UNIVERSITY OF COPENHAGEN

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Cedrela odorata

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Published in:
Seed Leaflet

Publication date:
2000

Document version
Publisher's PDF, also known as Version of record

Citation for published version (APA):
Salazar, R., Jøker, D., & Schmidt, L. (2000). Cedrela odorata. *Seed Leaflet*, (20).

Download date: 17. Nov. 2026

CATIE

SEED LEAFLET

No. 20 September 2000

Cedrela odorata L.

Taxonomy and nomenclature

Family: Meliaceae

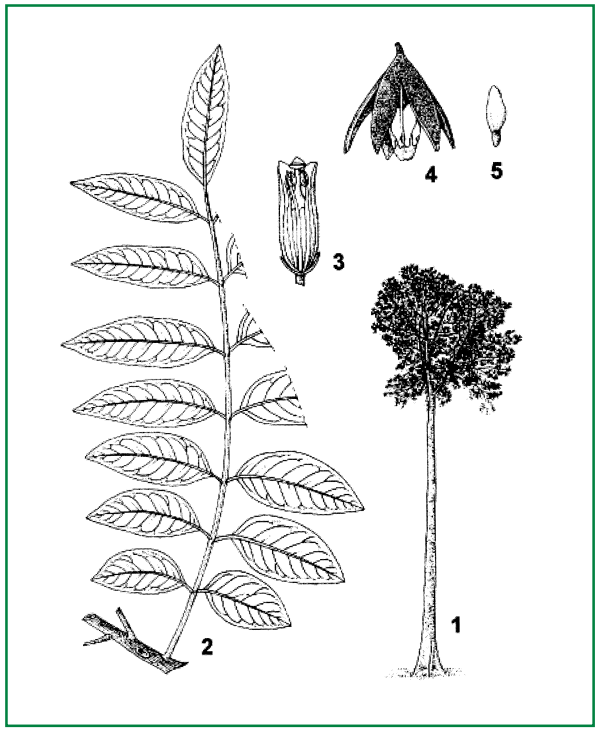
Synonyms : *Cedrela dugesii* S. Watson, *C. guianensis* A. Juss., *C. mexicana* M. Roem., *C. occidentalis* C. DC., *C. sintenisii* C. DC.

Vernacular/common names: cedar, cedarwood, cigar box cedar, Spanish cedar (Eng.); acajou rouge (Fr.); cedro, cedro amargo (Costa Rica); culche (Mexico); cedro real (Nicaragua); cedro colorado (El Salvador); yom-hom (Thailand).

Distribution

Native to the neotropics from Mexico through Central America to Argentina including the Caribbean. Introduced into cultivation in Uganda, Tanzania, Madagascar and South Africa, and several South-East Asian and Pacific countries.

It is found from sea level to 2500 m altitude in humid seasonal tropics with annual rainfall of 1500-3000 (-4000) mm, mean annual temperature of 22-27°C and a dry season of 2-4 months. Prefers fertile, free draining, weakly acidic soils.



1, Tree habit; 2, leaf; 3, sectioned flower; 4, dehisced fruit; 5, seed. From: Plant Resources of South-East Asia 5:2.

Uses

The timber is famous for its use in making cigar boxes and it is also used for musical instruments, light construction, veneer, plywood a.o. The insect repellent smell makes it suitable for wardrobes. In cocoa and coffee plantations it is planted for shade and as a windbreak.

Botanical description

Deciduous tree up to 40 m tall, sometimes with small buttresses. Young bark smooth and grey, deeply fissured with age. Leaves paripinnate, with 8-12 pairs of leaflets. Leaflets oval to lanceolate, 6-15 cm long, 3-5 cm wide, glabrous to densely pubescent. Flowers small, unisexual but with well developed vestiges of the opposite sex.

Fruit and seed description

Fruit: pendulous, dehiscent capsule, shiny brown, 5-7 cm long with 5 loculi, each with 2 rows of 3-5 seeds, hanging from the columella by their wing. Each fruit contains 25-40 seeds. The capsule opens from the apex.

Seed: flat, winged, 20-25 mm long, 5-8 mm wide (incl. wing), oblong, smooth, chestnut to red. Wing lateral, dark brown. Embryo straight, radicle facing the wing. The seeds lack endosperm. There are 40,000-60,000 dry, dewinged seeds/kg.

Flowering and fruiting habit

Monoecious species. Annual flowering is regular from about 10 years of age. Flowering normally occurs at the beginning of the rainy season but there can be large differences from one region to another. Fruit maturation takes about 6 months.

In Costa Rica flowering is Mar-June and fruiting is in July. Ripe seed is available in March-April in Nicaragua and March-June in the Philippines.

Areas with bimodal climates may have two fruiting seasons; in Tanzania, fruits can be harvested in April and November. The leaves are shed prior to fruit maturation.

Harvest

The seeds are mature when the capsule and seed wing change colour to dark coffee brown, and the seed coat hardens. Collection can start when the first capsules have opened.

The capsules are best collected from the tree. If collection is done from the ground, only those that have fallen the same day should be collected.

Processing and handling

After harvest the fruits should be transported to the processing unit without delay.

The fruits can be pre-dried on open trays in well ventilated, shaded areas for a few days and then transferred to full sunlight for 2 days or until the seeds are released. Another practice is to expose the fruits to sunlight for 4-6 hours daily for 6 days. It is important that the seeds are not dried too quickly or else they may lose viability.

Seeds are dewinged mechanically, e.g. in a cement mixer and then cleaned by winnowing. 3 litres of fresh fruits weigh about 1 kg. 50 lt of fruits yield about 1.4 lt of seed. Seed weight makes up some 4-6% of the fruit weight.

Storage and viability

Seeds are orthodox. Viability is short at ambient conditions but can be extended to at least 3-4 years when stored in airtight plastic bags at 2-5°C and a moisture content of 6-8%. Well-dried seeds (6-8% mc) stored in paper bags show no decrease in germination after 3 months, irrespective of the temperature during storage. For long term storage -13°C is recommended.

Dormancy and pretreatment

There is no dormancy but germination of dry stored seed may be faster by soaking in warm water for 12-24 hours before sowing.

Sowing and germination

Sowing is done directly in containers or broadcast in seedbeds and covered with a thin layer of soil. Where there is adequate moisture, shade is not necessary and increases the risk of damping-off. Germination is epigeal. Optimal temperature for germination is 25-30°C, but seeds can germinate at 15°C.

Collection and transplanting of wildlings is also used. In the Philippines, collected wildlings had a survival rate of 94% and after some months had a shorter taproot and more lateral roots than the original seedlings growing under the mother tree.

In Indonesia, 20 cm tall stumps with a diameter of 1-2 cm, planted at a depth of 10 cm showed nearly 100% survival.

Phytosanitary problems

Seedlings are susceptible to damping-off caused by e.g. *Rhizoctonia*, *Pythium* and *Fusarium* spp.

Selected readings

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Natural regeneration of *C. odorata* in coffee plantation, Costa Rica. Photo: David Boshier, OFI.

THIS NOTE WAS PREPARED IN COLLABORATION WITH CENTRO AGRONÓMICO TROPICAL DE INVESTIGACIÓN Y ENSEÑANZA

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