

Albizia odoratissima

kala-siris, black siris

(L.f.) Benth.

Fabaceae - Mimosoideae

LOCAL NAMES

Bengali (tetura,kakur siris,koroi); Burmese (thitpyu,thitmagyi); English (black siris,fragrant albizia,Ceylon rosewood); Gujarati (kala siriasio); Hindi (kala siris,bansa,chinduka,koroi,peet shirish,puli-vaka,bilwara,bilavara,bhandir,tetura); Lao (Sino-Tibetan) (kh'a:ng h'ung,du:x salen,len); Tamil (karu vagai,selavanji,solomanim,karavaghe); Thai (kang khi mot,khang-daeng,ma kham pa); Trade name (kala-siris,black siris); Vietnamese (x[us]a,s[os]ng r[aa]j th[ow]m)

BOTANIC DESCRIPTION

Albizia odoratissima is a medium sized tree to 22(-40) m tall, diameter 120-150 cm, and a short trunk. Bark dark grey to light brown with horizontal lenticels. Crown spreading, relatively dense with drooping foliage. Branching habit uniform, but irregularities occur when the tree is damaged.

Leaves dark green, bipinnately compound; rachis 7-20 cm long, bearing 1 lower gland 1-2 cm above the base, and 1 upper gland between the 2 distal pairs of pinnae; pinnae 3-5(-9) pairs, 7-14 cm long; per pinna, 10-16(-20) pairs of oblong to obovate leaflets, 1.1-3.5 cm x 0.6-1.2 cm.

Inflorescence clustered into hairy terminal panicles 8-20 cm long; flowers 10-15 per head, dimorphic, pale yellowish white, fragrant.

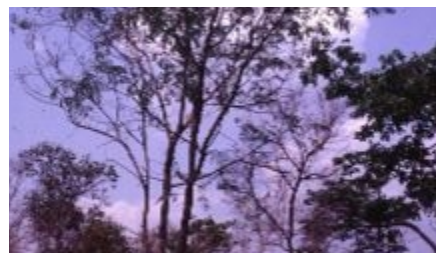
Pods thin, flat, 13-30 cm long, 2.5-3.5 cm broad, leathery, brown when ripe, dehiscent, each containing 8-14 seeds.

Seeds ovoid, 9 mm x 6 mm x 1.5 mm.

The genus was named after Filippo del Albizzi, a Florentine nobleman who in 1749 introduced *A. julibrissin* into cultivation.

BIOLOGY

A. odoratissima is hermaphroditic and deciduous with a short leafless period from December to February. New leaves normally appear before the old ones have completely fallen, (March-April in northern India). Flowers appear from March to June. Fruits appear in early August and start ripening at the end of October.



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ECOLOGY

A. odoratissima tolerates a wide range of temperatures and rainfall. In its natural range the maximum shade temperature varies from 37-50 deg C and the minimum from 0–15 deg C. Normal rainfall varies from 650-3 000 mm with a 4-5 month dry season from November to March. It occurs from sea level to 1 500 m and grows sporadically in both dry and moist deciduous forest zones. Under tropical conditions the species is not gregarious. It is frequently found on hill slopes and sometimes in valleys. It tolerates hot humid conditions but not waterlogging. Seedlings and young trees are susceptible to frost.

BIOPHYSICAL LIMITS

Altitude: 0- 1 500 m

Mean annual temperature: 22-33 deg C

Mean annual rainfall: 650-3 000 mm

Soil type: Growth of *A. odoratissima* is best on deep, well-drained sandy soils, with large amounts of organic matter.

DOCUMENTED SPECIES DISTRIBUTION

Native: Bangladesh, China, India, Laos, Myanmar, Nepal, Pakistan, Sri Lanka, Thailand, Vietnam

Exotic: Burundi, Kenya, Malawi, Mozambique, Zimbabwe



The map above shows countries where the species has been planted. It does neither suggest that the species can be planted in every ecological zone within that country, nor that the species can not be planted in other countries than those depicted. Since some tree species are invasive, you need to follow biosafety procedures that apply to your planting site.

