

Bauhinia variegata

kachnar

L.

Fabaceae - Caesalpinioideae

LOCAL NAMES

Bengali (swet-kanchan,rakta-kanchan,rakta-kamhar); Cantonese (kanchivala); English (orchid tree, camel's foot, mountain ebony, Napoleon's hat, paper mulberry, poor man's orchid, bauhinia); Hindi (bogakatra, kolar, raktha-kanchan, mandari, kural, gural, gwar, kachnar, padrian); Malay (akbar tapak kerbau, kupu-kupu, kotidaram); Nepali (kachnar, koiralo); Sanskrit (kanchanar, tamrapushpi); Spanish (flamboyán orquídea, palo de orquídeas); Tamil (chemmonadarei, segapumanchorii); Trade name (kachnar); Urdu (kachnal)

BOTANIC DESCRIPTION

Bauhinia variegata is a small to medium-sized deciduous tree with a short bole and spreading crown, attaining a height of up to 15 m and diameter of 50 cm. In dry forests, the size is much smaller. The bark is light brownish grey, smooth to slightly fissured and scaly. Inner bark is pinkish, fibrous and bitter. The twigs are slender, zigzag; when young, light green, slightly hairy, and angled, becoming brownish grey.

Leaves have minute stipules 1-2 mm, early caducous; petiole puberulous to glabrous, 3-4 cm; lamina broadly ovate to circular, often broader than long, 6-16 cm diameter; 11-13 nerved; tips of lobes broadly rounded, base cordate; upper surface glabrous, lower glaucous but glabrous when fully grown.

Flower clusters (racemes) are unbranched at ends of twigs. The few flowers have short, stout stalks and a stalklike, green, narrow basal tube (hypanthium). The light green, fairly hairy calyx forms a pointed 5-angled bud and splits open on 1 side, remaining attached; petals 5, slightly unequal, wavy margined and narrowed to the base; 5 curved stamens; very slender, stalked, curved pistil, with narrow, green, 1-celled ovary, style and dotlike stigma.

Pods dehiscent, strap-shaped, obliquely striate, 20-30 by 2-25 cm; long, hard, flat with 10-15 seeds in each; seeds brown, flat, nearly circular with coriaceous testa.

The generic name commemorates the Bauhin brothers Jean (1541-1613) and Gaspard (1560-1624), Swiss botanists. The two lobes of the leaf exemplify the two brothers. The specific name refers to the variegation of the flowers.

BIOLOGY

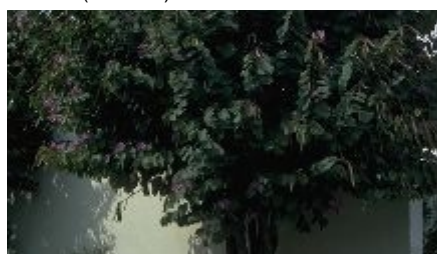
In its natural habitat in India, the tree is deciduous, remaining leafless from Jan-Feb to April with leaf fall in Nov-Dec. Flowering occurs when the plant is leafless. Tree starts flowering at a very early age of 2-3 years. The seeds disperse from the pods and germinate on sites with favourable light and moisture conditions, while in unfavourable niches the radicle dries up or is destroyed by birds.



Flowering tree (Ellis RP)



Flower (Ellis RP)



The white flowers of the 'candida' variety. (Ellis RP)

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ECOLOGY

B. variegata is a plant of tropical and subtropical climates with hot, dry summers and mild winters. It demands plenty of light and requires good drainage. Severe frost kills the leaves of seedlings and saplings, but they recover during summer. The tree is fairly resistant to drought but susceptible to fires.

BIOPHYSICAL LIMITS

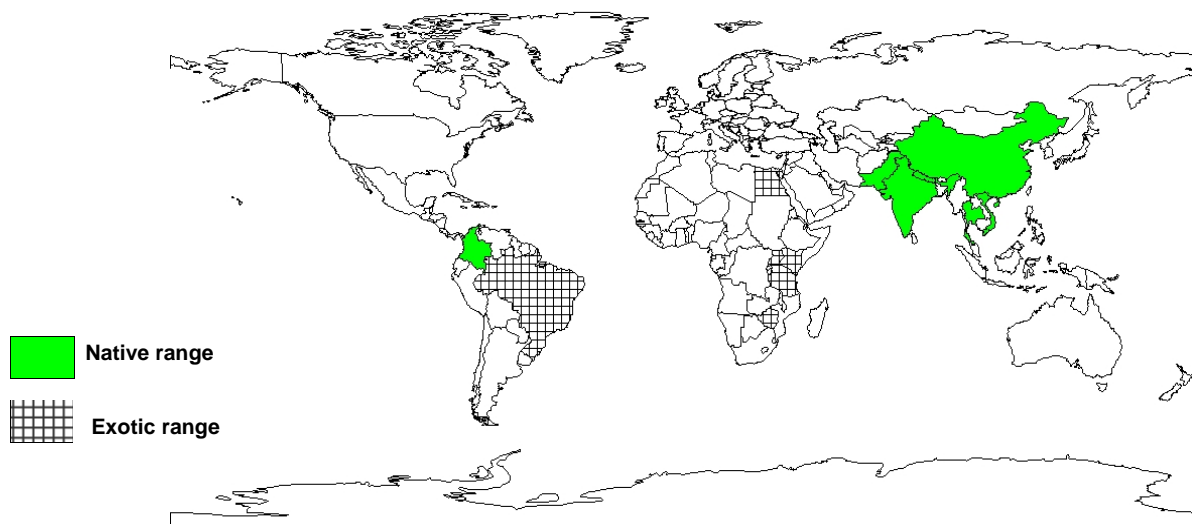
Altitude: up to 1 800 m, Mean annual temperature: 0-47 deg. C, Mean annual rainfall: 500-2 500 mm

Soil type: Capable of growing on a wide range of soils from gravelly, shallow, rocky soil on hill slopes to sandy loam and loamy soil in the valley.

