



Neem(Azadirachta Indica)



Botanical name: Azadirachta Indica

Family: Meliaceae, The mahogany tree family

Names of Neem in Different Languages

English: Neem, Indian Lilac, Margosa Tree, Nim, Crackjack, Paradise Tree, White Cedar, Chinaberry

French : Azadirac De l'Inde, Margosier, Margousier

German : Grossblaettiger Zedrach, Indischer Zedrach

Portugese : Amargoseira, Margosa, Nimbo

Singapore : Kohumba, Nimba

Neem also called Azadirachta indica is an aboriginal tree found in tropical and semi-tropical countries like Burma and India; Other vernacular names include Margosa, Indian Lilac, Neem tree etc. Neem has been declared non-toxic to humans and each part of the tree is used as an active ingredient in different industries. Though neem had been used in households for long, it was only during the 1920s, that neem tree was given its due recognition, with a number of researches being conducted on an international level to understand the benefits and potential of neem. After the tree overcame the initial resistance, it was started to use on a commercial basis and now, neem finds immense use in a number of products in industries ranging from cosmetics to agriculture, from pharmaceuticals to Ayurveda.



Parts of Neem used

- Neem Seed
- Neem Leaf
- Neem Bark
- Neem Fruit
- Neem Twig
- Neem Root
- Neem Kernel

Neem Bark - The stem of a neem tree can grow up to a diameter of 2.5-3 m. The bark is rough and can be pale or grayish-black in color. Bark of neem is used to manufacture pesticides.

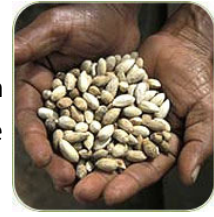
Neem Flowers - Neem tree bears small white colored flowers and star shaped, with a pleasant smell.

Neem Fruits - Neem tree generally bear fruits between the age of 3 to 5, and the fruits are edible.

It is an ideal plant as it can be grown indoors and requires least maintenance. Most of the problems relating to the growth of neem are due to over watering, in case the neem leaves begin to turn yellow, it is a sign of over watering or that the tree has been given too much fertilizer.



Neem seeds are one of the most useful part of the tree, finding use in different industries to make range of products. It has the maximum number of compounds with curative properties. It is used to manufacture effective pesticides as seeds have the highest content of azadirachtin.



Raw Neem Seed: Raw neem seed can also be used in powdered form as a soil conditioner and promoting the growth of plants.

Neem Seed Extract: Used in agriculture, medicines, oral care, ayurveda and unani system of medicine.

Neem Seed Oil: It possesses medicinal properties and is used for large number of diseases. Used in pharmaceuticals, cosmetics, agriculture, veterinary diseases.

Use of neem seed

Neem seed is used for livestock production as it has a very high nutritional value; it has large quantities of protein, which makes it all the more valuable. It can however not be used for food because of its bitter taste and foul odour. Compounds containing sulphur such as nimbidin, nimboesterol are responsible for the bitter taste of seeds and a principle, tignic acid is the cause of foul smell of seeds; they also have high insecticidal properties.



Neem seed in the raw and extracts form is also used to manufacture facial creams, body lotions and other cosmetics seeds are also highly useful in preparing drugs and medicines both in traditional systems such as ayurveda as well as modern allopathic drugs.

Neem seeds are also widely used by farmers and agriculturists as a natural pesticide and insecticide; neem extracts inhibit the growth of insects by altering their life cycle.

Neem seeds are also used in hair care products right from shampoo to hair lotions etc.

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Neem Fruit

Neem fruit is green in colour initially and gradually turns to yellow when fully ripened. A matured fruit is very fleshy and filled with sweetish fluid. Fruit contains 40-55% water content. Collection of fruits requires organized and planned plantation and collection efforts.

Types of Neem Fruit

For collection and storage purpose, neem fruits can be divided into four categories:

- Dry (upto 10 % moisture)
- Semi-Dry (11-20% moisture)
- Fresh (about 50% moisture)
- Wet and damaged

Forms of Neem Fruit

- Raw fruit
- Fruit extract
- Powdered fruit
- Neem fruit juice

Neem Fruit Processing

- Cleaning
- Depulping
- Dehulling or Decortication
- Grinding
- Solvent Extraction or aqueous extraction

Use of Neem Fruit in Industries

Pharmaceutical Industry: Neem fruit, pulp and extracts are used to manufacture medicines and drugs curing diseases like diabetes, leprosy, skin disorders, constipation etc.