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PRODUCTS

Fodder: Leaves are an excellent cattle fodder and monkeys eat the pods of *A. odoratissima*.

Fuel: *Albizia odoratissima* produces valuable fuelwood, dead and defective branches from shade trees are a major source of fuel.

Timber: The heartwood of mature trees is a beautiful dark brown color. The premium quality wood is suitable for paneling and furniture. It is also used for carts, wheels, farm implements and construction timbers. Wood weight at 12% moisture content is 735 kg/cu m. The wood is 20-40% stronger than teak.

Gum or resin: The tree produces an insoluble gum which is mixed with other gums and used as an extender.

SERVICES

Erosion control: The tree's well-developed root system decreases erosion and is planted for soil conservation.

Shade or shelter: *A. odoratissima* has been extensively planted as a shade tree in tea and coffee plantations. The shade also provides plantation laborers a comfortable working environment under hot tropical conditions.

Reclamation: It is used in afforestation programmes.

Nitrogen fixing: Through a symbiotic relationship with *Rhizobium* bacteria, *A. odoratissima* fixes atmospheric nitrogen.

Soil improver: *A. odoratissima* has contributed 16 kgs/ha of nitrogen from 655 kgs of dry weight leaf litter in trials and provides organic matter and soil nutrients to the rhizosphere of understory plants. Tree canopies decrease soil desiccation and suppress weed growth.

Intercropping: The tree utilizes the subsoil moisture and nutrients not available to plants and protects them from hail and rainstorms.

Other services: *A. odoratissima*'s presence in tea monoculture reduces incidence of tea pests, particularly red spider mites and scarlet mites.

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TREE MANAGEMENT

Recommended spacing varies from 6 x 6 to 12 x 12 m. Seedlings are planted in pits 90 cm deep and 45 cm wide and stumps 90 cm deep and 75 cm wide. For direct sowing, seed should be sown in lines 3 m apart. They should be fertilized during planting. Recommended fertilization rates per seedling are 10 kgs of rotted cattle manure, 200 g TSP, 2.5 kg wood ash and 1 kg slaked lime. For trees under 2.5 m height broadcast 300 grams TSP in a 1.5 m, up to 4 m height 333 grams TSP is applied to a 3 m diameter-circle around the tree. Fertilization should be repeated 3 times per year; April, June and August. On good sites 5-year-old trees can be 5 m in height and 14 cm in diameter. A mean annual diameter increment of 1.3 cm has been recorded for this species. *A. odoratissima* is classified as moderately light demanding. Juvenile trees require shade. Trees coppice well, shoots reaching a height of 3 m in 2 years. It is susceptible to fire, resistant to weed competition, drought and regenerates naturally in sheltered areas with good soil.

GERMPLASM MANAGEMENT

Pods should be collected while on the tree as they turn brown. 1/2-opened pods are also collected from beneath trees, dried in the sun for 5-7 days, then lightly pounded with a hammer to extract seeds. Extracted seeds are dried again in the sun for 3-4 days and then stored in bags under well ventilated, dry conditions. There are 5 000-23 000 seeds/kg. Seed storage behavior is orthodox. To break dormancy seed can be soaked in cool water for 1 hour, in 80 deg C water for two minutes, or in boiling water for 30 seconds. Removed from the water, moist seed is stored overnight and sown the following morning. Seedlings emerge within a week. Fresh seed may have a germination rate of 99%. Germination of year-old seed decreases to 55-65%.

PESTS AND DISEASES

A. odoratissima is prone to attack by caterpillars, root borers, and root diseases, particularly as a young tree as well as dieback, branch canker and red rust. Damping-off, a fungus infection, is common in poorly managed nurseries. In India, heart-rot is caused by *Ganoderma applanatum*. Cerambycid *Xystrocera globosa* attacks the species also. Larvae of *Bruchidius bilineatopygus* cause heavy damage to developing pods and seeds.

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FURTHER READING

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SUGGESTED CITATION

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