India.

1. Introduction

India is one of the richest ethnobotanical garden in the world. It's rich diversity is yet have to fully documented utilised and conserved different medicinal plants species. Neem (*Azadirachta indica*) has been a significant constituent formula of traditional healer and homeopathic, ayurvedic in the faculty of Indian medicine system. Neem (*Azadirachta indica*) is an omnipotent tree and sacred gift of nature. More than 2 species of neem are distributed around the whole country. The latinized name of neem tree is (*Azadirachta indica*) derived from the Persian Azad means free dirakhat means tree I- means indian origin. Hence it literally means the tree of India. The neem tree (*Azadirachta indica*) is an incredible plant that has been declared that the tree of the 21st century. By the United Nations. The U S National Academy of science is published the report in 1992 entitled "Neem": a tree for solving global problems. The divine tree neem (*Azadirachta indica*) is mainly cultivated in the Indian subcontinent. Neem is the member of the Mahogany family meliaceae. It's botanical name (*Azadirachta Indica*). on the Indian subcontinent the neem tree has been used for more than 4,500 years ago. The earliest documentation of the neem mentioned the fruits, seeds, leaves, roots, oils, and bark for their advantageous medicinal properties. Neem has been used extensively by humankind to treat various ailments before the availability of written records which recorded the beginning of history. The World health organisation estimates than 80% of the population living in the developing countries relies exclusively on traditional medicine for their primary health care.

At the beginning of this century the neem tree was still highly estimated by Indian emigrants who took it along the places where they settled. The neem tree is also found in places such as Australia, Africa, Asia, America, and some small scale plantation are also reportedly successful in Europe and United States of America.

2. Botanical description.

Neem tree is a fast growing tree that can reach to a height of 15-20m, and very favourable condition up to approximately 35 to 45 m. As a rule is a evergreen tree but under extreme circumstances, such as extended dry period, it may shed most of nearly all of its leaves. The branches spread widely. The trunk is relatively short straight, the bark is hard fissured or scaly and whitish- gray to reddish brown. The sap wood is grayish-white and the heart wood reddish. The fruits is a smooth, yellow, green, drupe and has sweet flavoured pulp. The root system consists of a strong taproot and well developed lateral roots. In India it is easily available in all states. It is evergreen but in drought it may shed most of or nearly all of its leaves. *Azadirachta Indica* is a sacred tree. The neem tree is known for its drought resistance.

3. Cultivation of Neem.

The cultivation of neem is possible in all over India it is commonly found in southern part of Kerala to northern Himalayas hills in the tropical to subtropical regions. It is widely cultivated in India and African countries. In India it occurs throughout the larger part of the country in the state of Bihar, Uttar Pradesh, Maharashtra, West Bengal, Madhya Pradesh, Delhi, punjab, Hariyana, Andhrapradesh,

Tamilnadu, Gujarat etc Only fruits at the yellow green colour stage are picked from the branches. The collected fruits soaking in water to removing pulp, storing seeds few months, and used to cultivate in rainy season. The tree is mostly evergreen except in dry localities, where it becomes leafless for a short period February_ March and the new leaf appear immediately. In southern part of the country the flowering period is February to March and later towards the North.



Azadirachta Indica (Neem tree).

It generally performed well in areas with annual rainfall 400-1200mm. It is survived in hottest temperature i.e more than 45°celcius but it can't be with stand freezing or extended cold. Neem grows on almost all kind of soils, but does well on black cotton soils.

4. Taste.

Neem tree is extremely bitter due to its limonoids content. Lumsum all part of the tree is bitter in taste, the leaves, seeds, twigs, bark, roots, fruits, flowers, is used in traditional ayurvedic treatment for multiple issues. The neem leaves tea is very helpful to maintain blood sugar level but it is very bitter in taste. Pulp of the neem is used to eat for avoiding, wounds problems.

