Ficus benghalensis

L.

Moraceae

LOCAL NAMES
English (vada tree,East Indian fig tree,banyan tree,Indian banyan tree);
Hindi (peddamarri,al,bahupada,vada,vatam,ala,bargad,vad,bar)

BOTANIC DESCRIPTION
Ficus benghalensis is a very large (wide spreading), fast growing,
evergreen tree growing to a height in excess of 30 m and known to reach
more than 180 m in diameter with a forest of secondary trunks and many
aerial roots supporting heavy lateral branches. Like other figs, banyan fig
often begins life as an epiphyte, growing on other trees (especially palms)
until it sends its own roots into the ground, often encircling its host, and
eventually displacing the host tree.

Leaves broadly ovate, obtuse, the base cordate; lamina 10-30 cm long, 7-
20 cm wide, very coriaceous, puberulous beneath; petiole 1.5-7 cm long,
5 mm wide, puberulous; stipules thick, 1-1.5 cm long and wide,
puberulous.

Figs paired, sessile, puberlous, depressed-globular, 1.5-2 cm diam.,
maturing orange to red; ostiole broadly unbonate, enclosed by 3 flat apical
bracts; basal bracts 3, foliaceous, obtuse, 3-7 mm long, 10-5 mm wide,
puberulous.

Male flowers pedicellate; tepals 2 or 3. Female flowers sessile; tepals 3 or
4. Gall flowers pedicellate; tepals 3 or 4.

BIOLOGY
The fruit (syconium or fig) and reproduction systems of species in the
genus Ficus are unique. Each species of Ficus has an associated species
of agaonid wasp (Hymenoptera: Chalcoidea: Agaonidae). Ficus species
can only be pollinated by their associated agaonid wasps and in turn, the
wasps can only lay eggs within their associated Ficus fruit. For successful
pollination and reproduction of Ficus species to occur, its associated
pollinator wasp must be present. Conversely, for successful reproduction
of agaonid wasps to occur, their associated Ficus species must be
present. The pollinator wasp for F. benghalensis is Eupristina masoni
Saunders.

Tree at Kahului, Maui, Hawaii (Forest & Kim Starr)

Fruits at Kahului, Maui, Hawaii (Forest & Kim Starr)

Roots at Kahului, Maui, Hawaii (Forest & Kim Starr)

Ficus benghalensis

L.

Moraceae

ECOLOGY
Banyan tree occurs naturally in monsoon and rain forests.

BIOPHYSICAL LIMITS
Altitude: From low altitudes to 610 m
Temperature: above 23˚C, does not like draughts. Houseplants should be kept at 38-48˚C in the summer and above 23˚C in winter
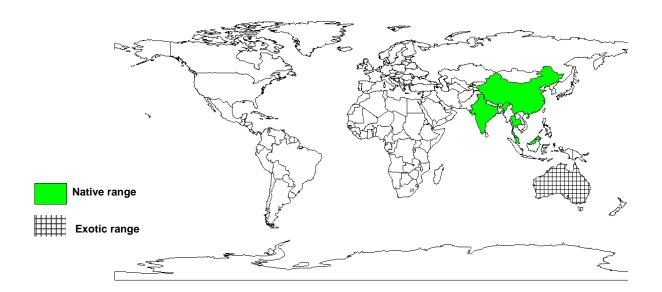Soil type: tolerant of most soil conditions, but for an indoor plant it prefers a soil that is well drained but kept moderately moist.

DOCUMENTED SPECIES DISTRIBUTION

Native: China, India, Malaysia, Myanmar, Thailand
Exotic: American Samoa, Australia, Fiji, French Polynesia, Guam, Kiribati, Northern Mariana Islands

Native range

Exotic range

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.

Ficus benghalensis

L.

Moraceae

PRODUCTS

Food: In India, the edible leaves are used as plates. Fruits are used to prepare Sherbet traditionally.

Medicine: It is astringent to bowels; useful in treatment of biliousness, ulcers, erysipelas, vomiting, vaginal complains, fever, inflammations, leprosy. According to Unani system of medicine, its latex is aphrodisiac, tonic, vulernary, maturant, lessens inflammations; useful in piles, nose-diseases, gonorrhea etc. The aerial root is styptic, useful in syphilis, biliousness, dysentery, inflammation of liver etc.

Timber: can be used for well-curbs, furniture etc.
Fodder: Leaf (Crude protein 9.63%) lopped for fodder.
Other product: It is suitable for paper pulp.

SERVICES

Ornamental: The plant is grown for ornament purposes, makes good indoor bosnai. This Ficus is a meeting place for people peddling their wares and is well publicized as an attraction to tourists in the island of Maui. It is often planted around temples and is considered sacred by both Hindus and Buddhists.

