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Detarium microcarpum Guill. & Perr.

Taxonomy and nomenclature

Family: Leguminoseae
Synonyms: none
Vernacular/common names: Tallow tree.
Local names: Detar (species named from this Wolof name, Senegal), Abu Leila, Kaga (Mooré), Tama koumba (Bambara).
Related species of interest: It is sometimes confused with *Detarium senegalense*, a species with a similar distribution; however, *D. senegalense* has smaller and thinner leaflets, a lax inflorescence and larger fruit.

Distribution and habitat

Detarium microcarpum is distributed in the semi-arid sub-Saharan Africa, from Senegal to Cameroon, extending eastwoods to the Sudan. It has an irregular distribution and can be locally very common. The species is often left when farmland is cleared. Typically, it is found in high rainfall savannah areas, dry forests and fallow land, on sandy or iron rich hard soils. It also occurs in open savannah as a more stunted tree with smaller fruits.

Uses

Its hard dark brown wood provides very good quality timber, which is very durable under water, and used in carpentry and construction. It is also used for good quality fuelwood and charcoal. The roots, stems, bark, leaves and fruits are all used to treat ailments e.g. tuberculosis, meningitis, itching and diarrhoea. The fruit is edible and rich in vitamin C and the leaves and seeds are also used in cooking. However, the foliage is avoided by most large mammals. The roots are used in perfume

Botanical description

In dry areas this species occurs as a small tree, reaching ca. 10 m high, with a dense rounded crown, while in wet areas it may grow up to 25 m high. The greyish bark breaks off into rectangular pieces to reveal a reddish inner surface. The twigs are covered with a smooth or peeling orange bark. The imparipinnate leaves are 8-12cm long and consist of 3-6 pairs of alternate, almost opposite leaflets. The leaflets are 5-10 cm long and 3-5 cm wide, they have a dull green upper surface and a greyish-green lower surface. The leaflets have a rounded, often notched apex and a rounded or subcordate base. The inflorescence is an axillary raceme, ca. 2-5 cm in length and congested.

The creamy white fragrant flowers consist of 4 large sepals and 8-10 cream coloured prominent stamens; petals absent.

Young fruiting *Detarium microcarpum* tree. Photo: M. Sacande.

Fruit and seed description

Fruit: A disc-shaped more or less flattened drupe, up to 4 cm diameter and 2.5 cm thick. The fruits are covered with a brown-brittle skin and contain a sweet green pulp, with tangled fibres and not very fleshy. This surrounds a hard wrinkled stone (the pyrene), which contains a single seed.
Seed: The pyrene has a circular, flattened shape. Typical dimensions are 2-3 x 2 x 1 cm. The endocarp is dull, dark brown and faintly pitted. The seeds have no endosperm. They contain 7.4% oil and 3.2% protein.

Flowering and fruiting habit

Flowering takes place during the rainy season and fruits mature from December to April.

Processing and handling

The germination is often reduced if the fruit flesh is allowed to ferment; therefore, the fruits should be processed as soon as possible after harvesting. The pulp can be removed e.g. by high pressure water and fibres removed by tumbling with some abrading material for example sand. The stone can either be planted directly, or the seed can be extracted from the stone and then planted.

Storage and viability

Detarium microcarpum has desiccation tolerance and exhibit orthodox storage behaviour; dry seed <10% moisture content germinate >70% and seeds have been stored at the MSB since 1998. X-ray analysis of seed lots revealed quality of 90-100%.

Dormancy and pretreatment

To improve germination the seeds can be chipped/scarified using a scalpel, knife, file or hot wire. The typical germination rate is 30-40% without pretreatment. If a seed lot is infected, an effective sterilisation method is to immerse the seeds in 10% bleach for 5 minutes.

Sowing and germination

Seeds germinate >60% at 25°C in river sand. Germination takes about 2 weeks when the stone is directly planted; this is reduced to around 1 week when seeds extracted from the stone are sown.

Table 1. Germination data collected at the MSBP.

Pretreatment	Temp (°C)	Light Regime	Germ (%)
Scarified	23/9	12/12	90
Scarified	21	12/12	70
Scarified	26	12/12	50

Selected readings

Eromosele, I.C., Eromosele, C.O., Akintoye, A.O. & Komolafe, T.O. 1994. Characterization of oils and chemical analyses of the seeds of wild plants. Plant Foods for Human Nutrition, 46, 361-365.

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