**Spathodea campanulata**

Nandi flame, flame of the forest

**LOCAL NAMES**
Cantonese (neerukayi mara); English (flame of the forest, tulip tree, squirt tree, fountain tree, Nile flame, Nandi flame, Uganda flame, African tulip tree); French (immortal étranger); Hindi (rugtoora); Luganda (kifabakazi); Malay (panchut-panchut); Sinhala (kudulu, kudaela, gaha); Spanish (tulipán africano, espatodea, amapola, mampolo); Swahili (kifabakazi, kibobakasi); Tamil (patadi); Trade name (Nandi flame, flame of the forest)

**BOTANIC DESCRIPTION**
Spathodea campanulata is medium sized, reaching a height of 10-35 m, deciduous, with a round, heavy crown of dense, dark foliage, sometimes somewhat flattened; young bark pale, grey-brown and smooth but turns grey-black, scaly and cracked vertically and horizontally with age.

The opposite imparipinnate leaves are exstipulate. Each leaf consists of 5-7 pairs of opposite leaflets and a terminal one. The leaflets are oblong-elliptic, about 1 cm long and 0.5 cm broad; entire, broadly acuminate, unequal at the base, dark green on top and light green on the underside; there are glandular swellings at the base of the lamina (usually a pair); the midrib and nerves are yellow, raised and very slightly pubescent; the venation is reticulate; the short, thick petiole is about 0.7 cm long; there are conspicuous lenticels on the rachis; rachis base is swollen.

Flowers large, red, hermaphrodite, orange inside; calyx green, about 1 cm long and split on the posterior side, ribbed and tomentellous; petals 5, each about 1.5 cm long; stamens 4 with orange filaments; style extruding with a 2-lipped stigma; flower buds curved and contain a red sap. A yellow-flowered variety has been reported.

Fruit upstanding, dark brown, cigar-shaped, woody pod, 15-25 cm long and split on the ground into 2 boat-shaped valves, releasing many flat-winged seeds; 1-4 pods usually develop from 1 flower cluster; seeds thin, flat and surrounded by a thin wing.

The generic name comes from the Greek word ‘spathé’ (blade), from the shape of the corolla. The specific name means pertaining to a Campanula, a name coined in 1542 by Fuchs for the type of corolla with a broad rounded base and a gradually expanded tube corresponding to the sound bow of a church bell.

**BIOLOGY**
Large, orange to scarlet, funnel-shaped hermaphrodite flowers are produced from rust-coloured, hairy buds in the bunches at the ends of branches. The flowers open from the outside of the bunch towards the centre. *S. campanulata* may begin flowering as young as 3 or 4 years of age, with open grown trees flowering when they are about 5 m tall; in some tough environments, flowering is delayed until the trees are much larger. Flowering stretches over a 5 or 6 month period, and the pods mature and begin releasing their seeds about 5 months after flowering. The tree reproduces aggressively, so it is frequently a nuisance in pastures and fields with perennial crops. The winged seeds are wind dispersed.
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ECOLOGY
S. campanulata grows naturally in Africa in secondary forests in the high forest zone and in deciduous, transition, and savannah forests. It colonizes even heavily eroded sites, though form and growth rate suffer considerably on difficult sites.

BIOPHYSICAL LIMITS
Altitude: 0-2 000 m, Mean annual temperature: 27-30 deg. C, Mean annual rainfall: 1 300-2 000 mm

Soil type: The African tulip tree develops best in fertile, deep, well-drained loams. Soil texture may range from loamy sands to clays, pH is between 4.5-8, and soil drainage may vary from poor to excessive.

DOCUMENTED SPECIES DISTRIBUTION
Native: Angola, Ethiopia, Ghana, Kenya, Sudan, Tanzania, Uganda, Zambia
Exotic: Colombia, Costa Rica, Cuba, India, Jamaica, Puerto Rico, Sri Lanka, Zanzibar

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 seeds are edible and used in many parts of Africa.

**Timber:** In its original habitat, the soft, light brownish-white wood is used for carving and making drums.

**Poison:** The hard central portion of the fruit is used to kill animals.

**Medicine:** The bark has laxative and antiseptic properties, and the seeds, flowers and roots are used as medicine. The bark is chewed and sprayed over swollen cheeks. The bark may also be boiled in water used for bathing newly born babies to heal body rashes.

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**SERVICES**

**Shade or shelter:** Recommended as a shade tree for parks and yards; it has been used for coffee shade.

**Reclamation:** S. campanulata helps rehabilitate disturbed lands through its quick invasion and rapid growth.

**Ornamental:** S. campanulata has been planted as an ornamental throughout the tropics. The flowers bloom with great profusion, and the trees can be seen from great distances. It is not browsed by domestic animals and although a popular decorative tree for avenues it has shallow roots and a tendency for branches to break off in a storm.

**Boundary or barrier or support:** The species, either planted or growing naturally, is frequently used for living fence posts.
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Nandi flame, flame of the forest

**Bignoniaceae**

**TREE MANAGEMENT**
S. campanulata will coppice up to at least pole size.

**GERmplasm MANAGEMENT**
Seed storage behaviour is recalcitrant; seed should be sown fresh. From its seed size, the species might be able to show orthodox storage behaviour. There are about 125,000 seeds/kg.

**PESTS AND DISEASES**
In Uganda, 2 lepidopteran species, 2 termite species, and 1 bark beetle attack S. campanulata. In Puerto Rico 9 insect species in the orders Homoptera, Hymenoptera, Lepidoptera, and Thysanoptera have been reported as feeding on various parts of S. campanulata. The species is quite susceptible to butt and heart rot; wood of the tree rots quickly when in contact with the ground.
Spathodea campanulata  
Nandi flame, flame of the forest

Bignoniaceae

FURTHER READING
Anon. 1986. The useful plants of India. Publications & Information Directorate, CSIR, New Delhi, India.
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).
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).

SUGGESTED CITATION