

Piliostigma thonningii

(Schum.) Milne-Redh.

Fabaceae - Caesalpinioideae

LOCAL NAMES

Arabic (tambareib, khuf aj jamal, kharub, abu khameira); English (wild bauhinia, Rhodesian bauhinia, monkey bread, camel's foot); Luganda (kigali); Ndebele (ihabahaba); Shona (mutukutu); Swahili (mchikichi, mchekeche)

BOTANIC DESCRIPTION

Piliostigma thonningii is a tree 4-15 m in height with a rounded crown and a short but often crooked bole. Twigs rusty-hairy. The bark is rough and longitudinally fissured, being creamy-brown when fresh and grey-brown later.

Leathery green leaves up to 15 x 17 cm, bi-lobed one eighth to one third the way down with a small bristle in the notch, glossy above and heavily veined and somewhat rusty-hairy below.

Flowers with 5 white to pink petals, pendulous, unisexual with male and female usually on separate trees; ovary topped by a thick flattened-globose stigma.

Pods indehiscent, up to 26 x 7 cm, with rusty-brown hairs, which wear off as the pods mature, becoming somewhat contorted as they age. The pods persist on the tree but finally fall and decay on the ground to pea-sized seeds. An edible pulp surrounds these seeds.

This species roots deeply.

The generic epithet *Piliostigma*, means cap-like stigma. The specific epithet commemorates Peter Thonning, the Danish plant collector who collected the type in that portion of Danish Guinea that is now part of Ghana. *Piliostigma* was distinguished from *Bauhinia* by its unisexual flowers and indehiscent pods.

BIOLOGY

A dioecious tree with male and female flowers on different trees. The off-white to pink fragrant flowers appear from November to March in many flowered hanging sprays. The female flowers are superseded from May to September by the large dark red-brown flattened oblong pods. The pods sometimes break up into one-seeded pieces after falling from the tree. The tree becomes nearly leafless in the dry season.



Piliostigma thonningii slash (Joris de Wolf, Patrick Van Damme, Diego Van Meersschaut)



Piliostigma thonningii flowering shoot. (Joris de Wolf, Patrick Van Damme, Diego Van Meersschaut)



Piliostigma thonningii young pods (Joris de Wolf, Patrick Van Damme, Diego Van Meersschaut)

ECOLOGY

P. thonningii is common in open woodland and wooded grasslands of sub-humid Africa at medium to low altitudes. It is found throughout tropical Africa except in Somalia. It is usually associated with *Annona senegalensis*, *Grewia mollis* and *Combretum* spp.

BIOPHYSICAL LIMITS

Altitude: 0-1 850 m

Mean annual temperature: 20 deg. C

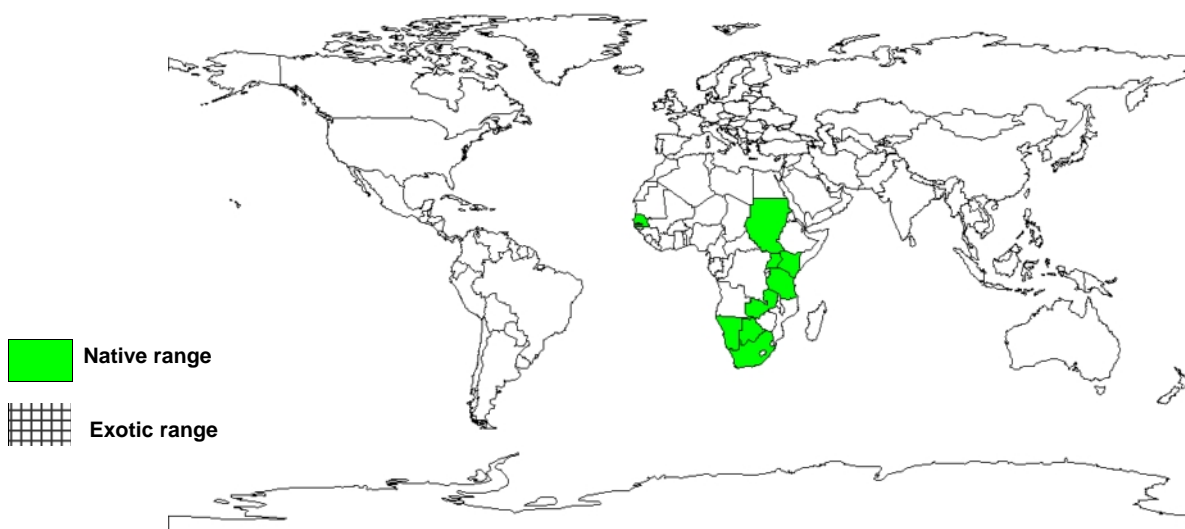
Mean annual rainfall: 700-1 400 mm

Soil type: Heavy clayey soils or medium loamy soils are preferred by this plant. It tolerates acid soils and prefers deep fluvisols or ferrasols soils.

