

Pausinystalia johimbe

yohimbe

(K. Schumann) Pierre ex Bielle

Rubiaceae

LOCAL NAMES

English (johimbe); Trade name (yohimbe); Yoruba (idagbon)

BOTANIC DESCRIPTION

Pausinystalia johimbe is a tree 9-30 m tall; with ternate vegetative and generative ramification, rarely decussate. Bark usually occurs in channeled pieces, 4-10 mm, thick with a varying tinge of red in the grey-brown or brown outer and inner surfaces. The outer surface is longitudinally furrowed and bears numerous narrow, transverse cracks at fairly regular intervals of 1-2 cm.

Leaves with petiole up to 5 mm long; blades 24-47 x 10-17.5 cm glabrous, obovate, cuneate or rounded, sometimes angustate or cordate at the base, acumen less than 5 mm long; (8-)13-18 pairs of prominent secondary nerves and reticulate intersecondary nerves; domatia, if present, glabrous intermediate between crypt- and pit type.

Inflorescence terminal or axillary, 10-21(-10) cm long and 9-15 cm wide; stipules at the base persistent. Flowers (4-)5-merous. Calyx outside densely hairy, inside with many long hairs.

Capsule almost 100% septicidal and somewhat loculicidal, 1-1.5 x 0.6 cm. Seeds 8-12 x 1.8-2.5 mm.

P. johimbe is closely related to *P. macroceras* (K. Schum.) Pierre and historically they have been exploited for the same purpose. The species are easily distinguished through slash characters. The difference being that *P. johimbe* oxidizes red-brown very slowly and *P. macroceras* oxidizes very rapidly.

BIOLOGY

The seeds are wind dispersed and their lightness and winged structure means that they can travel long distances, even in the mildest of breezes. The reproductive system is entomophilous.



Taking slash bark samples from johimbe trees near Kribi, Cameroon. Red colouration develops after a few minutes. (Vanessa Simons)



Seeds of johimbe placed on CFA note (Anthony Simons)



Over-the-counter aphrodisiac products from yohimbe. (Anthony Simons)

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ECOLOGY

Occurs mostly in the Atlantic evergreen forest with Caesalpinaceae, an extensive forest formation extending from S.E. Nigeria to Congo. The species occurs mainly in closed canopy forest. Most common in coastal forest, although not widespread throughout its range. Endemic to its region.

DOCUMENTED SPECIES DISTRIBUTION

Native: Cameroon, Congo, Democratic Republic of Congo, Equatorial Guinea, Gabon, Nigeria

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: A preferred fuelwood species.

Fibre: The inner bark is utilized as straps for hunting panniers.

Timber: The young poles are used for construction purposes. The species is widely used as a snare-trap mechanism due to its flexibility.

Tannin or dyestuff: The bark contains tannins.

Poison: Poisonous doses of yohimbe are reported to paralyze respiration and the drug can cause severe hypotension, abdominal distress and weakness. It can also be used as an ichthyotoxicant (fish poison).

Medicine: The bark contains up to 6% of a mixture of alkaloids, the principle one being yohimbine, which is also known as aphrodine, quebrachine or corynine. The presence and amount of alkaloid activity in *P. johimbe* bark is highly variable. *P. johimbe*, is the source of the only clinically-proven cure for impotence and has long been used as a traditional stimulant in Africa. Both the crude drug and yohimbine have a long history of use as aphrodisiacs in Western medicine in both prescription and herbal markets.

Yohimbe is symatolytic and hypotensive and has a local anaesthetic action similar to that of cocaine but it is not mydriatic. The vasodilating action of yohimbe is particularly strong on the sex organs, hence its aphrodisiac action. *P. johimbe* is also used as a local anaesthetic, a mild stimulant to prevent drowsiness, a hallucinogen, a treatment for angina, a hypotensive, a general tonic, a performance enhancer for athletes, a remedy to increase the clarity of the voices of singers during long festivals and as a treatment to increase the resilience of hunting dogs. Yohimbine-related products have also been widely used as a veterinary medicine for the promotion of sexual proclivity amongst stud animals. Remedies are taken in two forms: powder (ground bark) and liquid (bark boiled in water).

SERVICES

Intercropping: Because *P. johimbe* is a middle-story tree, it has the potential to be an ideal species for farmers to grow in their fields in agroforestry systems.

TREE MANAGEMENT

A fast growing tree but never reaches great diameter, with the maximum being around 50 cm dbh. The species coppices well, producing strong, highly phototropic shoots, and would be an ideal candidate for a clonal propagation programme once desirable phenotypes have been identified.

The bark is used to extract yohimbine; the main stem gives the best material but is not rich in alkaloids until the tree is 15-20 years of age when it can contain 2-15%. Bark exploitation is a seasonal activity as the yohimbine levels highest during the rainy season.

GERMPLASM MANAGEMENT

Produces prolific quantities of seed, the characteristics of which indicate that it might lend itself to long-term storage.

PESTS AND DISEASES

Although *P. johimbe* trees callus well after a small amount of bark removal, removal of large quantities of bark can lead to an attack by a small stem borer which penetrates the unprotected stem, killing the tree.

FURTHER READNG

Ngo Mpeck MN, Tchoundjeu Z, Asaah E. 2003. Vegetative propagation of *Pausinystalia johimbe* K. SCHUM by leafy stem cuttings: Propagation of Ornamental Plants. 3(2):11-18.

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Tchoundjeu Z, Ngo Mpeck ML, Asaah E, Amougou A. 2004. The role of vegetative propagation in the domestication of *Pausinystalia johimbe* K. Schum, a highly threatened medicinal species of west and central Africa: Forest Ecology and Management.188:175-183.

SUGGESTED CITATION

Orwa C, A Mutua, Kindt R , Jamnadass R, S Anthony. 2009 Agroforestry Database:a tree reference and selection guide version 4.0 (<http://www.worldagroforestry.org/sites/treedbs/treedatabases.asp>)