

Colophospermum mopane

Rhodesian ironwood, mopane

(J. Kirk ex Benth.) J. Léonard

Fabaceae - Caesalpinioideae

LOCAL NAMES

Afrikaans (mopanie); English (butterfly tree, Rhodesian mahogany, Rhodesian ironwood, red Angolan copal, iron wood, turpentine tree, balsam tree, mopane); Hindi (mopani); Lunda (mwane); Nyanja (chanye, kapalamamba, lupanye, mpane, sanye); Tongan (mupane, mwane); Trade name (mopane, Rhodesian ironwood); Tswana (mophane)

BOTANIC DESCRIPTION

Colophospermum mopane reaches 25 m in height, sometimes more; the bark is rough, dark grey, longitudinally fissured with wide-spreading branches.

Leaves resemble butterflies or camel footprints; composed of 2 asymmetric leaflets, each with a straight inner margin and a curved outer margin, kidney-shaped, 3 x 6 cm. Leaves form a cordate base, 4.5-10 x 1.5-5 cm, with transparent dots when held to the light, and with nerves that are prominent on both surfaces. Stipules inconspicuous, caducous.

Inflorescence racemose, slender and spikelike; flowers small, flower stalks 4-8 mm long; sepals 4; petals none; stamens about 20.

Pods asymmetrical, more or less kidney shaped, deeply and irregularly furrowed; with many reddish, sticky resin glands.

The name of this monospecific genus is based on Greek words meaning 'oily seed' and refers to the very pronounced turpentine smell of the oil contained in the seeds. Colophon in Ionia was celebrated for its resin; it was the birthplace of Homer, so the name links this African genus with one of the world's great heroic stories. The specific name, 'mopane', is derived from a Bantu common name for the tree.

BIOLOGY

It is often deciduous to an extent, being leafless for up to 5 months, although usually for less. Flowering begins at 5 years of age. The sticky seeds cling to the hooves of passing animals and are dispersed. They are also wind dispersed.



Young *Colophospermum mopane* trees mixed with agricultural crops in a farm in Northern Namibia (Martien Gelens)



Rope/twine made from *C. mopane* bark in northern Namibia. (Martien Gelens)



Pestles and mortars made from *C. mopane* stemwood in Northern Namibia (Martien Gelens)

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ECOLOGY

C. mopane is a widespread tree of the drier parts of the Zambezi region and the river valleys of central and southern Africa. It is found on shallow soils or on sites with impermeable sub soils.

BIOPHYSICAL LIMITS

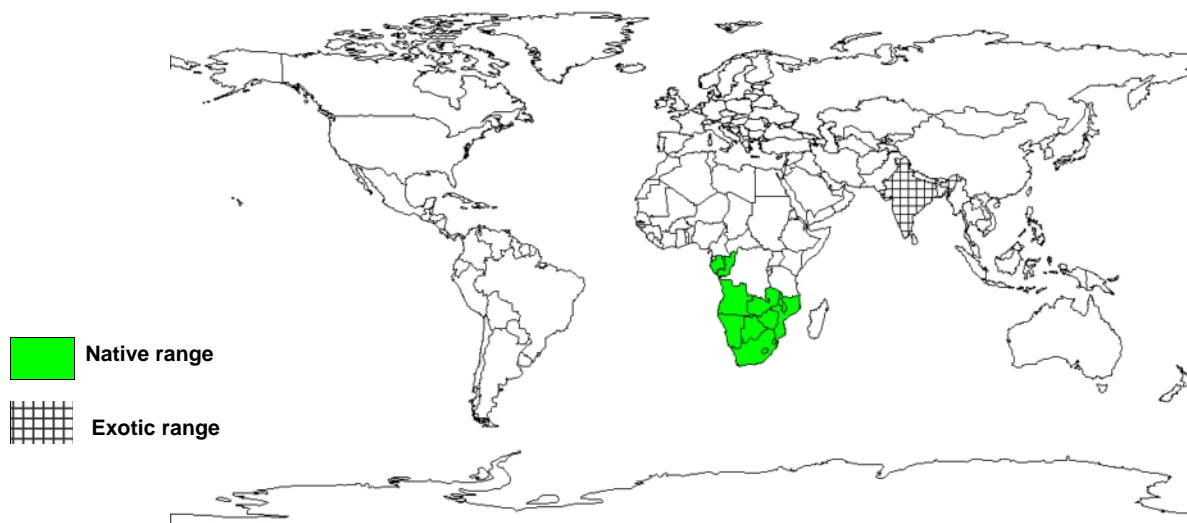
Altitude: 300-1 000m, Mean annual temperature: -3 to 50 deg. C, Mean annual rainfall: 200-800 mm