Forage & shelter: Various birds have been observed to be foraging and roosting on F. benghalensis trees. Such birds in Maui include mynah birds (Acridotheres tristis tristis), blue faced doves (Geopelia striata), lace necked doves (Streptopelia chinensis), and house sparrows (Passer domesticus).

Erosion control: It is also planted for soil conservation and reforestation.

Ficus benghalensis

L.

Moraceae

TREE MANAGEMENT

Ficus are suitable for most styles of bonsai, but are especially suitable for styles, which make use of their property of extensive rooting, such as air-root and root-over-rock styles. Leaf pruning can be used to reduce leaf size. Ficus can be wired, but become quite stiff when lignified, and thus are best wired while the shoots are a bit green.

Repotting should be done every 2-3 years, although at times yearly. The best time is before a new growth spurt, especially in spring, but it can literally be repotted any time of year if reasonable after-care is given. Roots can easily be pruned by half.

When fig trees germinate on and grow as epiphytes on other desirable trees, concrete structures, and fenceposts or as lithophytes on rock walls, stone or concrete buildings, and in cracks on bridges and turnpike overpasses that may be on steep dangerous terrain, the unwanted Ficus should be carefully and successfully killed while preserving the host. Without control, the host tree or structure is in danger of destruction through strangulation.

Though it is a good shade tree, it is unsuitable for the urban landscape due to its immense size and extensive root system.

GERMPLASM MANAGEMENT

The seeds exhibit orthodox seed storage behaviour. They can maintain viability for 2 years in open storage at room temperature.

PESTS AND DISEASES

The following pests and diseases have been reported to be associated with Ficus species: mealybugs, scale insects, spider mites, root knot nematodes, eelworm, black fly and thrips occur under most environmental conditions, anthracnose fungus and bacterial leaf spots, crown gall, twig dieback, and Southern blight.

Ficus benghalensis   L.

Moraceae

FURTHER READNG

Ahmed S, Ismail F. et al. 1986. Effect of atmospheric pollution on chlorophyll and protein contents of some plants growing in Karachi region (Pakistan). Pakistan Journal of Scientific and Industrial Research. Karachi, Pakistan.

Bailey LH and Bailey EZ. 1976. Hortus. 3rd ed. Macmillan General Reference, NY.

Bimal R & Verma BK. 1991. Flora of Muzaffarpur District, Bihar (India): Part I. Wall flora. Journal of Economic and Taxonomic Botany.

Brickell C and Zuk JD. 1997. The American Horticultural Society A-Z Encyclopedia of Garden Plants. DK Publishing, Inc., NY.

Firdousi SA, Rai AN., et al. 1990. A new leaf spot disease of Ficus benghalensis L. caused by Coniothyrium olivaceum Bonard from India. Acta Botanica Indica.

Hammer RL In: Randall JM & Marinelli J (ed.). 1996. Invasive Plants: Weeds of the Global Garden. Brooklyn Botanic Garden Handbook 149.

Hong TD, Linington S, Ellis RH. 1996. Seed storage behaviour: a compendium. Handbooks for Genebanks: No. 4. IPGRI.

Nadel H, Frank JH, and Knight RJ. 1992. Escapees and accomplices: The naturalization of exotic Ficus and their associated faunas in Florida. Florida Entomologist. 75(1): 29-38.

Oppenheimer HL & Bartlett RT. 2000. New Plant Records From Maui, O'ahu, and Hawai'i Islands. Bishop Mus. Occas. Pap.

Riffle RL. 1998. The Tropical Look. Timber Press, Inc., Portland, Oregon.

Varma PN, Sarkar VM et al. 1993. Histopharmacognostic evaluation of Ficus benghalensis aerial roots. Journal of Plant Anatomy and Morphology Jodhpur Homoeopathic Pharmacopoeia Lab., Ghaziabad-201 002 Uttar Pradesh, India

Wagner WL, Herbst DR, and Sohmer SH. 1999. Manual of the Flowering Plants of Hawai'i. 2 vols. Bishop Museum Special Publication 83, University of Hawai'i and Bishop Museum Press, Honolulu, HI.

Warthen JD & McInnis DO. 1931. Isolation and identification of male med fly attractive components in Litchi chinensis stems and Ficus spp. stem exudates. Journal of Chemical Ecology.

SUGGESTED CITATION

Orwa C, Mutua A , Kindt R , Jamnadass R, Simons A. 2009. Agroforestree Database:a tree reference and selection guide version 4.0 (http://www.worldagroforestry.org/af/treedb/)