

Sterculia urens

Roxb.

Sterculiaceae

karaya, kadaya

LOCAL NAMES

Gujarati (kandol,kadai,kadayo,kagdoli); Hindi (kulu,kadaya,gulu,gular,karaya); Tamil (kavili,kavalam,villay putali,errapunikichettu,senthanuku,tabsu); Trade name (karaya,kadaya); Urdu (konda-tamara)

BOTANIC DESCRIPTION

Sterculia urens is a medium-sized, deciduous tree to 15 m in height, usually with a clean, crooked, short bole up to 2 m DBH; branches large, spreading; bark thick, greyish-white or reddish, smooth, shining with a thin, white transparent outer coat, peeling off in papery flakes.

Leaves on long petioles, crowded at the ends of branches, palmately 5-lobed, 20-30 cm diameter; tomentose beneath, glabrous above, entire, acuminate; stipules caducous.

Flowers greenish yellow, small, in terminal panicles; follicles 4-6, ovoid-oblong, about 2.5 cm diameter, coriaceous, red, covered with stinging hairs.

Fruit consists of 5 sessile, radiating, ovate-lanceolate hard, coriaceous carpels, 7.5 cm long, red when ripe, covered outside with many stiff bristles.

Seeds 6 mm long, oblong, dark chestnut-brown, 3-6 per carpel.

The generic name is based on the Latin name 'stercus', meaning 'manure', which refers to the smell of the flowers and leaves of some species. The specific name means stinging in reference to the hairs on flowers.

BIOLOGY

The tree bears a mixture of bisexual and male flowers, the latter are normally numerous. The tree is leafless in winter; flowers in January-March and fruits ripen in April-May, young leaves appearing about the same time.

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ECOLOGY

Karaya usually occurs in dry, tropical deciduous forests and is often associated with *Boswellia serrata*. The tree occupies hilltops, exposed ridges, rocky crevices, eroded slopes and similar habitats. It is a xerophytic species, very resistant to drought and will grow on the poorest of dry stony soils. It is gregarious on ferruginous soils.

BIOPHYSICAL LIMITS

Altitude: 300-750 m

Mean annual temperature: 10-40 deg C

Mean annual rainfall: 500 - 1 900 mm

Soil type: The tree usually occurs on stony or rocky soils, derived from quartzite, gneiss and schists.

DOCUMENTED SPECIES DISTRIBUTION

Native: India, Myanmar, Sri Lanka

Exotic: Pakistan, Sudan



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

Food: Trees exude gum karaya used in foodstuffs as emulsifiers, stabilizers and thickeners. Seeds are eaten after roasting. Seeds and young tender roots are eaten in times of famine.

Fuel: The tree is used as a fuelwood.

Fibre: The bark can be stripped off easily and yields a useful fibre suitable for making coarse cloth and bud ropes.

Timber: Sap wood is pale greyish-white, heartwood distinct, red; heavy to very heavy, very strong and very hard, but poor in splitting and retention of shape. It planes and turns to a smooth finish and may also be suitable after seasoning and the adoption of suitable joining techniques for door and window frames, furniture and joinery. It is considered suitable for use as posts, beams, rafters and tool handles.

Gum or resin: The tree yields gum karaya from the pith and cortex. The main constituent of the resin is a phlobatannin, containing 3 phenolic OH groups. A large part of the Karaya is used in the pharmaceutical Industry as a bulk laxative and as a denture adhesive in which the finely powdered gum is dusted on the dental plate and swells when it touches the moist surface of the gums. This gives a comfortable and tight fit of the plate.

SERVICES

Reclamation: It is useful for reclaiming bare, rocky land.

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TREE MANAGEMENT

S. urens is a strong light-demander but seedlings and saplings tolerate shading and are prone to fire damage. The tree does not stand competition and should be protected from browsing animals. It coppices when young.

GERMPLASM MANAGEMENT

Seed storage behaviour is orthodox. Viability is maintained for more than 3 years in hermetic storage at room temperature with 13 % moisture content. There are about 5 300 seeds/kg.

PESTS AND DISEASES

Defoliation by *Sylepta balteata* and *Oglasa separata* has been observed in nurseries, young plantations and forest trees. *Cercoseptoria sterculiae*, *Alternaria macrospora* var. *sterculiae*, *Myrothecium roridum*, *Macrophomina phaseolina*, *Phoma jolyana* and *P. macrostoma* have been recorded.

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FURTHER READING

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SUGGESTED CITATION

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