Azadirachta indica A.Juss

Family : Meliaceae
Group : Antidiabetic
Parts Used : Root , Fruit , Leaf, Seed, Bark, Flower, Oil, Stem, Wood
Vernacular Names
English : Neem, Margosa tree, Indian lilac
Malayalam : Aryaveppu
Hindi : Neem
Sanskrit : Nimbah
Bengali : Nim
Kannada : Bervu
Tamil : Vembu
Telungu : Vepa

Distribution and habitat: Widely grown and cultivated throughout India.
Botany: Neem is a hardy medium to large, mostly evergreen tree attaining 20 m height and 2.5 m girth. It has a short bole with wide spreading branches and glabrous twigs forming a round to oval crown. Neem has chromosome number 2n = 28. Neem trees tend to become deciduous for a brief period in dry ecology.

• ***Wood***: The bark is thick, dark-grey with numerous longitudinal furrows and transverse cracks.
• ***Leaf***: Imparipinnately compound, alternate, exstipulate and 20-38 cm long.
• ***Inflorescence***: Long, slender, axillary or terminal panicle.
• ***Flowers***: White or pale yellow, small, bisexual, pentamerous and bracteate. Stamens 10; filaments unite to form a moniliform tube. Gynoecium is tricarpellary and syncarpous, ovary superior, trilocular. Each carpel bears two collateral ovules on parietal placentation.
• ***Fruit***: One seeded drupe with woody endocarp, 1.5 cm x 0.5 cm,oblong ovoid,greenish yellow when ripe.
• ***Seed***: Ellipsoid, cotyledons thick fleshy and oily; 1 cm long and 0.63 cm diameter

Chemical constituents:

• Leaves contain the flavanoid quercetin, nimbosterol (b-sitosterol), kaempferol and myricetin.
• Seed and oil contains desacetylnimbin, azadirachtin, nimbidol, meliantriol, tannic acid and amino acids.
• Neem cake contains the highest sulphur content of 1.07% among common oil cakes.

Uses:

• Extract from the leaves are useful for sores, eczema and skin diseases. Boiled and smashed leaves serve as excellent antiseptic.
• Neem oil is used in soaps, toothpaste and as a hair tonic to kill lice.
• Seed is used against snakebite.
• Neem derivatives are now used in agriculture, public health, human and veterinary medicines, toiletries, cosmetics and livestock production.

Formulations: Gulggulu thicthalam kasayam, Nimbarishta, Nimbadi churna and Nimbharidra khand contents, bole length, canopy, inflorescence, fruit bearing, seed size, shape and quality exist in natural populations.

Agrotechnology

***Soil and climate*:** Neem grows on most kinds of soils including dry, stony, shallow, nutrient deficient soils with scanty vegetation, moderately saline and alkali soils, black cotton, compact clays and laterite crusts. It grows in tropical arid regions with high temperatures, altitudes between 50 m and 1000 m, as little rainfall as 130 mm/yr and long stretches of drought.
***Propagation*:** By seed without any pre-treatment, though it can be regenerated by vegetative means like root and shoot cuttings. Seeds are collected from June to August. These remain viable for 3-5 weeks only, which necessitates sowing within this short time. Seeds may be depulped and soaked in water for 6 hours before sowing.Seeds are sown on nursery beds at 15x5 cm spacing, covered with rotten straw and irrigated. Germination takes 15-30 days. Seedlings can be transplanted after two months of growth onwards either to polybags or to main field. Neem can be grown along with agricultural crops like groundnut, bean, millets, sorghum and wheat. For field planting, pits of size 50-75 cm3 are dug 5-6 m apart, filled with topsoil and well rotten manure, formed into a heap, and seedling is planted at the centre of the heap.
***Manuring*:** FYM is applied at 10-20 kg/plant every year.
***Harvesting*:** Flowering starts after 5 years. In India flowering is during January-May and fruits mature from May-August. The leaves are shed during February-March and a full-grown tree produces about 350 kg dry leaves and 40-50 kg berries per annum. Fresh fruits give 60% dry fruits, which yield 10% kernel, which contains on an average 45% fixed oil. After 10-15 years of growth the wood can be cut and used as timber.