

Bauhinia variegata L.

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FABACEAE (BEAN FAMILY)

Phanera variegata (L.) Benth.

*Buddhist bauhinia, flamboyán orquídea, mountain-ebony, orchidtree,
palo de orquídeas, patabuey, poor-man's orchid*

About 600 species of *Bauhinia* grow in the tropical regions of the world (Larson 1974). The genus includes trees, vines, and shrubs that are frequently planted for their showy flowers and ornamental foliage (Bailey 1941, Neal 1965). *Bauhinia variegata* is native to southeastern Asia and grows from India to China. It is one of the most commonly cultivated small trees in India and is a reliable greenhouse species (Bailey 1941). A popular planting in Florida and Hawaii, the species has escaped and naturalized in the southern foothills of Puerto Rico and throughout the West Indies.

Bauhinia variegata is a small to medium-sized evergreen or deciduous tree (Little and others 1974) that reaches 1.8 to 7.6 m in height and up to 20.3 cm in diameter. In Puerto Rico, it grows in areas that annually receive between 750 and 2000 mm of rainfall (Francis and Liogier 1991). *Bauhinia variegata* twigs are hairless, or nearly so (Bailey 1949). The leaves are variable in size, ranging from 5.1 to 12.7 cm in diameter. They are somewhat broader than they are long and are divided one-fourth to one-third in length (Bailey 1941, 1949; Little and others 1974). The resulting lobes are rounded and dissected by 9 to 13 main veins that radiate from the heart-shaped base. The species grows well in soils of medium fertility that are either droughty or moist; it is not tolerant of nutrient-poor sites. Although reproduction is abundant, *B. variegata* spreads slowly and is confined to a limited habitat.

Bailey (1941) reports that the wood is ebony in color, while Little and others (1974) state that the wood is whitish and soft. While the species is most frequently planted for its ornamental qualities, other properties are utilized: the bark is used as an astringent in tanning and dyeing and the leaves and flower buds as a vegetable (Bailey 1941). Seeds yield 16 percent oil, which is made up of 55 percent linolenic, 36.8 percent linoleic, 26.1 percent oleic, 19.5 percent palmitic, 16.95 per-

cent stearic, and traces of myristic fatty acids (Zaka and others 1983). The residual meal contains 41 percent protein.

Bauhinia spp. bloom within 3 to 4 years (Bailey 1941). In Puerto Rico, *B. variegata* flowers occur from autumn to spring (Little and others 1974). The five-petaled, showy flowers appear on short racemes, about seven to each shoot. They are 7.6 to 10.2 cm across and range in color from white (in the variety *candida* Buch.-Ham.) to rose or lavender-purple (Bailey 1941, Little and others 1974). Bailey (1941) and Neal (1965) report that the petals are variegated with red and yellow, and that the lowest petal is larger and marked with crimson. Bailey (1949) notes that the petal lips are often attractively marked or mottled with purple. Little and others (1974) state that one petal is streaked and that the petals have wavy margins. Petals are 5.1 to 6.4 cm long and 2.5 to 3.2 cm wide. The calyx splits along one side when opening and remains attached. There are five to six fertile stamens per flower. Fruits are dark, dehiscent pods that curve and twist when splitting open. They are long, thin, and pointed on both ends. Little and others (1974) note that pods reach lengths of 12.7 to 22.9 cm. Bailey (1941) reports pod lengths of 30.5 to 61 cm, but, in 1949, reduces pod length to "1 ft. or less." Fruits mature in late spring or early summer. Stomata are present on both the seeds and the pods (Rugenstein and Lersten 1981); the seeds are light brown, rounded, and flat.

Although published reports on the handling of *B. variegata* pods and seeds are not available, in most hard-seeded temperate Fabaceae, pod ripeness is determined by a color change from green to light or dark brown (U.S. Department of Agriculture 1974). Ripe pods are picked by hand or shaken/flailed from the trees and then spread to air-dry. Seeds are threshed or mascerated from the dry pods and separated from the chaff by screening, fanning, or water flotation. Rela-

tively large at 1.3 cm in diameter, the seeds average 4,950 per kg in Puerto Rico (Francis and Rodríguez 1993). Once dried (moisture content less than 12 percent; Roberts 1973), seeds are placed in sealed containers and stored between 2 and 4 °C.

Athaya (1985) reports that *B. variegata* seeds have a higher germination percent when stored after cleaning; however, viability is lost within 3 years. This viability loss may be attributable to high moisture content or mechanical damage, because hard-seeded Leguminosae should store well for longer periods of time. Germination studies of *B. variegata* using excised embryos produced results comparable to experiments using intact seeds (Babeley and Kandya 1986). Francis and Rodríguez (1993) report excellent germination of *Bauhinia*

spp. without scarification, and they record a 77 percent germination for *B. variegata* seeds placed on moist blotting paper.

The following information about related species of *Bauhinia* may be useful when preparing *B. purpurea* seeds for planting. Seed orientation in the soil may be an important factor in seedling survival. Prasad and Nautiyal (1995) report that *B. retusa* seeds sowed with the micropylar end up had the earliest onset of germination and the highest seedling survival rate after 2 months. Those sowed horizontally, or with the micropylar end down in the soil, had lower seedling survival rates and shorter roots. Some species can be propagated from suckers but rarely from cuttings.