Cosmetic Industry: Powdered form or extracts of fruits are used to manufacture herbal shampoos, soaps, creams and ointments.

Agriculture Industry: Compounds present in neem fruits possess pest and insect repellent properties, therefore it is used on a large scale to manufacture bio and natural insecticides and pesticides.

Veterinary Use: seeds are said to be used for wildlife food. It is relatively non toxic to animals.



Neem Bark

Bark of the neem tree contains medicinal properties and is used in a number of industries. Neem bark has traditionally been used in a number of medicine systems like Ayurveda, Unani etc. It is used to manufacture a number of skin and personal hygiene products. It is a multi functional as well as multi utility natural product and without any side effects. The bark contains 3.43% protein, 0.68% alkaloids and 4.16% minerals. Polysaccharides in neem bark extracts is said to have possess anti-tumor as well as anti-inflammatory properties.



Use of Neem Bark in Industries

Neem bark finds varied uses in a number of industries. Manufacturers use it in either raw form or in extracts or powdered form to produce a number of products.

Herbal Industry

The medicinal properties of neem bark makes it a popular ingredient in a number of herbal medicines, herbal cosmetics. Neem bark is extensively used in preparation of Ayurveda and Unani system of traditional medicines. It is also used to manufacture herbal teas with curative properties.

Agricultural Industry

Neem bark has proved to be a boon for farmers. It finds immense use in agricultural industry; the bark possesses insect repellent properties and are used as herbal pesticides, insecticides etc. It helps to retard the growth of insects and pests.

Oral Care Industry

Neem bark is used as an active ingredient in a number of tooth pastes and tooth powders. This is so, because neem bark has anti bacterial properties, good for curing gum problems and maintaining dental health naturally; Bark powder and extracts are used in treating fevers and stomach problems. Studies show that neem bark is more active than the leaves against certain bacteria



Cosmetic Industry

Herbal cosmetics have become very popular in the last few years, this is because of the fact that men and women realise that herbs not only have therapeutic value but also do not have any side effects. Neem bark is used as extracts or powdered form in a number of herbal cosmetics. Acne treating and otherskin creams used neem bark to cure pimples and improve the skin condition.

Tanning and Dyeing Industry

Neem bark contains tannin, so it is useful in tanning and dyeing a number of products.

Neem Twig

Neem twig has lots of pharmacological properties and is used to manufacture oral care products. It is used to manufacture herbal toothpastes and powders. It has found mention in the early vedic texts, for being of immense importance in maintaining oral hygiene. A neem twig is considered a very effective natural or herbal toothbrush, while its fibres clean the teeth, its juice works both as a mouth freshener and has germ-killing properties. It has also been used for a long time now, for manufacturing organic manure. They are being grown and exported to countries for meeting different uses.



Form of Neem Twig

- Raw Twig
- Twig Extracts
- Twig Oil
- Twig Powder

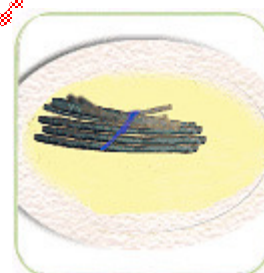
Properties of Neem Twigs

- Anti Pyretic
- Antibacterial
- Anti fungal
- Germicidal

Use of Neem Twigs in Industries

Agriculture: Neem twig can be used to manufacture mulch and natural manure.

Oral Care: Neem twig extracts and powder are used to manufacture tooth pastes and tooth powders. It helps to strengthen and ward off gum diseases, keeps the teeth stronger and help prevent periodontal diseases.



Neem Gum

Gum is a by product obtained as a result of certain metabolic mechanism of plants and trees. The Neem bark, due to some internal activity discharges a clear, bright and brown-colored gum. The gum is a multipurpose by product. Natural gum obtained from plants is either water soluble or absorb water to form a viscous solution. Neem has been commercially tapped for using its gum which is of use in large number of industries. It is being grown on a large scale basis for using all its parts, no wonder it is called a 'Universal Tree' having a cure for almost everything. It has been used traditionally as a adhesive for paintings.



Use of Neem Gum in Industries

Cosmetic Industry: Used in facial masks, lotions, face powder, protective creams.

Paper Industry: Used as an adhesive and strengthening the paper.

Pharmaceutical Industry: Used in antiseptic creams, tablet binder, and coater.

Textile Industry: Used in dyeing and printing of fabrics.

Personal Hygiene Industry: Used in soaps, tooth paste, tooth powders.

Food Industry : Used as a stabilizing agent, gels and thickening agent.

