

Zanthoxylum gillettii

(De Wild.) Waterm.

Rutaceae

LOCAL NAMES

English (East African satinwood)

BOTANIC DESCRIPTION

Zanthoxylum gillettii is a deciduous tree 10-35 m high, trunk usually straight and branchless for several metres. Trunk base diameter 30-90 cm, armed with conical woody prickle-bearing protuberances 1-3 cm long, bark grey and smooth; branches glabrous, armed with conical reddish straight or slightly recurved prickles 2-8 mm long.

Leaves in terminal clusters, closely alternate, 25-150 cm long, rachis terete at base, flattened above, sometimes with straight sharp prickles 2-7 mm long, glabrous; petiolules 5-10 mm long; leaflets 13-27, alternate or subopposite, elliptic-oblong to elliptic, 8-30 cm long, 3.5-10 cm broad, attenuate or abruptly acuminate to the obtuse apex, asymmetrical and cuneate or rounded at the base, margins entire or slightly crenulate, coriaceous, glabrous, gland dots numerous but small and almost inconspicuous; midrib sometimes with sparse prickles, prominent beneath; lateral nerves 8-14 pairs.

Inflorescence of terminal and axillary panicles, 20-34 cm long, sometimes aculeate at the base; flowers clustered, sessile or very shortly pedicellate. Sepals 5, united halfway, ovate to subcircular, 0.5-0.8 mm long. Petals pandurate to obovate, 1-2.5 mm long 1-1.5 mm broad, white, turning brown. Male flowers: stamens 5, all varying in length, filaments 1.5-2.8 mm long; disk dome-shaped and lobed. Female flowers with 5 staminodes, gynophore 0.2-0.3 mm long; ovary ovoid, 1-1.4 mm long.

Fruit reddish, subglobose, 3.5-6 mm in diameter, sessile or with a short stipe and a persistent calyx.

Seed 2.5-3.5 mm in diameter, testa shiny black in colour.

The generic epithet describes the yellow-coloured wood characteristic of members of this tropical genus. The specific epithet honours Jan B. Gillett, a meticulous botanist and plant collector of East Africa.

BIOLOGY

Z. gillettii is monoecious. After pollination, the development of the subglobose fruits takes about 3 months. Flowering is very irregular, a phenomenon attributed to climatic conditions.



The trunk is smooth, grey with sharp spines on raised bosses. The spines are straight or slightly recurved. (Ellis RP)

ECOLOGY

Z. gillettii is a tropical rainforest species, distributed between altitude range 900-2 400 m. It sometimes is a component of the Aningeria-Strombosia-Drypetes forest in montane rainforest at altitudes between 1 600 and 2 100 m, these forests are characterised by a distinct dry season not exceeding 2-3 months.

BIOPHYSICAL LIMITS

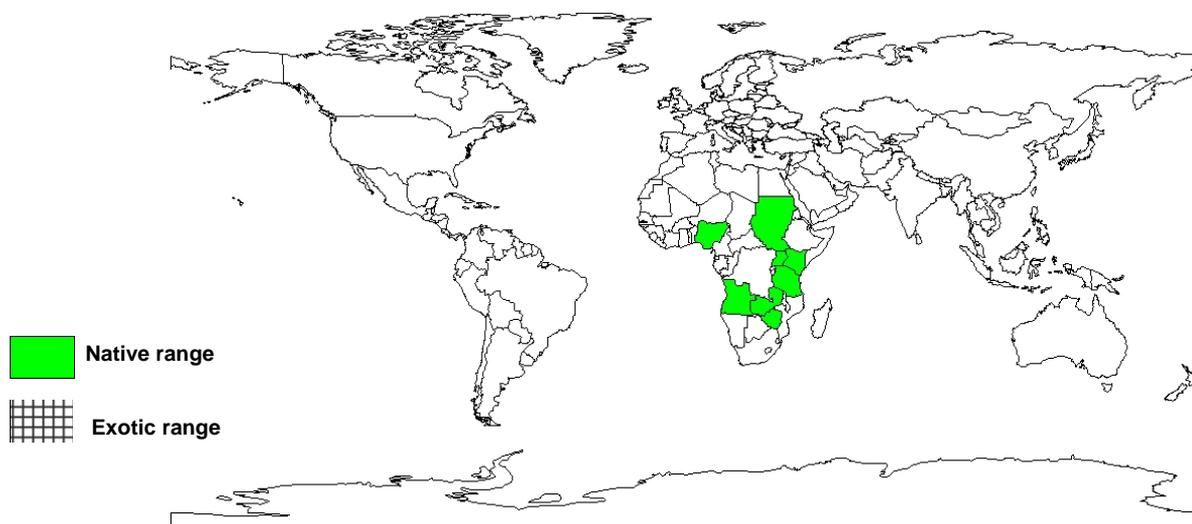
Altitude: 900-2 400 m

Mean annual rainfall: 1 700-2 450 mm

DOCUMENTED SPECIES DISTRIBUTION

Native: Angola, Democratic Republic of Congo, Kenya, Nigeria, Sudan, Tanzania, Uganda, Zambia, Zimbabwe

Exotic:



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.

PRODUCTS

Fuel: The tree produces good quality charcoal and firewood.

Timber: In the humid lower highlands *Z. gillettii* can be planted for timber production. The wood is medium light weight and durable to weather but not in the ground. It seasons well and bends easily on steaming. Used for door-frames, gates, carpentry and all heavy construction works.

Essential oil: The seed coat contains an aromatic oil.

Medicine: A bark decoction is drunk for constipation, complicated gastrointestinal conditions, colds and fever. The root bark of *Z. gillettii* is used in traditional Tanzanian antimalarial preparations.

SERVICES

Erosion control: The tree offers protection to soil.

Shade or shelter: *Z. gillettii* is a useful shade tree in homes.

Ornamental: The East African satinwood is a beautiful tree with a spiny stem and glossy foliage making it a popular ornamental tree.

Other services: In Western Kenya, a psychosomatic/magical or superstitious use is ascribed to the plant relating to its spiny nature, it reportedly drives away persons with the 'evil eye' or bad intentions like stealing, witchcraft etc.

TREE MANAGEMENT

Seeds are collected from the mature reddish-brown capsules which would otherwise open and disperse seed. The extraction is after a fruit drying process for 2 days, extracted seed should not be exposed to direct sunlight. In mountain rain forests the species grows less robustly than in tropical rainforest.

GERMPLASM MANAGEMENT

Seeds are recalcitrant. So far no successful treatment has been developed for the species, because of its unclear dormancy, generally it is assumed the oily seed coat plays a role in the seed's quiescence. Extracted seeds should not be exposed too much to sunlight. There are about 45 000 seeds/kg, the amount varies depending on provenance and climatic conditions of the ripening year. Seed is susceptible to insect attack, addition of ash reduces loss from this source.

FURTHER READNG

Albrecht J. ed. 1993. Tree seed hand book of Kenya. GTZ Forestry Seed Center Muguga, Nairobi, Kenya.

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).

Kokwaro JO. 1976. Medicinal plants of East Africa. East African Literature Bureau.

Owuor BO. 1999. An Ethnobotanical and Phytochemical study of the Herbal Remedies of Migori District, Kenya. Msc. Thesis, University of Nairobi, Kenya.

Weenen H et al. 1990. Antimalarial compounds containing an alpha, beta-unsaturated carbonyl moiety from Tanzanian medicinal plants. *Planta Medica*. 56(4): 371-373.

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/>)