Soil type: Growth is best in fertile slightly acidic friable and permeable deep alluvial soils.

DOCUMENTED SPECIES DISTRIBUTION

Native: Angola, Botswana, Central African Republic, Congo, Democratic Republic of Congo, Gabon, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia, Zimbabwe

Exotic: India



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: Fruit is edible for humans but is utilized only as a famine food. The tree provides food indirectly because it is a host to the larval stage of the mopane worm (*Gonimbrasia bellina*). This hairless and black-spotted caterpillar, 5-8 cm long, is collected in large numbers and relished as food. Caterpillars are killed by boiling them in water; they are squeezed and dried for storage or are sold for immediate consumption. Their crude protein content is estimated at 47.5%.

Fodder: *C. mopane* taps underground water, enabling it to break dormancy to produce fresh leaves and thus making it a valuable browse species in times of grass scarcity. Leaves are relished when reddish-brown and the crude protein content is about 11%; crude protein content in fallen leaves is about 4%. Old leaves are picked from the ground and eaten. Fresh leaves, which have a higher crude protein content (13%) and a laxative effect on cattle, are high in tannins and therefore less palatable.

Fuel: Wood is excellent firewood, burning with great heat and very little ash; it burns easily, even when green. However, the hardness makes it difficult to fell, chop or split.

Fibre: A small fibre is said to be obtainable from the bark of some trees.

Timber: The dark-grey wood is hard, heavy and quite durable. *C. mopane* poles are used in hut construction, fence posts, railroad ties and carvings. Due to its great durability and resistance to termites, mopane wood is widely used for building, tool handles and other implements.

Gum or resin: The tree is the source of Angola copal. Some trees yield no copal but ooze a clear yellow gum when the bark is incised.

Medicine: An extract of the bark is used as a remedy for syphilis and as an application to inflamed eyes. A deep red decoction of the bark is drunk to cure stomach pains.

Other products: The content of *C. mopane* ash is high in lime (approximately 50%) and the ash can be used to make whitewash.

SERVICES

Shade or shelter: A useful shade tree in the hot summer season where it grows.

Reclamation: Useful in stabilizing dry, alkaline soils. It is listed as one of the tree species used in sand-dune stabilization in India.

Soil improver: The ash is rich in calcium and potassium and a useful fertilizer.

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TREE MANAGEMENT

The seedlings are susceptible to competition and must be kept free of weeds. The species responds to lopping quite well, with rapid regrowth of new shoots.

GERMPLASM MANAGEMENT

Seed storage behaviour is orthodox. The seeds are viable for about 3 years; 8-year-old seeds completely failed to germinate in a trial experiment at the Central Arid Zones Research Institute (CAZRI), Jodhpur, Rajasthan.

PESTS AND DISEASES

In the arid regions of India, the species is disease free. In Africa, it is often defoliated by Anomalous emperor moth larvae. 'Mopane bee' also causes damage to the species to some extent. Termite attack has been observed on young seedlings in Africa. In the event of such problems, Aldrex powder, BHC or Gammexane should be mixed in the soil during planting operations.

FURTHER READING

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SUGGESTED CITATION

Orwa C, A Mutua, Kindt R, Jamnadass R, S Anthony. 2009 Agroforestry Database: a tree reference and selection guide version 4.0 (<http://www.worldagroforestry.org/sites/treedbs/treedatabases.asp>)