DOCUMENTED SPECIES DISTRIBUTION

Native: China, Colombia, India, Myanmar, Nepal, Pakistan, Thailand, Vietnam

Exotic: Brazil, Egypt, Kenya, Puerto Rico, Tanzania, Uganda, Zanzibar, 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.

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PRODUCTS

Food: The leaves, flowers and flower buds are eaten as vegetables.

Fodder: Leaves make good fodder and are greedily eaten by sheep, goats and cattle. The average annual fodder yield per tree is 15-20 kg of dry matter.

Apiculture: It blooms in early winter and spring in India. The buds being consumed as a vegetable, bees have little chance of taking proper advantage of the bloom.

Fuel: One of the main uses of *B. variegata* is as fuel; calorific value is 4 800 kcal/kg.

Fibre: The bark yields a suitable fibre.

Timber: The wood is brown and moderately hard and used for agricultural implements.

Gum or resin: The tree yields a gum.

Tannin or dyestuff: The bark produces tannins, used in various shades of brown.

Lipids: The seeds are made up of 20% endocarp and 80% kernel. They yield 16.5% of a pale yellow, fatty oil on extraction with petroleum ether but only 6.1% in an hydraulic press.

Medicine: The bark decoction is used for diarrhoea control, as an astringent alternative and for treating scrofula, skin diseases and ulcers.

SERVICES

Ornamental: The showy fragrant, pink, purple or white flowers make the tree attractive for an ornamental and for avenue plantings.

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TREE MANAGEMENT

Direct-sown lines need to be thinned to about 1 m spacing at the end of 1st year. In regular plantations, the trees should be kept adequately thinned as they grow. The tree coppices well and can stand heavy lopping fairly well. Because *B. variegata* has been cultivated sporadically, generally in and around cultivation and habitations, or in mixed forests or avenue plantations, no systematic block plantations have been established. It has therefore been treated according to the objectives in view, so applicable management practices have not been evolved.

GERMPLASM MANAGEMENT

Seed storage behaviour is orthodox; no loss in viability in hermetic storage at room temperature for at least 2 years; viability maintained for more than 3 years in hermetic storage at room temperature with $13 \pm 2\%$ mc. Seeds stored in tins give germination rates of up to 95% after a few months of storage. There are 2 800-3 500 seeds/kg.

PESTS AND DISEASES

The larvae of several insects feed on the plant. Adult nymphs of *Psylla simlae* feed on sap of leaves and young twigs. Leaves and flowers infested by nymphs shrivel and fall.

FURTHER READNG

- Anon. 1986. The useful plants of India. Publications & Information Directorate, CSIR, New Delhi, India.
- Gupta RK. 1992. Multipurpose trees for agroforestry and wasteland utilization. Oxford & IBH Publishing Co. PVT. Ltd.
- Hocking D. 1993. Trees for Drylands. Oxford & IBH Publishing Co. New Delhi.
- Hong TD, Linington S, Ellis RH. 1996. Seed storage behaviour: a compendium. Handbooks for Genebanks: No. 4. IPGRI.
- ICRAF. 1992. A selection of useful trees and shrubs for Kenya: Notes on their identification, propagation and management for use by farming and pastoral communities. ICRAF.
- Joshi HB. 1981. Troup's silviculture of Indian trees, Vol. III. Controller of Publications, New Delhi.
- Katende AB et al. 1995. Useful trees and shrubs for Uganda. Identification, Propagation and Management for Agricultural and Pastoral Communities. Regional Soil Conservation Unit (RSCU), Swedish International Development Authority (SIDA).
- Kayastha BP. 1985. Silvics of the trees of Nepal. Community Forest Development Project, Kathmandu.
- Lanzara P. and Pizzetti M. 1978. Simon & Schuster's Guide to Trees. New York: Simon and Schuster
- Little EL, Wadsworth FH. 1964. Common trees of Puerto Rico and the Virgin Islands. Agricultural Handbook. No. 249. US Department of Agriculture. Washington DC.
- Luna RK. 1996. Plantation trees. International Book Distributors, Dehra Dun, India.
- Mbuya LP et al. 1994. Useful trees and shrubs for Tanzania: Identification, Propagation and Management for Agricultural and Pastoral Communities. Regional Soil Conservation Unit (RSCU), Swedish International Development Authority (SIDA).
- Parkash R, Hocking D. 1986. Some favourite trees for fuel and fodder. Society for promotion of wastelands development, New Delhi, India.
- Singh RV. 1982. Fodder trees of India. Oxford & IBH Co. New Delhi, India.
- Taylor DH, Macdicken KG. 1990. Research on multipurpose tree species in Asia. Proceedings of an International Workshop held November 19-23, 1990 in Los Baños, Philippines. Winrock International Institute for Agricultural Development.
- Watt JM, Breyer-Brandwijk. 1962. Medicinal and poisonous plants of southern and eastern Africa. E & S Livingstone Ltd.
- Williams R.O & OBE. 1949. The useful and ornamental plants in Zanzibar and Pemba. Zanzibar Protectorate.

SUGGESTED CITATION

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