Spathodea campanulata P. Beauv.

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BIGNONIACEAE (BIGNONIA FAMILY)

Spathodea nilotica Seem.

African tulip tree, firebell, fountain tree, rarningobche, spathodea, tulipàn Africano, tuliptree

Spathodea campanulata grows naturally in the secondary forests of the high forest zone and in the deciduous, transition, and savanna forests of equatorial Africa. Its native range extends along the Pacific Coast of Africa from Ghana to Angola and inland across the humid center of the continent to southern Sudan and Uganda (Irvine 1961). The species has been successfully planted outside its natural range (Little and Wadsworth 1964, Mahecha and Echeverri 1983). At a minimum, it has naturalized in Colombia (Mahecha and Echeverri 1983), Costa Rica (Holdridge 1942), Puerto Rico (Liogier and Martorell 1982), Cuba (White 1951), Jamaica (Streets 1962), Sri Lanka (Worthington 1959), Guam (McConnell and Muniappan 1991), and Hawaii (Little and Skolmen 1989).

Spathodea campanulata is a medium-sized tree that commonly reaches a height of 21 m (Neal 1948) and 1.75 m d.b.h. (Francis 1990a); however, in some parts of West Africa it may reach a height of 30 m (Unwin [no date]). It can grow very rapidly, increasing annually by as much as 5 cm in diameter (Little and Skolmen 1989). In Puerto Rico, the largest member of this species measures 35 m tall and 1.75 m d.b.h. (Francis 1990a). In Hawaii, large trees of *S. campanulata* form narrow buttresses at the base. The species may reach heights of 15 to 24 m and diameters of 0.3 to 0.5 m (Little and Skolmen 1989). *Spathodea campanulata* leaves are large, 31 to 61 cm long, and composed of 5 to 19 leaflets (Little and Skolmen 1989) (fig. 1). Leaflets range in length from 7.5 to 15 cm and in width from 4 to 7.5 cm. Lower surfaces are covered with rust-colored hairs. In Puerto Rico, the species develops best in fertile, deep, well-drained loams but will also colonize heavily eroded sites (Francis 1990a). It is frost sensitive and in its native range grows in areas with warm uniform temperatures where the mean temperature of the coldest month is about 27 ^{o}C and the mean of the warmest month is about 30 ^{o}C (Francis 1990a). In Puerto Rico, it grows from near sea level to 1200 m (Francis 1990a).

No hybrids or geographic races have been reported, although it is possible that *S. nilotica* Seem., the Uganda flame tree, may prove to be a variety of *S. campanulata* (Francis 1990a).

Throughout the humid tropics, *S. campanulata's* large, brilliant, flame-orange flowers have made it one of the most popular flowering ornamentals. The wood of this fast-growing species is light, soft, and little used. Heart and butt rots are common in trees older than 20 to 25 years that have suffered mechanical or fire damage. Planting near roads or buildings is not advised, because the trees become hollow with age and have shallow root systems.

The 10-cm-long, irregularly bell-shaped flowers appear on each terminal raceme on trees as young as 3 to 4 years of age (Francis 1990a). Yellow-flowering trees have also been reported (Francis 1990a, Little and Skolmen 1989, Menninger and others 1976). Flowering time varies, depending on location. In India, flowering occurs from early January until early March, with peak flowering in mid-February (Nalawadi and others 1980). In southern Africa, flowers appear in fall and winter, while in the Caribbean, trees bloom from late winter to early summer (Francis 1990a). In Hawaii, flowering and fruiting may occur throughout the year (Little and Skolmen 1989). The oddly flattened flowers have a light brown, curved, pointed calix and four pale yellow stamens with brown anthers. One to four boat-shaped green to brown pods, 15 to 25 cm long, usually develop from each flower cluster (Eggeling 1947, Little and Wadsworth 1964). Pods are 4 cm wide and 22 mm thick (Little and Skolmen 1989), and seeds mature 5 months after flowering (Francis 1990a). The seeds are light brown, lightweight, and surrounded by a membranous wing.

The mature brown pods should be collected while closed and air-dried until they split open (Francis 1990a). The

majority of species in this genus are orthodox and the seeds should store well. Seeds average from 125,000 (Holdridge 1942) to 290,000 (Francis and Rodríguez 1993) per kg.

Germination is epigeous and may begin in as little as 2 days. Germinating seeds are fragile and should not be covered by more than a dusting of peat or fine sand. Francis and Rodríguez (1993) report germination of 38 percent for *S. campanulata* seeds sowed on the surface of wet potting soil in a covered tray and kept at ambient (24 to 30 ^{o}C) temperatures.

When seedlings were placed under 50-percent shade, they developed the first true leaves 2 months after germination (Francis 1990a). When transplanted into nursery beds at 25-percent shade, the seedlings attained a plantable size of 35 cm tall in 5 months. Francis (1990a) concluded that a regimen with more sunlight would probably have reduced the time required to reach plantable size. The species may also be propagated by cuttings and root cuttings. It is a prolific root sprouter (Little and Skolmen 1989).

1cm
2cm
2cm