

LOCAL NAMES

English (mountain ebony, Malabar orchid); Filipino (alibangbang); Thai (siao som, salaeng phan, chongkho); Vietnamese (tai voi, m[os]ng b[of])

BOTANIC DESCRIPTION

Piliostigma malabaricum is an evergreen or nearly evergreen tree 4-17 m tall with a short often gnarled bole. Trunk diameter is usually up to 50 cm, bark surface is rather fissured and peels off in long strips, yellowish-brown and chequered.

Leaves alternate, simple, 3.5-12 cm x 5-16 cm, ovate to rotund, bi-fid up to one fourth of their length with a broad sinus and broadly rounded lobes glabrous and green above, hairy and dull glaucous below. Stipules linear, caducous.

Flowers in compound densely-flowered, racemes, clavate in bud, 2-5 cm, pedicels long 1 -2 cm, Calyx regularly 5-fid to near its base, 15-18 mm long densely short-hairy. Petals 1 -2 cm, oblong-obovate corrugate, dorsally pubescent and pale yellow-white. Male flowers with 10 stamens, female flowers with 10 minute staminodes, ovary superior, densely hairy on free stalk and with a peltate stigma.

Fruit a brown indehiscent pod, 17-35 cm x 2-2.5 cm; borne on a long stalk, linear in shape (but often curved or beaked), with a veined and rather thick pericarp. Seeds 10-30, embedded in pulp.

The generic epithet *Piliostigma*, means cap-like stigma. The specific epithet *malabaricum* refers to a locality in India.

BIOLOGY

The Malabar orchid is dioecious. In Philippines flowers have been observed during the months of October-November in the region and July-October, in Java flowering is between March and April and fruiting in July-October.

ECOLOGY

The Malabar orchid is drought resistant and fire-resistant occurring naturally in scattered in grasslands subject to fire but periodically found in very dry localities. Oftenly the species associates with teak and bambuduri forests. In Java and Thailand, it sometimes occurs in savanna. In the Philippines it is common on drier, hilly sites.

BIOPHYSICAL LIMITS

Altitude: up to 600 m

Mean annual rainfall: 1 000-3 000 mm

DOCUMENTED SPECIES DISTRIBUTION

Native: Australia, India, Indonesia, Malaysia, Myanmar, Philippines, Thailand

Exotic:



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.

PRODUCTS

Food: The young leaves are used as a condiment. They are cooked together with fish or meat to give the soup a good smell and flavour. The seeds of alibangbang are rich in minerals like Ca, Mg and Fe. Glutelins (45%) constituted the major seed protein fraction, followed by globulins which accounted for about 34%. The amino acids tyrosine and phenylalanine are fairly high. The major seed antinutritional substances are phenols, tannins, L-DOPA and haemagglutinins.

Apiculture: The flowers are a source of pollen and nectar for insect pollinators.

Fuel: The wood is suitable material for charcoal and fuelwood, the energy value of the wood is about 18 100 kJ/kg.

Fibre: The bark fibre is used to make rope.

Timber: The Malabar orchid yields a medium-weight hardwood with a density of 665-820 kg/cu m at 15% moisture content. The pale red heartwood is not clearly differentiated from the sapwood. The wood seasons well, works moderately easily but is only durable for interior work. The wood is provides temporary construction material in rural areas. The wooden heels of certain types of women's slippers are obtained from *P. malabarica*.

Tannin or dyestuff: Other members of the genus yield valuable dyes and tanning material, prospects with *P. malabaricum* are worth investigation.

Lipids: The seeds of *P. malabarica* contain high amounts of crude lipids than most of the domesticated pulses. The unsaturated fatty acids, oleic acid and linoleic acid, are predominant in seed lipids.

Medicine: The pounded bark is used in Timor as a poultice. The leaves are used as a febrifuge and the flower infusion as an anti-dysenteric.

SERVICES

Erosion control: As a hedgerow plant, *P. malabaricum* contributes in soil stabilization and conservation.

Shade or shelter: The mountain ebony offers good shade in homes and parks.

Reclamation: In the Philippines the tree is used in fire breaks and for the afforestation of drylands.

Nitrogen fixing: The Malabar orchid forms ectomycorrhizal associations with soil fungi.

Soil improver: The fallen leaves on decomposition revitalise soil nutrients.

Ornamental: The attractive flowers, showy pods and leaves of *P. malabaricum* make it suitable for ornamental purposes.

Boundary or barrier or support: Used as a hedge plant in the Philippines.

Intercropping: *P. malabarica* is a potential agroforestry species.

TREE MANAGEMENT

The seedlings are fast growing, average height and diameter at 33 cm and 0.5 cm after 1 month and 76 cm and 1.1 cm after 4 months have been recorded.

GERMPLASM MANAGEMENT

Seedlings exhibit epigeal germination. The germination rate for seeds stored for 2 weeks is about 45%, but this drops to about 25% in 3 months of storage. Germination takes 55-123 days. Seeds should be sown no deeper than 1 cm and in full sunlight to allow optimal germination. The seeds are pretreated with hot water for 2-3 minutes and soaked in cold water for 24 hours before sowing.

PESTS AND DISEASES

The sapwood is susceptible to Lyctus and heartwood is susceptible to the dry-wood termites. Colletotrichum gloeosporioides [Glomerella cingulata] causes a severe leaf blight of P. malabarica.

Alibangbang is host to the fungi P. aphanamixidis, P. bauhiniigena, S. murrayae and S. sonapathriensis which habitate its living leaves.

FURTHER READNG

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SUGGESTED CITATION

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