Dialium cochichinense Pierre

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Taxonomy and nomenclature

Family: Fabaceae, subfam. Caesalpinioideae
Synonyms: No acknowledged synonyms. The species is often misspelled 'cochinchinensis'.
Vernacular/common names: keranji (Malay trade name for all *Dialium* wood); xoay, la met (Vietnam), velvet tamarind (Eng.); kheng (Laos).

The genus consists of about 30 species of which most species occur in Africa. Only 7 species grow in SE Asia - Pacific. Within the subfamily the genus is close to e.g. *Koompassia*.

Distribution and habitat

Native to Southern Myanmar, Thailand, Peninsular Malaysia, Cambodia, Laos and Vietnam, south of 20ºN. It occurs as a piooneer tree in dense evergreen forest, and grows also in open dipterocarp forest up to 1200 m.a.s.l. It prefers well-drained soil like alluvial soil e.g. along river or stream banks.

Uses

The wood is used as timber for construction (doors, windows), boat-building and daily utensils. The veins are dense and fine and easy to polish. The wood is traded internationally as Keranji. The inside of the fruits is edible and sweet like tamarind but not as tasteful.The pods are sold at local markets in e.g. Vietnam.

Botanical description

Deciduous tree, up to 25-35 m heigh and 80-100 cm diameter. Trunk often straight with small buttresses. Bark grey to whitish, exuding a little transparent resin which turns red upon exposure. Leaves alternate, imparipinnately compound with 5-9 ovoid leaflets, 4-7 cm long, 1.5-3.5 cm wide, coreaceous, glabrous, base rounded, apex acuminate. Inflorescence paniculate, 20-30 cm long, pubescent with many flowers. Flowers small, with short flower tube.

Fruit and seed description

Fruit: indehiscent pod, ovoid, slightly laterally compressed, 1.8-2 cm long and 1.3-1.5 cm wide, hard, brittle tomentose. Each pod contains 1-2 seeds imbedded in a yellowish, sticky, sweet and edible substance. There are 220-240 fruits per litre and 830-850 fruits per kg.

Seed: smooth, flat and irregularly rounded, about 12-14 mm long, 7-9 mm wide and 3-4 mm thick. Light brown to straw coloured, usually with conspicuous lighter stripes. According to one literature source the 1000 seed weight is 180 g. In Vietnam 2800-3000 seeds per kg was measured, equivalent to about 350g/1000. Moisture content at maturity 17-18%.

Cleaned, washed seed. Photo Lars Schmidt

Flowering and fruiting habit

Flowers hermaphroditic. Pollination by insects. Flowering season in Central Vietnam is March – April. Fruiting in the same area around August to late September.

Harvest

Fruits are mature when they have taken a blackish colour and the fruit flesh is sweet. Fruits are harvested by shaking or breaking fruit bearing branchlets with long handled tools e.g. in connection with climbing or from the ground.

Processing and handling

Extraction of seed and removal of the fleshy and sticky pulp is rather tedious. The most effective way is to break open the pod by hand, take out the seed with pulp and clean them while sucking and eating the pulp, then spitting out the seed. For large quantities, pods can be opened by grinding them in water and then rinsing them under high water pressure on a wire mesh screen, or by rubbing them on a wire mesh. Pulp and fruit parts are easy to separate from seed by floatation (seed sinks and fruit parts float). The seeds must be dried to < 10% moisture content for storage.

Storage and viability

Orthodox. There are no documented records available on long term storability, but since the seed can easily be dried down to low moisture content, they are probably storable for long time, in particular at low temperature and humidity.

Dormancy and pretreatment

Like most other legumes the seeds have hard seed coat, which must be scarified before the seeds will imbibe and germinate. Any method (manual nicking, filing or burning, hot water or sulphuric acid) used for pretreatment of hard seed can be applied. There are presumably inhibitors in the fruit flesh, but these will naturally be removed by processing and cleaning. However, attempts to sow the whole fruit in order to avoid the tedious pre-treatment will most likely give very low germination.

Sowing and germination

Germination is quick; at optimal conditions and after proper pretreatment, radicle protrusion takes place 1-2 days after sowing, and seedlings with unfolded cotyledons and two persistent leaves have developed after 10-14 days. Germination is epigeal. When testing seeds are sown in sand. In the nursery, the seeds are usually sown directly in polythene tubes

Phytosanitary problems

Seeds which are not thoroughly clean will collect both insects (ants) and fungi on the surface. Seedlings are sensitive to damping off fungi when grown at close spacing with insufficient ventilation.

Selected readings

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