Syzygium cuminii

(L.) Skeels

jamun

Myrtaceae

LOCAL NAMES
Burmese (thabyay-hypyoo); English (black plum tree,black plum,Portuguese plum,jambolan-plum,Java plum,jambolan,Indian blackberry,malabar plum); Filipino (lomboi,duhat); French (jamélongue); Gujarati (jambura,jambu); Hindi (jam,jaman,jamun,phalani,phaunda,duhat); Javanese (duwet,jamblang); Khmer (pring bai); Lao (Sino-Tibetan) (va); Malay (obah,jiwat,jambolan,jambulana); Nepali (jamun); Sanskrit (jambu); Sinhala (naval,jambu,madan,jambul); Swahili (mzambarau,msambarau); Tamil (naval,nawar,nagai); Thai (wa,hakhiphae); Trade name (jamun); Vietnamese (trâm môc,vôi rung)

Part of the Reserve forest; the main tree here is the 'jamelão' (Myrthaceae). The jamelão was introduced to very wet areas of the Reserve in order to reduce the high water table. (Griffee P.)

Habit at Waihee Pt, Maui, Hawaii (Forest and Kim Starr)

BOTANIC DESCRIPTION
Syzygium cuminii is a medium-sized tree 10-30 m high, with a straight to crooked, short, stout trunk, 40-100 cm in diameter, sometimes trees with circumference of 62.5 cm have been reported. Crown is irregular or globular with many branches. Bark up to 2.5 cm thick, brown or dark grey, fairly smooth; inner bark with thin green outer layer, mottled light brown, astringent and bitter to the taste. Twigs light green, becoming light grey, slightly flattened and hairless.

Leaves are entire with narrow transparent margin, 7-18 cm long, 3-9 cm broad, opposite, thick, coriaceous, glabrous, broadly obovate, elliptic or elliptic-oblong, upper surface dark green, lower surface yellowish and dull; base cuneate or rounded; apex short, rounded or obtuse; edges not toothed; stalk slender and light yellow, 1.5-2 cm long; midvein light yellow; side veins fine, close together, parallel, with many tiny gland dots visible under a lens, pinkish when young, turning red before shedding.

Flower clusters on old twigs at the back of leaves, 5-6 cm long and wide, with many paired stout forks at nearly right angles, end flower opening first; flowers white or pink, many, small, about 7 mm long, slightly fragrant, nearly stalkless, with cuplike, conical, light green base (hypoanthium) 3 mm long and broad; calyx with 4 white, rounded, concave petals, more than 2 mm long, united into a cap; stamens many, white or pinkish, threadlike, 5 mm long; pistil with inferior ovary; ovules numerous, tiny and stout; style white, 6-7 mm long.

Fruits ovoid-oblong or elliptical berries, numerous, crowded in clusters, almost stalkless along twigs at the back of leaves; often curved, green at first, turning pink and then finally purple-black, 1-2.5 cm (max. 5) long; pulp greyish-yellow, white or pale violet. The seed in each berry is strongly astringent and slightly bitter, 1-2 cm long; sometimes 2-5 angular, irregularly shaped seeds are compressed together into a mass resembling a single seed. Cotyledons are pale green.

Syzygium is derived from the Greek syzgios (paired), on account of the leaves and twigs that in several species grow at the same point.

BIOLOGY
S. cuminii is never leafless in moist localities; the coppery new leaves start even before the old leaves fall. However, in dry localities, it becomes leafless for a short time in the hot season. In its natural habitat, leaves usually start falling about January and continue doing so through to March. The flower panicles appear from March to May, and fruits ripen in June to August. S. cuminii is pollinated by honey bees, house flies and wind. Fruit formation takes place about 32 days after flowering. In areas experiencing a northeast monsoon on the east coast, the fruits are said to ripen from the middle of August to the middle of September. The fruits are devoured by birds, squirrels and humans and are therefore widely dispersed.

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ECOLOGY

S. cuminii is one of the most widely distributed trees of India, occurring in the major forest groups except in the very arid regions. It is present in both moist and dry situations, occurring in the tropical wet evergreen forests, tropical semi-evergreen forests, tropical moist deciduous forests, littoral and swamp, tropical dry deciduous, tropical dry evergreen, subtropical broadleaved hills, and subtropical pine forests. The tree favours moist, damp or marshy situations, where it tends to form gregarious crops. It tolerates prolonged flooding, and once established, it can tolerate drought. In dry sites, it generally confines itself to the vicinity of watercourses. It can grow on shallow, rocky soils provided the rainfall is sufficient. It is frost hardy when mature and sensitive when young. Seedlings are readily killed by fire, but saplings and trees survive ground fires. In the Himalayan valleys, it ascends to about 1 200 m and in the Nigrils to 1 800 m.

