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Borassus aethiopum Mart.

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Borassus aethiopum Mart.

Taxonomy and nomenclature

Family: Arecaceae

Synonyms: *Borassus flabellifer* L. var. *aethiopum* (Mart.) Warburg.

Vernacular/common names: African fan palm, ron palm, elephant palm. Local names: mtappa, mchapa (Swahili), sebe (Bambara), koanga (Mooré), murifate (Ilwana), mugumo (Duruma), mardafa (Somali), delieb (Arabic).

Related species of interest: *Borassus akeassii* sp. nov., whose petioles are green and less spiny, and whose fruits are greenish when ripe.

Distribution and habitat

Borassus aethiopum is indigenous to tropical Africa; being found in semi-arid and sub-humid zones from Senegal to eastern and southern parts of the continent. It is cultivated in India, Southeast Asia, Malaysia and also in Hawaii and Florida. It grows in great abundance on riverine flats and coastal plains, and also occurs in open secondary forest, dense forest borders and in savannah in drier areas where it is restricted to grassland with high ground water table, or along water courses (annual rainfall of 500-1000 mm). It thrives in temporary flooded areas, often forming dense stands. It is irregular, but widely distributed, typically found at altitudes of up to 400 m, but up to 1200 m in East Africa. *B. aethiopum* is common in populated areas where it is used as a multipurpose agroforestry tree. It is preserved for its traditional and economic values. The species is able to extract nutrients and thus grow on very nutrient-poor patches. This palm is slow growing and very long lived, to over 100 years old.

It is a fully protected species in Burkina Faso, where people are allowed to use only leaves and by-products like the sap, but not to cut down the plants. It is rare in Kenya, due to over-tapping for its sap.

Uses

Almost all parts of *B. aethiopum* are used, producing food, oils, timber, dyes, fibre, wine, and raw materials (leaves) for mats and baskets. The dark brown, coarsely fibrous wood is a highly prized timber. The wood is very resistant to termites and fungi, and is used in carpentry, construction and also for household articles. The roots serve for the treatment of stomach parasites, bronchitis, sore throats and asthma, as well as being used for a mouthwash. The leaves are said to be an aphrodisiac and the sap is reported to have many uses. The seedlings are used in cooking. The fruits are eaten as a food supplement; both the fruit pulp and seeds are edible. The fruit is made into soft drinks, while the sap is fermented into palm wine used e.g. during traditional ceremonies. However, excessive tapping kills the plant.

Borassus aethiopum crown with hanging mature orange fruits. Photo: M Sacande.

Botanical description

Borassus aethiopum is a solitary, pleonanthic (does not die after flowering) palm. The tallest of the African palms, it can reach 30 m in height, but is typically 7-20 m. The straight trunk is dark grey, 40-50 cm in diameter; with a bulge up to 80 cm across above the middle (this bulge usually develops after ca. 25 years growth). The leaf bases leave a scar on the surface of the trunk. The leaves are dark bluish-green, palmate, markedly petiolate, and arranged in dense terminal tufts. Mature trees have between 10 and 40 living leaves, arranged in three spiral rows. The many-folded leaf blades are typically 1.5 to 3.6 m long. The petioles are up to 3 m long, 15 cm wide at the base and narrowing to 7.5 cm towards the top. The petioles are concave above and convex below, edged with curved teeth.

Flowers are unisexual. The male inflorescence is 0.8 to 1.8 m long, with 3-6 partial inflorescences that are ca. 50 cm long. The female inflorescence is usually unbranched, and 1.3 to 2.6 m long, with larger flowers of 2 x 3 mm. The flowers are tightly set in the axil of a bract. Flowers comprise 3 free external tepals and 3 internal tepals attached at the base.

Fruit and seed description

Fruit: The fruits are 8-18 by 6-16 cm, and each weigh 1-1.5 kg. They are smooth, and have persistent outer petals surrounding the base. They are often ovoid to slightly triangular; however, the shape depends on the number of seeds developed. A persistent, protective calyx covers approximately a quarter of the fruit. The fruits turn a dull orange-brown colour when ripe. The fibrous fruit pulp is yellow to white and slightly oily. Each fruit contains up to 3 ovoid compressed pyrenes.
Seed: The seed handling unit is the pyrene, which is hard coated and about 10 cm in diameter. Each pyrene weighs about 100 g. The morphological seeds are bilobed, pointed and basally attached, with an apical embryo, and a homogeneous, centrally hollow endosperm.

Flowering and fruiting habit

Reproduction is highly delayed and the reproductive period of the plant, before death, is short, about 20 years. Flowering usually occurs in the second part of the rainy season. *Borassus aethiopum* is dioecious; Females typically bear 50-100 fruits in a fruiting season. The seeds are naturally dispersed by mammals, such as chimpanzees.

Processing and handling

In West Africa, fruits are usually harvested from November till May. The pericarp is removed by hand-slashing to release the pyrenes.

Storage and viability

Seeds have a short viability and should be sown as soon as they are removed from the fruit pulp.

A fresh *B. aethiopum* fruit transversally cut-open displaying two normal seeds and an undeveloped seed. Photo: M. Sanon, Burkina Faso.

Sowing and germination

Seeds do not require pretreatment. They will germinate after about 4 weeks. The seedlings produce a very long taproot, which can be 1 m deep, while the leaf is only 1 cm high, therefore if possible they should be sown directly at the location where they will grow. If raised in nurseries they must be planted in very deep sowing beds (> 1m) to allow unrestricted root development.

Selected readings

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