5. Used parts of the Neem tree.

whole plant is used for medicinal purposes because neem have anti bacteria, anti fungal, anti-inflammatory, Antiarthritic, Antipyretic, Antifungal, properties. its helps to cure various diseases caused by bacteria and fungi.

The neem tree is very well known tree in India its play very important role in ayurveda and medical science also. Neem tree leaves flowers fruits seeds twigs is used with combination of diffrent different medicinal plants like, neem leaves and turmeric powder is used to cure old wounds and boils.

In this report we discussed each and every part of the neem tree, it's structure, medicinal values etc.



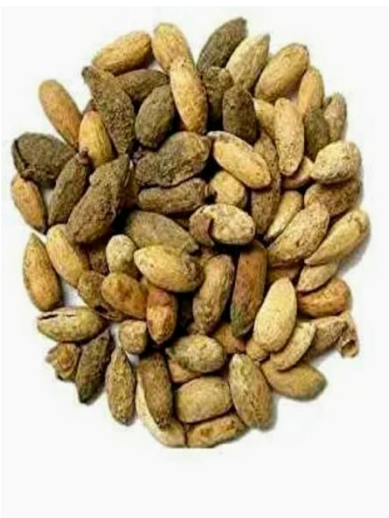
Twigs.



Leaves.



Neem seeds with pulp.



Dry seeds.

Nearly all parts of the neem tree are useful, and many of its medicinal and cosmetics uses are based on its antibacterial and antifungal properties. Neem is commonly used in soap and Cream for skin care, and shampoos for treating dandruff it is also a component in some toothpaste and mouthfreshner. Specially in the Indian subcontinent, the young twigs are used directly as a crude toothbrushes in rural areas. Neem leaves have been used as a traditional treatment for diabetics and their some clinical evidence suggesting that it may help blood sugar levels. Neem leaves is help to protect diseases causing bacteria and viruses. It's leaves have numerous health and skin benefits. consuming leaves is helpful for hair nourishment, good for eyes, boosting immanue system, improve digestive system, and oral health. Wood of the neem tree is used to make furniture.

Uses of Neem :- Neem wood is very strong and durable so it is used to make furnitures, building wheels etc.in addition other part of the neem like flowers, fruits, bark, roots, leaves, twigs , seeds etc.are also useful in various aspects. The antifungal antibacterial antivirus, insecticidal and other versatile biological activities of these products is well known.

Some of the medicinal uses of various parts of neem as mentioned in ayurveda have been listed below.

Flowers:- most part of the neem tree is extremely bitter with the exception of its flowers.white and delicaded flowers with their off white buds is almost too good to taste and wonderful therapeutic. Durring the mansoon it's look like jasmine and smells is amazing. These neem flowers can be

used fresh, dried, or in the powder form. These are used commonly in the south india to cook various dishes, like flower rice, pachadi, rassam etc. They are used to dry roasted and sprinkled on top of the dish to garnish as well.

Neem flowers can be used to treat anorexia,nausea, intestinal worms, and bleaching.

Pulp:- -The pulp of the fruits are useful for medicines and for the production of methane gas.

Wood:- Its wood is used to make furniture, it is very long lasting. The heart wood is strong and durable thats why it's used to making buliding, cart wheels etc.

Bark:-The bark of the neem tree is used to treat malaria, intestinal ulcers, skin diseases, pain and fever. It is also used for healthy hair detoxify blood and balance blood sugar level.

Seeds:- The seeds is used to treat laprosy, kills intestinal worms. It is also used for birth control. Neem seeds powder helps to reduce sugar levels.: In seeds active constituents are not determined, with certainty.The neem seeds extracts vary in each batch in terms of stability and activity.Two new tetranotriters have been isolated from neemseeds.

Seeds oil:- Neem oil is a vegetable oil pressed from the fruits and seeds of the neem. The Neem oil is an extract of neem tree. Neem oil is used as a facial oil, it is used to treat acne, pimples. It has anti fungal properties and can be used to treat hair and skin disorders it's also use as an insecticide. Neem oil may also be used to treat the symptoms of eczema, leprosy and other skin diseases.



