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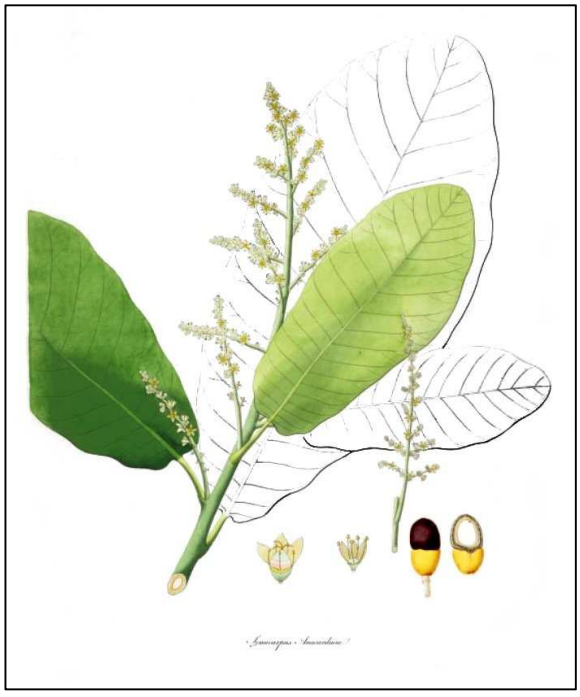
# *Semecarpus anacardium* L.f.

**Taxonomy and nomenclature**
**Species name:** *Semecarpus anacardium* L.f.
**Family name:** Anacardiaceae
**Synonyms**: *Anacardium latifolium* Lam., *Anacardium longifolium*, *Anacardium officinale* Pritz., *Anacardium officinarum* Gaertn., *Anacardium orientale* Steud., *Anacardium solitarium* Stokes, *Cassuvium anacardium* Kuntze, *Cassuvium longifolium* Kuntze
**Vernacular (common name):** Bhilwa, Chera, marking nut tree, phobi nut tree, varnish tree.

**Distribution and habitat**
The tree is native to India and distributed in Africa, China, Malaysia, and Australia. In India, it occurs up to 3500 masl in moist deciduous and semi-evergreen forests in the outer Himalayas from Sutlej to Sikkim and at hotter parts of India as far as east of Assam and at south, it extends up to Coromandal coast. It prefers light to medium gravelly soils with good drainage. The species is highly drought tolerant. It does best in a pH in the range of 4.5 - 6.5. Seedlings are frost-sensitive but have good power of recovery. It is moderately shade-tolerant and coppices well.

**Use**
The wood is grayish-white, moderately heavy used for making light furniture, packing boxes, crating, match-boxes and splints. The tree is used as a host plant of lac insects. The juice of the pericarp of the fruit was previously used as a laundry marker. It is now being used in varnishes, enamels, lacquers, paints, insulating (electrical) materials and plastic industries. The fleshy cups on which the nuts rest and the kernels of the roasted nuts are edible. The fruit oil (28-36%), is famous for its use in local medicine. The fruits are traditionally used for astringent, rubefacient, counter-irritant, and aphrodisiac. It is allegedly useful in leucoderma, scaly skin, allergic, dermatitis, poisonous bites, leprosy, cough, asthma, and dyspepsia. It is extremely beneficial in the diseases like piles, colitis, diarrhea, dyspepsia, ascites, tumours, and worms. The topical application of its oil on swollen joints and traumatic wounds effectively controls the pain. The seeds are a source of tannins. The oil obtained from the seeds is used for various industrial purposes such as a floor dressing; as additive substances to lacquers, dyes, and insulating material; in the plastics industry; for regenerating rubber materials; and to protect the wood from termites. A gum is obtained from the tree. The wood is used to make charcoal. Planting *Semecarpus anacardium* trees is encouraged in India under various agroforestry systems.

**Botanical description**
It is a moderately large deciduous tree with a spreading canopy reaching up to 12-15m height and 40cm dbh. The bark is thick, dark brown in colour with tessellate scales, furrows longitudinal and horizontal; blaze dull red; exudation acrid. Leaves simple, alternate, crowded at end of branchlets, estipulate; petiole stout, pubescent; lamina obovate-oblong, elliptic-oblong or obovate, base rounded, heart-shaped or narrowed into the stalk, apex obtuse, round or emarginate, margin entire, glabrous above, puberulent and glaucous beneath, coriaceous; lateral nerves 10-20 pairs, parallel, reticulate, prominent.



http://www.plantillustrations.org

Flowers polygamous, greenish-yellow, 6-8 mm across, in terminal pubescent panicles; calyx lobes 5, ovate, margin ciliate, imbricate, deciduous; petals 5, imbricate; disc broad, annular, villous; stamens 5 inserted below the disc; filaments filiform, glabrous, in male flowers as long as or longer than petals, in female flowers shorter than petals. Anthers oblong; ovary superior, densely villous, 1-celled, ovule pendulous from a basal funicle; styles 3, divergent.

In the flower and fruitless stage, the tree resembles *Anacardium occidentale*. The fruits have similarities with Afzelia seed although the fleshy parts of the two species are completely different origin (pedicel and funicle (developing into aril)).

**Fruit and seed description**

The fruit is a drupe of 2.5 cm long, fleshy, obliquely ovoid, smooth and shining, green when young, black when ripe, borne on an orange hypocarp as long as a drupe, pericarp rich in corrosive resinous juice; seed pendulous. It remains on the tree from February to June. About 700 seeds count 1 kg, i.e. 1000 seeds = 1430g.

**Flowering and fruiting habit**

Leaf-fall occurs in February-March. The flowering occurs in the month of August to October and the fruits ripen during March-May in Central India. The economic yield of seed production takes place after 10 years of plantation. The economic life of the tree is about 25 to 30 years. 25-45 kg fruits/tree/annum is obtained from a full-grown tree. Pollination is done by insects like bees. Seeds are dispersed mainly by bats.

**Seed collection**

Seed collection starts after 10 years of plantation. Fruits are plucked from the tree manually by a stick. They can also be collected after natural fruit fall of by shaking the branches. Maximum germination occurs when the fruits are fully mature with 10-15% moisture content. Fruits are then black in color and color of the hypocarp is orange.

**Processing and handling**

The orange coloured hypocarp is separated from the black seed (fruit) manually just after collection. The black-colored seeds are dried under shade by spreading on a cement floor in a single layer to prevent them from fungal attack.

**Dormancy and pretreatment**

Germination of fresh seeds is 60-70%. Seeds have no dormancy and do not need any pre-treatment.

**Storage and viability**

Seeds of *Semecarpus anacardium* are orthodox. Viability does not reduce when the seeds are dried to 4- 5% moisture content and stored at low temperature (0°-20°C). The viability of seeds with 7-10% moisture content is short (6 months), if stored at ambient condition (15°-46°C) and can be increased to 1 year if stored at 0°-5°C. Seed longevity can also be extended to 1 year at ambient temperature and at least 2 years at low temperature (0° to 15°C) if seeds are dried to 4-5% moisture contents.

**Sowing and germination**

Seedlings are raised in a nursery in the month of March-April. Germination starts within 15-25 days and completes in 30 days. One-year-old seedlings are planted in 60cm X 60cm X 60cm pits at 6m X 6m spacing during rain in July. Before planting the pits are dried under the sun and are filled with soil with farmyard manure. Seedlings are prone to damping off disease at the tender stage.

**Pest and diseases**

No major insect pest was found in this species.

**Selected readings:**

Anon. 1988. *Semecarpus anacardium* L.f. The wealth of India: raw materials. New Delhi: Council of Scientific and Industrial Research.

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