DOCUMENTED SPECIES DISTRIBUTION

Native: Botswana, Kenya, Namibia, Senegal, South Africa, Sudan, Tanzania, Uganda, Zambia

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

Food: The leaves are edible and chewed to relieve thirst. The fruit and seeds are also edible.

Fodder: The pods are nutritious and relished by cattle and antelopes. This is a preferred browse species of the African elephant (*Loxodonta africana*), the fruits are also taken in considerable quantities. However the feeding habits of the African elephant are destructive and do affect local plant populations.

Fuel: Provides fuelwood in considerable amounts, the advantage being its shrubby habit and multi-stemmed nature.

Fibre: The inner bark is used to make rope.

Timber: The sapwood is straight grained and light brown, heartwood is pinkish to dark brown and contributes less bulk. Household utensils and farm implements are made from this wood.

Gum or resin: A gum tapped from the bark is used in caulking.

Tannin or dyestuff: Three dyes can be obtained from the plant, the bark produces a red-brown dye, the pods produce a black and blue dye. The roasted seeds and root can also be used in dye production. The bark has a tannin content of 18%, though unquantified the roots have a considerably high tannin content.

Medicine: *P. thonningii* is used medicinally in many African countries to treat wounds, ulcers, gastric/heart pain, gingivitis and as an antipyretic. In Tanzania and Zimbabwe, a cough remedy is prepared from the root bark. Polyphenolic fractions of the root bark, exhibit potent antitussive activity. In experiments with mice, this fraction exhibited a significant anti-inflammatory/analgesic activity against phenylquinone-induced writhings. The new compounds Piliostigmin, a 2-phenoxychromone, and C-methylflavonols were isolated from leaves of *P. thonningii*. Extracts were screened for activity against Herpes simplex virus type 1 (HSV-1) and African swine fever virus (ASFV). The extracts had virucidal activity against HSV-1. Further studies showed that the tested extract inhibited HSV-1 infection, and had activity. In another setting *P. thonningii* showed blood plasma coagulating activity.

SERVICES

Erosion control: This deep rooting species can be employed in soil protection initiatives.

Shade or shelter: Provides good shade in homesteads when in full foliage.

Reclamation: Fixes nitrogen.

Soil improver: Produces considerable amounts of litter. Use of the leaf litter as mulch enhances soil fertility however *P. thonningii* leaves decompose slowly.

Ornamental: Its showy white flowers can be aesthetically enhancing.

Boundary or barrier or support: *P. thonningii* live stakes are used in supporting vines and other weaker plants in farms. Poles or posts are obtained from the plant.

Intercropping: A good tree that can be grown with *Annona*, *Grewia* and *Combretum* spp. Competes very little with maize if left in fields and pollarded to reduce shade.

Other services: The pods are used as a soap substitute. The ashes can also be used in soap making.

TREE MANAGEMENT

Young individuals are susceptible to annual fires. The fire resistance strategy of *P. thonningii* is by quick regrowth of aboveground structures.

Management practices recommended for this species include lopping, pollarding, trimming and coppicing.

GERMPLASM MANAGEMENT

Seed collection should be done immediately the pods turn brown to prevent insect attack. Seed drying is recommended. The different seed pretreatments include washing, soaking for 24-48 hours, hot water treatment and different degrees of removal of the seed coat of *Piliostigma* sp. which gives more than 80% germination. There are 7 300 seeds per kg. The seeds are difficult to extract because of the tough/ woody pod covering.

PESTS AND DISEASES

The feeding habits of the African elephant, bark stripping and voracious plant biomass intake, are destructive and affect local plant population regeneration. The bruchid *Caryedon serratus* develops on *P. thonningii* seeds.

FURTHER READING

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SUGGESTED CITATION

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