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Københavns Universitet

Pentadesma butyracea Sabine

Sama, Bonjaw; Sacandé, Moctar; Schmidt, Lars

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Pentadesma butyracea Sabine

Taxonomy and nomenclature

Family: Clusiaceae
Synonyms: *Pentadesma leucantha* A. Chev., *P. nigritiana* Bak., *P. grandifolia* Bak., *P. kerstingii* Engl.
Vernacular/common names: Butter tree, tallow tree, krinda or tama (Malinke, Cote d'Ivoire).

Distribution and habitat

Pentadesma butyracea is native to West Africa, from Guinea, Sierra-Leone and Cote d'Ivoire, Togo to the Democratic Republic of Congo, extending eastwards into Tanzania and Uganda, where it is cultivated. Some of the largest occurrences are in the region of the Atakora Mountains in Togo, and in humid forests in Cote d'Ivoire. It is abundant in wet forests. In dryer forest it is found along river banks. It occurs in specific savannah woodlands, and is a common species of dense evergreen forest. In very moist sites such as riverine and swamp forest the species develop stilt roots. In recent years, the species has been under threat in many places, mainly in forest galleries, due to its over-exploitation and unsustainable use.

Uses

It is a multipurpose species, with good quality wood which is used for construction, fences and as firewood. The wood is hard and not often attacked by insects. The young stems are used as chewing sticks and are also made into combs. The fruits are directly consumed. It is a high oil producing species; the odourless oil extracted from the seeds is used as a vegetable butter, and to make candles and soaps. The seed fat is used as an insecticide for lice. The bark is used to treat diarrhoea and dysentery. The tree is also planted for soil conservation.

Botanical description

Pentadesma butyracea is a semi deciduous species, partly losing its leaves during the dry season. The tree can reach up to 35 m high and about 1.30 m in diameter. It has a straight cylindrical trunk, with horizontal and whorled branches. The bark is brownish with fissures presented in small longitudinal rectangles. The slash yields a thick yellow juice, which dries to a reddish gum. It has pairs of ex-stipulate, simple, entire leaves, 10-22 cm long, 3.5-7 cm broad, with numerous close parallel lateral nerves. The leaves are streaked and spotted with resin glands; glandular canals on the under surface are visible by reflected light, and glandular dots are clearly visible in young and sucker leaves. Flowers of *P. butyracea* are large, whitish red or greenish-white. The petals are glabrous on the inside, with 5 stamen-fascicles and divided into 5 lobes. The sepals are very unequal, up to about 5 cm long. The flowers have a fruity and heavy odour that has been described as giving off a smell similar to rancid butter, which may possibly attract bats for pollination.

Photo: B. Sama

Flower buds of *P. butyracea*

Flowering and fruiting habit

The species has a regular annual, but discontinuous fruiting period of about nine months. Fruits, flowers and flower buttons can be found on the same individual at one time. Flowering starts in July and August and reaches its maximum in October/November. Fruiting occurs with the start of flowering and fruits mature between April and June. The species has also been described as having discontinuous and bi-annual fruiting periods in Côte-d'Ivoire; first in February-April and in July-September.

Fruit and seed description

Fruit: The fruits are reddish-green, broadly ellipsoid and pointed, up to 11 cm broad and 15 cm long berries containing yellow flesh with several seeds embedded in it. An adult tree can produce up to 500 fruits. An individual fruit weighs an average of 0.60 kg, of which approximately 0.12 kg is seed.
Seed: There are 3 to 10 seeds embedded in the yellowish fruit pulp. The seeds are large with flattened sides and dark red embryos from which the oil is extracted. The average thousand seed weight is 30 kg.

The average oil content of the entire seed/nut is 36.0 %. The seeds are naturally dispersed by elephants.

Processing and handling

The seeds rapidly germinate within the fruit; therefore fruit removal before sowing is not required.

Storage and viability

Seeds are recalcitrant. Fresh seeds that are conserved in moist jute bags maintain 100% viability after 1 month. However, when using polyethylene bags, only 15% germinate. Drying does not improve germination; dried seeds stored for two months in ambient conditions germinated to 14% within three months.

Sowing and germination

Fresh seeds germinate well under shade at ambient conditions. Germination starts after about 15 days and reaches 98% after two months of sowing. Germinated seeds grow into normal seedlings in nurseries, reaching 10-28 cm high after 4 months (see below).

PHOTO: B. SAMA

Nursery seedlings of *P. butyracea*

Selected readings

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Authors: Bonjaw Sama and Moctar Sacandé
Editor: Lars Schmidt

Millennium Seed Bank project
Wakehurst Place, Ardingly
West Sussex
RH17 6TN, UK

Phone: +44-1444 894100
Fax: +44-1444 894110
Email: msbsci@kew.org
Website: www.kew.org/msbp

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