

Acacia catechu

(L. f.) Willd.

Fabaceae - Mimosoideae

pegu cutch, khersal, katha, kath, cutch tree

LOCAL NAMES

Burmese (sha); English (betel-nut palm, black cutch, catechu tree, cutch tree, heartwood); French (acacie au cachou); Hindi (khair, supari, sundra, cachu, koir, tallatuma); Malay (pinang); Nepali (khair, khaira); Sanskrit (khadir); Tamil (karungali, kamugu, paku, baga); Thai (sa-che, seesiat, seesiat nua, sisiat-nua); Trade name (khersal, katha, kath, cutch tree, pegu cutch)

BOTANIC DESCRIPTION

Acacia catechu is a small or medium-sized, thorny tree up to 15 m tall; bark dark grey or greyish-brown, peeling off in long strips, or sometimes in narrow rectangular plates, brown or red inside; branches slender, puberulous when young but glabrescent, with 2 curved, 8-mm prickles at the base of each petiole.

Leaves bipinnately compound, with 9-30 pairs of pinnae and a glandular rachis; leaflets 16-50 pairs, oblong-linear, 2-6 mm long, glabrous or pubescent.

Flowers in 5-10 cm long axillary spikes, pentamerous, white to pale yellow, with a campanulate calyx, 1-1.5 mm long, and a corolla 2.5-3 mm long; stamens numerous, far exserted from the corolla, with white or yellowish-white filaments.

Fruit a strap-shaped pod, 5-8.5 cm x 1-1.5 cm, flat, tapering at both ends, shiny, brown, dehiscent, 3-10 seeded; seeds broadly ovoid.

In India, three varieties, namely: var. catechu, var. catechuoides and var. sundra are recognized.

The generic name, 'acacia', comes from the Greek word 'akis', meaning a point or a barb.

The species name comes from 'cutch', a tanning extract isolated from its heartwood.

BIOLOGY

A. catechu is leafless for a time during the hot season. In northern India, leaves are shed about February, new leaves appearing towards the end of April or during May. The flowers appear at the same time as new leaves. Trees continue in flower until July or August. Pods develop rapidly, becoming full size by September or October and turning from green to reddish-green, and then brown; they begin to ripen by the end of November through to early January. Pods dehisce not long after ripening and commence falling in January, continuing to fall in the succeeding months. Some pods remain on the tree until the following October, by which time, however, the seed has become extremely damaged by insects. The wind-dispersed seeds germinate with the onset of rains.

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ECOLOGY

A. catechu occurs naturally in mixed deciduous forests and savannas of lower mountains and hills. It is especially common in the drier regions on sandy soils of riverbanks and watersheds.

BIOPHYSICAL LIMITS

Altitude: 0-1500 m, Mean annual temperature: 32-39 deg. C, Mean annual rainfall: 500-2000 mm.

Soil type: The species grows in a wide range of soils, such as sandy, gravelly alluvium, loam with varying proportions of sand, and clay and black cotton soils. It is capable of growing in shallow soils.

DOCUMENTED SPECIES DISTRIBUTION

Native: India, Myanmar, Nepal, Pakistan, Thailand

Exotic: Indonesia, Kenya, Mozambique



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: Seeds contain water-soluble mucilage (6.8%); a good protein source but nutritionally incomplete with respect to essential amino acids.

Fodder: It is considered to be a good fodder tree and is extensively lopped to feed goats and at times cattle. For leaf fodder, finger-thick branches are lopped usually before main leaf fall occurs.

Fuel: The wood is excellent firewood. The calorific value of sapwood is estimated at 5 142 kcal/kg, heartwood 5 244 kcal/kg. Dry wood on destruction gives 38.1% charcoal of very good quality.

Timber: Comparatively heavy with a density of 880-1 000 kg/cubic m at 15% mc. It is recommended to saw the comparatively heavy wood of *A. catechu* when green; the wood is also very strong, durable and resistant to white ants. Timber is used for house posts, agricultural implements and wheels. Spent chips left over after extraction of katha and cutch can be used for the manufacture of hardboards.

Tannin or dyestuff: A substance called cutch, which is marketed as a solid extract, can be isolated from the heartwood. Depending on the way of processing, several products can be obtained from crude cutch. The dark catechu or Pegu cutch is used to tan heavy hides into sole leather, often in a mixture of tan stuffs. Catechu extract is also used for dyeing silk, cotton, canvas, paper and leather to a dark-brownish colour.

Gum or resin: The bark exudes a light gum of very good quality and is one of the best substitutes for gum arabic.

Poison: The bark is said to be toxic and contains an alkaloid and both fruit and stem are used in Myanmar to poison fish.

Medicine: Khersal, a crystalline form of cutch sometimes found deposited in cavities of the wood is used medicinally for the treatment of coughs and sore throat. The bark is said to be effective against dysentery, diarrhoea and in healing of wounds. The seeds have been reported to have an antibacterial action. In East Africa, the powdered bark, mixed with sulphate of copper and egg yolk, is applied to cancerous growths.

Other products: The tree is a host for the lac insects; catechu extract is also used for preserving fishing nets and ropes and a viscosity modifier in on-shore oil wells. The tree is thought to have a powerfully protective mucilaginous juice, one of the most remarkable properties of which is its power of retaining water. It is well known that fire and even hot metal can come in contact with bare skin without injury, provided the skin is covered with the mucilage. The Maasai of Kenya use the spines to sew the edge of their shields and the warriors use it as a meat skewer.

SERVICES

Boundary or Barrier or support: The spiny branches serve as brushwood fence for the fields.

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TREE MANAGEMENT

Early growth is slow, and in Thailand the mean annual diameter increment is only 0.8-1.3 m. Weeding is essential, especially when the plants are still young. Protection against fire is necessary, especially in the drier parts of its range, and so is protection from grazing animals. Rotation regimes depend upon the intended use: for fuelwood production, felling is usually at 10-15 years of age; trunks with a diameter of 30-35 cm are considered the most economic. For extracting the tanning agent cutch, this size may not be achieved for 30 years.

GERMPLASM MANAGEMENT

Seed storage behaviour is orthodox. According to different authors, viability is lost within 1 year in hermetic storage at room temperature at 11-15% mc; viability is maintained for at least 2 years at ambient temperature; viability is maintained for 9 months in open storage at room temperature; viability can be maintained for several years in hermetic storage at 10 deg. C. There are 15 000-40 000 seeds/kg.

PESTS AND DISEASES

Parasitic plants of the genus *Cuscuta* may kill the plant, and hemiparasitic plants of the genus *Loranthus* may damage trees. Insects reported to attack cutch tree include *Bothogonia* spp, seed boring beetles such as *Bruchidus terranus* and *Bruchus billineatopygus*, and leaf eating insect *Dasychira mendosa*. Rodents are also reported to damage the trees. The beetle *Sinoxylon anale* (a branch and twig borer) is found in Thailand. It primarily bores into sapwood of cut logs or into diseased and weak poles, but occasionally it tunnels into shoots and young stems to feed. Fungi, such as *Ganoderma lucidum*, cause root rot.

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FURTHER READNG

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