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Lannea microcarpa Engl.

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SEED LEAFLET

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Lannea microcarpa Engl.

Taxonomy and nomenclature

Family: Anacardiaceae
Synonyms: *Lannea oleosa* A. Chev., *L. djalonica* A. Chev.
Vernacular/common names: Wild grapes.
Local names: pegu (Bambara) and sabgha (Mooré, Burkina Faso), falfahi (Peulh).

Distribution and habitat

Lannea microcarpa is found in all the Sudanian zones of West Africa (approx. 900-1100 mm). The Northern limit of its habitat is the Sahelo-sudanian zone (500-900 mm) and the southern limit is the Guinean zone (>1100 mm). It prefers deep soil but can also withstand uncultivated and lateritic soils. It is found in derived savannah and drier forest regrowth. In most places the species is not threatened.

Uses

The fruits are edible and traded commercially. They are used for cooking and wine can be produced from fermented pulp. The bark is used for making cords. Pigments from the plant provide a source for natural dyes.

Botanical description

The tree grows up to 16 m. The bark is grey white with a spiral twist; it is smooth when the tree is young, becoming splintery with age. The slash is red. The leaves are comprised of 1-3 pairs of asymmetrical leaflets, plus the terminal one. The leaflets are ovate-lanceolate, obtuse and unequal at the base; they are 5.5-13 cm long and 2.7-4.5 cm wide. The new growth has short, close and simple hairs.

The flowers are small, green yellowish with glabrous sepals. The flowers crowd at the end of the branches.

Fruit and seed description

Fruit: The fruit is an ellipsoidal drupe of ca. 1 cm long, which becomes purple-black at maturity. The average fresh fruit weighs ca. 1 g.
Seed: The mean thousand seed weight is ca. 200 g. Whole seeds have ca. 22-28% initial moisture content, while their embryos contain ca. 15-25% moisture. The mass ratio of seed coat to the whole seed is 0.369. The seed contains about 35 % oil.

A branch of *Lannea microcarpa* with a bunch of green, red and purple-black fruits. Photo: M. Sacande.

Flowering and fruiting habit

Flowering occurs in the dry season, before the new leaves grow. The fruit ripens at the beginning of the rainy season.

Harvest

The harvesting time varies between localities; for example in Burkina Faso the optimal harvesting time is between May and June.

Processing and handling

The germination of the seeds is often reduced if the fruits are allowed to ferment; therefore, the fruits should be processed as soon as possible after harvesting. The fruits are soaked in water and immediately de-pulped, polished with sand to remove the mesocarp tissue and finally washed with water.

Storage and viability

Seeds are generally considered having 'orthodox' storage behaviour. Although the seed does exhibit considerable desiccation tolerance, ultra-desiccation to ca. 2% moisture content reduces the germination slightly. In MSBP the viability of the dry seeds was maintained during 8 months storage at 16ºC. Seeds with 5.3% moisture survived 3 days freezing at -20ºC. Seeds could be stored at 25°C for up to 14 months at 5.5 and 5.8% mean moisture content, while retaining

about one third of the initial germinability. Their viability is lost during 1 month in open (ambient) storage. However, a reduction in viability of the seeds stored at -20°C, even at low (3-6%) moisture content suggests that seeds of *L. microcarpa* may exhibit 'Intermediate' (sensu Ellis *et al*. 1990) seed storage behaviour. Seeds of this species have been stored in the MSB since 2002, with 100% viability. For short term storage the seeds can be stored with moist vermiculite or sawdust, ventilating to create aerobic conditions. After 16 days' storage in moist vermiculite at 26°C seed had germination of 71% (initial germination before storage was 57%).

Dormancy and pretreatment

No pretreatment is required to germinate fresh seeds. However, the generally low germination responses are caused by the seed-coat imposed dormancy, not due to an impermeability of the endocarp to water. Scarification and pre-soaking seeds before germination help improve their germination capacity. In MSBP seeds exhibited an increase in germination, from an initial value of 65%, to 90% after drying to 3-5% moisture content.

Lannea microcarpa dry and clean seeds. Photo: H. Vautier.

Sowing and germination

Fresh seeds germinate readily when sown either on agar, sand or filter paper at a temperature between 25 and 35°C. The germination rate is maximum when the temperature is ca. 30°C.

Selected readings

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