BIOPHYSICAL LIMITS

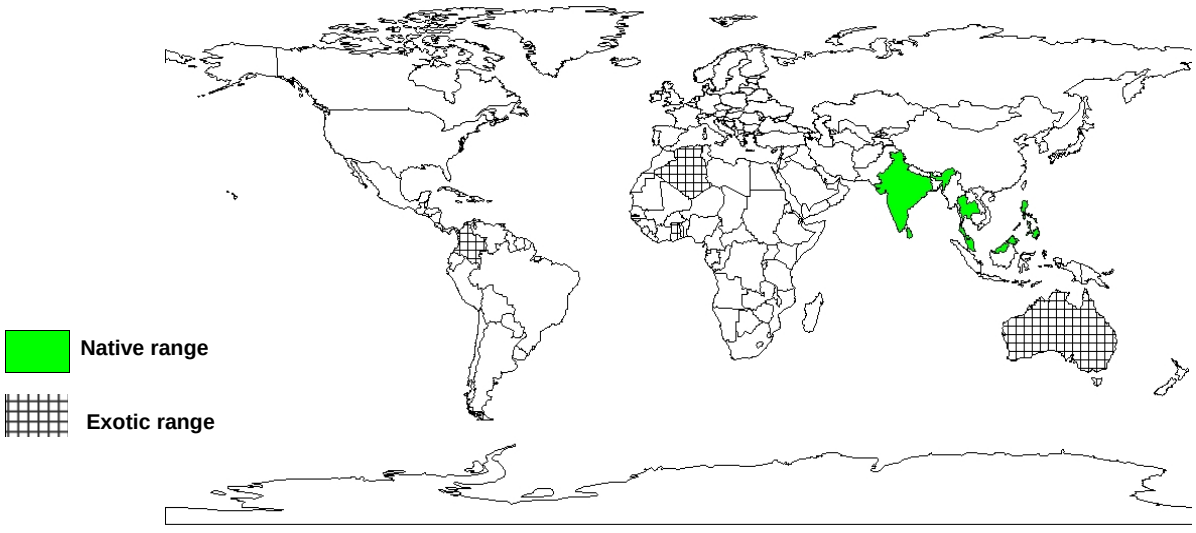
Altitude: 0-1 800 m, Mean annual temperature: -2 to 48 deg. C, Mean annual rainfall: 900-1 200 mm

Soil type: S. cuminii occurs in a great variety of soils and geological formations: alluvial, lateritic, sandy alluvia, marl and oolitic limestone. Such wide tolerance suggests many varieties, some of which will tolerate saline soil; it is commonly found on deep, rich, well-drained soils.

DOCUMENTED SPECIES DISTRIBUTION

Native: India, Malaysia, Myanmar, Philippines, Sri Lanka, Thailand

Exotic: Algeria, Antigua and Barbuda, Australia, Bahamas, Barbados, Colombia, Cuba, Dominica, Dominican Republic, Ghana, Grenada, Guadeloupe, Guatemala, Guyana, Haiti, Honduras, Indonesia, Jamaica, Kenya, Martinique, Mexico, Montserrat, Nepal, Netherlands Antilles, Nicaragua, Panama, South Africa, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines, Sudan, Tanzania, Trinidad and Tobago, Uganda, US, Vietnam, Virgin Islands (US), Zambia, 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.

PRODUCTS
Food: Ripe fruit is usually eaten fresh; it is juicy, almost odourless, with a pleasant, slightly bitter, astringent taste. A common practice in the Philippines as well as in India is to sprinkle the fruits with salt and shake them. They may also be made into jams, jellies, juice and puddings.

Fodder: Leaves may be used as fodder.

Apiculture: S. cuminii flowers are rich in nectar and yield high-quality honey.

Fuel: S. cuminii wood has a specific gravity of 0.77 and burns well, giving off about 4 800 kcal/kg. It is a fast-growing tree, which provides excellent firewood and charcoal.

Timber: The reddish-grey or reddish-brown heartwood is fine grained and is utilized in exterior joinery and carpentry. Wood is durable in water, resistant to termites, and although difficult to work, it saws and machines well and is used for construction, boat building, commercial tea and chest plywood, agricultural implements, tool handles, cart wheels, well curbs and troughs, sleepers, furniture and as props for shafts and galleries in mines. It is also used for building bridges and for making musical instruments, especially guitars.

Tannin or dyestuff: Bark of S. cuminii has served in tanning and yields a brown dye that has been used in colouring fishnets.

Alcohol: Fruits are used to make wine, which is produced in vast quantities in the Philippines.

Medicine: The seeds and bark are well known in the Far East for the treatment of dysentery and in control of hyperglycaemia and glycosuria in diabetic patients. The astringent bark may be used as a gargle. Fruits are used as a relief for colic, while the wood yields a sulphate pulp that has medicinal uses.

SERVICES
Shade or shelter: The abundant foliage of S. cuminii trees produces good shade, which has been used to shelter coffee trees, chicken yards and livestock pastures. When closely planted in rows, trees make good windbreaks.

Reclamation: S. cuminii is successfully planted in waterlogged areas.

Ornamental: S. cumini is one of the most popular avenue trees in India.

Boundary or barrier or support: Trees planted close together and topped regularly form a dense hedge.

Intercropping: S. cuminii is grown advantageously with banana, coffee and cocoa.

TREE MANAGEMENT
Trees should be spaced between 12 and 14 m if planted as ornamentals and 6 m apart if for a windbreak. S. cuminii is a fast-growing tree, and seedlings may reach a height of 4 m in only 2 years. Trees may become serious pests in pastures. The tree coppices remarkably well; vigorous shoots are produced in large numbers from small and large stumps alike. Coppice stands along streams have been reported that grew to 4.6 m in 4 years; more than 30 shoots were produced on 1 stump, half of which were dominant. The plants are also vigorous after pruning, and weeding has a marked effect on the growth and vigour of seedlings. S. cuminii tolerates shade, especially in the younger stages when dense masses of young plants can be found coming up under moderate shade in forests. It is susceptible to browsing damage. Chemical control of pests is recommended to control caterpillars.

GERMPLASM MANAGEMENT
Seed storage behaviour is recalcitrant; seeds germinate well when fresh, but viability is lost within 2 weeks of open storage at room temperature. On average there are 1 200-1 800 seeds/kg.

PESTS AND DISEASES
S. cuminii is susceptible to attack by several diseases: white spongy spot, leaf spot and tar-pot-like lesions on leaves. Sooty moulds, leaf-eating caterpillars, scale insects and whiteflies also attack trees.

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