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Schleichera oleosa (Lou.) Oken

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FOREST & LANDSCAPE

SEED LEAFLET

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Schleichera oleosa (Lou.) Oken.

Taxonomy and nomenclature

Synonym(s): *Schleichera trijuga* Willd & Klein, *Cussambium oleosum* O. Kuntze, *Pistacia oleosa* Lour.

Family: Sapindaceae

Vernacular/Common names: Lac tree (Eng), kusum (India), pongro (French, Khmer (Cambodia)), gum-lac tree (Filipino), kasambi (Indonesian), kusambi (Malay), takhro (Thai).

Distribution and habitat

It occurs naturally from the foothills of the Himalayas and the western Deccan to Sri Lanka and China. It was probably introduced to Malaysia and has naturalized in Indonesia. In India in Bihar, West Bengal, Central and Southern India. The tree occurs sporadically, seldom gregariously in dry, mixed deciduous forest. It grows on rather dry to occasionally swampy locations on various, often rocky, gravelly or loamy, well drained, preferable slightly acidic soil. It grows usually at low altitudes, but can be found up to 900-1200 m. The normal rainfall varies from 750 to 2800 mm. Absolute maximum temperatures: 35-47.5°C; Absolute minimum temperature: -2.5°C.

Uses

The timber is suitable where hardness, bending strength and toughness are required. It is about 60 percent heavier than teak. The wood is commonly used for oil and sugar mills, cart wheels, and agricultural implements. The treated timber is durable and is suitable for construction, cabinet-work, beams, railway sleepers and for wagon building. Leaves, twigs and seed-cake are used as cattle-feed. The tree yields an excellent fuel and charcoal. Oil extracted from the seed, called 'kusum oil', is a valuable component of true Macassar oil used in hairdressing, culinary and lighting purposes and in traditional medicine. The tree is an important host for lac-insect (*Laccifer lacca*) and the finest quality of lac is obtained from this tree every second or third year.

Botanical description

It is a medium-sized to large deciduous or nearly evergreen tree, up to 40 m in height, and 2-3.7 m in girth usually with a clean bole of about 6 m in length and a dense and spreading shady crown. Bark grey or brown, reddish inside, exfoliating in small, round irregular flakes. Leaves paripinnate, w/ (2-)3(-4) pairs of pinnae, petiole cross-section circular somewhat flattened or slightly grooved

S. oleosa branchlet with inflorescenses

above, 2-6(-8) cm long, swollen at base; rachis cross-section round to triangular; petiolule swollen, slightly grooved above, 1-3 mm long. Leaflets elliptical to elliptic-oblong, coriacious, 4.5-18.5(-25) cm x 2.5-9 cm, dark brown or greyish-green above, lighter brown to greenish beneath, deep purple when young, veins in 12-15 pairs, looped and joined near the margin. Inflorescence 6-15 cm long, situated in the defoliated part of branchlets above leaf scars, sometimes axillary, consisting of a few simple (female) or sparsely branched (male) thyrses, the basal part with scattered, many-flowered fascicles, the upper part spicate, sparsely hairy; flowers functionally unisexual, pale yellow or pale green; pedicel up to 5 mm long; sepals 4-5, connate at base, lobes ovate to deltoid, about 1.5 mm long, obtuse to acute, with thin hairs on both sides, margin ciliate and sometimes glandular, deciduous in fruit; disk entire, petals absent; stamens 5-9, filaments about 2 mm long, sparsely hairy, much reduced in female flowers; ovary ovoid, slightly 3-angular, about 1.3 mm long, style rather thick, up to 1.5 mm long, pistil much reduced in male flowers.

Fruit and seed description

Fruit: Broadly ovoid, ellipsoid to subglobular berry, 1-2 seeded, dry indehiscent 1.5-2.5 cm x 1-2 cm, base narrowed, apex pointed, yellow, hard-crustaceous, smooth or slightly spiny. Number of fruits per kg varies from 77 to 286.