Neem oil

In ayurveda practitioners always suggesting neem oil for fungal infections. Neem oil is rich in fatty acids, such as palmitic linoleic and oleic acid which, help to glowing and healthy skin.

Leaves:- The neem leaves have antibacterial properties that helps to removing burn acne healing wounds infections, and any kind of skin. Problems.it helps to destroyed bacteria that cause infections, stimulates the immune system. Cruss



Neem leaves.

Roots:- Neem tree roots consists of a strong taproot system. The root of the neem tree is increases the water holding capacity of soil in which it is grown to a great extent and also prevent soil erosion durring flood. The root system of the Neem tree is highly extensive and therefore requires a large surface to thrive.

Twigs:- The neem twigs is used as natural toothbrushes it helps to fight germs, maintains the alkaine level in the saliva, treat swollen, germs gum, and also maintain whitesh teeth.

All parts of neem tree are used as anthelmintic, anti - fungal, anti diabetic, anti bacterial , anti viral, contraceptive and sedatives. Neem tree is used in many medicinal treatments like skin diseases healthy hair improvement, liverfunction, detoxifying the bloodplatlets, fever reduction, dental treatment, cough, asthma,ulcer, piles, internal worms, urinary diseases etc . Neem products are cheep and non

some neem leaves and take them with a glass of lukewarm water to increase immunity. Neem leaves is very helpful to remove dendruff Boil some leaves with two glass of water when water remain half and the water turn green, allow it to cool after washing your hair with this water. Neem leaves are excellent for your liver, which automatically enhance your digestive system. Apart from this consuming neem on daily basis also destroyed intestinal and other internal organs.

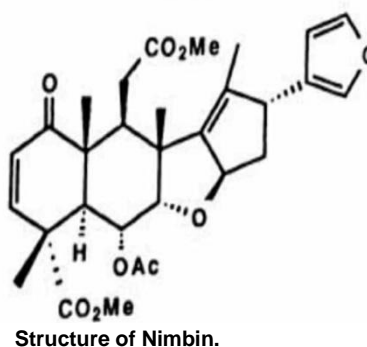
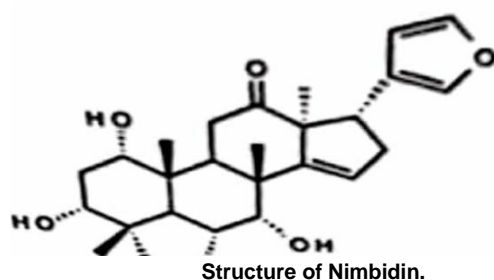
toxic to use human being and animals. They are well suited for pest control in rural areas.

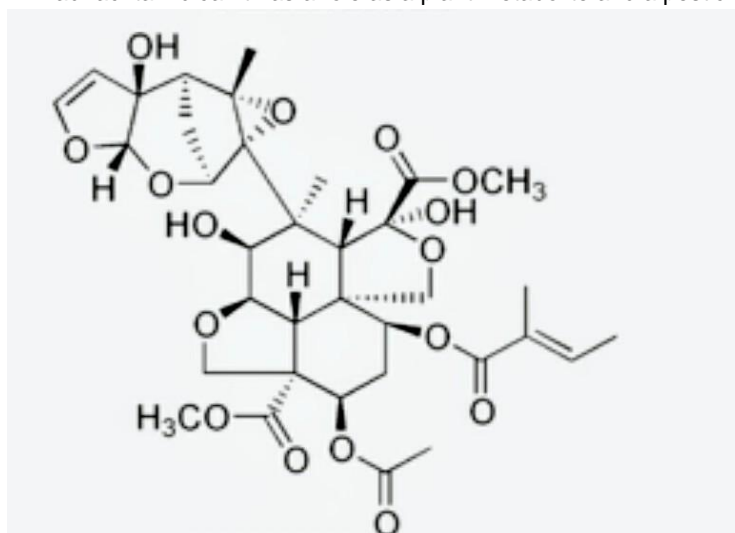
Neem tree is of great importance because of its anti-desertification properties. Neem is considered as a usefull tree in rehabilitating in the West land areas.