Seed: Subglobular, about 12 mm x 10 mm x 8 mm, hilum orbicular, testa brown, smooth, glabrous enclosed in a succulent yellow aril. Number of seeds per kg varies from 1400 to 2200/kg fruits yields about 0.8 kg seed.

Seed and seedling of *S. oleosa*

Flowering and fruiting habit

The tree is dioecious. The tree produces seeds annually. Flowers appear along with new leaves in February-April at the beginning of dry season. Some trees produce only male flowers. The fruits fall quickly to the ground as soon as they ripen in July-September after the onset of rain. In India, a mature tree yields 21-28 kg depulped seed per year.

Seed collection

The fruits are best collected from the tree, since fallen seeds are often damaged by insects or rodents. The optimum period for collection is when the colour of the fruits turns brownish green and pulp turns yellow and juicy. The moisture content of seed at this stage is about 20-25 %. The easiest way of collection is to spread a tarpaulin under the tree and collect the fruits by shaking the trees or lopping the branches or plucking the fruits. On an average a full grown tree yields about 28-37 kg of fruits in one season.

Processing and handling

After collection, fruits are sorted according to their maturity (colour). The fruit pulp must be removed before storage, either by hand or by depulper. The seeds are cleaned on wire mesh in running water. These are then allowed to dry under sun and cleaned by seed blower or by winnowing. Underdeveloped and small seeds are discarded.

Storage and viability

Seeds of *S. oleosa* can tolerate desiccation to 5% moisture content; hence the seeds are of the orthodox type. The seeds can be stored for a long period if stored at low temperature (-20 to 15°C) and at low moisture content (5-7 %). Viability is short at ambient temperature, if moisture content of seed is not maintained to 5-7 %; in this condition seeds can be viable up to one year. No seed is viable at ambient condition for one year, if stored with more than 10 % seed moisture content.

Dormancy and pretreatment

The seeds need pretreatment for betterment of germination. Both exogenous and endogenous dormancy is present. For optimum germination the seeds are clipped at the opposite end of the radicle and then soaked in water or a GA3 solution of concentration 500 ppm overnight. 80-85 % germination for pretreated seed has been achieved. Germination starts within 15 days and is completed in 30 days.

Sowing and germination

Fresh seeds are sown in thoroughly prepared soil. Seeds can also be sown in the shaded nursery beds or in polythene bags. Seed should be well covered with soil, as the exposed seed does not germinate. Germination is epigeal. Seedlings should be protected from livestock. They are transplanted carefully at the second rain without injuring the tap root. In case of long tap root, the same should be pruned down to 15-22 cm length. The seedlings require protection from frost in their early stages.

Phytosanitary problem

39 insect species have been recorded on this species; these are defoliators, borers, sap-suckers etc. A bug, *Serinetha augur* Fabr., pierces the testa of the seed and feeds upon the oily cotyledons. The most important insect attacking the tree is the lac insect, *Laccifer lacca*, the larvae of which suck the sap from the succulent twigs. Two parasitic fungi, *Rosellinia bunodes* and *Polyporus weberianus* are known to cause blight and white-rot diseases respectively on living trees. *Daedalea flavida* and *Hexagonia apiaria* cause white spongy rot and *Irpex flavus* Koltz causes white fibrous rot on felled timber.

Selected readings

Anon. 1959. The wealth of India: Raw Materials (eds. B. N. Sastri) . 5: 6-8. Council of Scientific & Industrial Research, New Delhi, India.

Iwasa, S., 1997. *Schleichera oleosa* (Lour.) Oken. In Faridah Hanum, I. & van der

Maesen, L.J.G. (Eds.): Plant Resources of South-East Asia No. 11. Auxiliary Plants. Prosea Foundation, Bogor, Indonesia. pp. 227-229.

Luna, R.K. 1996. Plantation trees. International Book Distributors, Dehra Dun, India.

http://www.worldagroforestrycentre.org/sea/Products/AFDbases/AF/asp/SpeciesInfo.asp?SpID=18132

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