Neem tree is helpful against global warming.

Chemical constituents: Neem leaves have extract active Chemical constituents includes isomeldenin, nimbin, nimbinene,6 desacentlnimbinaene, nimbandiol, immobile, nimociol, quercfetin, and bectasitostero,nimbolide, nimbadin

Tetracycline, triterpenoidsacids, zafaral, tetra, anorapotricalla, (apoeupha)6-alpha-methoxy, -7alpha, -acetoxo -1-14 dine -3,16, dione21-all,(1) and meliacinanhdyride, 24,25,26,27, tetra anorapotirucalla-(apoeupha)-6 alphahydroxy, trien,3, one has been isolated from the methanolic extract of neem leaves.



Nimbin**molecular formula C₃₀H₃₆O₉ molecular weight 540.6 g/mol**Nimbin is a limonoids found in *Azadirachta indica*. It has a role as a plant metabolite and a pesticide.**(Structure of Azadirachtin)****Azadirachtin****Molecular formula C₃₄H₄₄O₁₆****molecular weight 720.7g/mol.**Azadirachtin is a member of the family of Azadirachtins that is isolated from the neem tree (*Azadirachta indica*) it has role of hepatoprotective agent.

CompoundName	Source	Biological activities
Azadirachtin	Seed oil	Antimalarial
Nimbolide	Seed oil	Antimalarial, Antibacterial
Gedunin	Seed oil	Antimalarial, Antifungal
Mahmoodin	Seed oil	Antibacterial
Nimbidin	Seed oil	Anti-inflammatory Antiarthritic Antipyretic Antifungal Antigastric Spermicidal Direutic Anti bacterial
Nimbin	Seed oil	Spermicidal
Gallic acid	Bark	Anti-inflammatory
Margolone	Bark	Antibacterial
Cyclic trisulphide	Leaf	Antifungal
Polysaccharides	Bark	Anti-inflammatory
NB2 peptidoglycan	Bark	Immunomodulatory

Table 1.

Actions:-Antioxidants, Anti-inflammatory anticarcinogenic, anti-snake venom activities, Antibacterial. Antiarthritic Antipyretic Antifungal Antigastric Spermicidal Direutic.

Uses in therapy:- The healing properties of neem is mainly due to some bitter substances known as triterpenoidsacids, (limonoids) with *Azadirachta* as one of the main active ingredients.

The tree is also known in India as a "village pharmacy" referring, to its uses to treat a variety of ailments and diseases. It is very helpful to cure skin related diseases.

6. Precautions.

Neem oil, neem bark and neem leaves are unsafe for consumption by pregnant women and can cause miscarriage, in case of pregnancy it acts as a contraceptive.

The main root of the neem tree can grow twice as long as their height, therefore it can be harmful to the structure in

bulidings to the tree as the strong roots can cause damage to them.

Hence it is important to keep a substantial distance between the tree and the bulidings.

7. Conclusion.

The neem tree has proven to have miraculous powers to the people using its products to cure their diseases form ancient and now even doctors from all around the world are accepting this fact. Neem tree is commonly used to treat various diseases and ailments. In the world of chemical this natural cure is boon to human being. Neem is a source of natural soap, shampoo, and medicinal products. It's constituents nimbandiol, nimociol, quercetin isomeldenin etc. It's helps to cure diseases, (chickenpox, skin problems wounds, blister and boils,) and so many diseases caused by viruses and bacteria.

Neem and its constituents have a very important role in disease prevention, and medicinal value. These days in this developing of medical science discovered of alternative medicines- based treatment is profitable in the health practice.

The role of Neem due to presence of biochemical compounds. The present paper clearly shows that neem has been used by humankind to treat various ailments and diseases from ancient to modern day to day life.

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