



Dipterocarpus alatus

Jøker, Dorthé; Luu, Nguyen Duc To

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Dipterocarpus alatus Roxb.

Taxonomy and nomenclature

Family: Dipterocarpaceae

Synonyms: *Dipterocarpus gonopterus* Turcz., *D. incanus* Roxb., *D. lemeslei* Vesque, *D. philippinensis* Foxw., *D. unesbi* Vesque.

Vernacular/common names: Indonesian gurjun (Eng.); keruing, kruen (Fr.); gurjin (Ind.); mai yang (Laos); yang-na (Thai.); dau nooc (Viet.); yang, keruing (trade names).

Distribution and habitat

Indigenous to Bangladesh, Cambodia, India (Andaman and Nicobar Is.), Myanmar, Philippines, Thailand, Laos and Vietnam.

It is a canopy tree that belongs to the tropical evergreen or semi-evergreen forests, often occurring in areas with heavy rainfall. Within the area of natural distribution it is found at 0-500 m altitude, annual rainfall of 1100-2200 mm, uniform rainfall regime, annual temperature of 20-30°C and minimum temperature of 10°C.

It is very tolerant to shade and seedlings can survive under heavy shade for years. The bark is thin and does not withstand fire well and once burnt, seedlings and saplings hardly recover.

Uses

One of the most important timber species of southern Asia. The wood is used for construction, railway sleepers, boats, pulp and a number of other purposes. Resin obtained from the trunk is used for making baskets and boats waterproof, for torches and medicinal purposes. The species has a potential in agroforestry and soil improvement.

Botanical description

Large tree up to 55 m, diameter up to 5 m and clear bole of about 20-30 m. Bark thin, smooth greyish. Leaves 10-20 cm long, elliptic or oval, dark green on the upper surface, light green and with stellate hairs on the lower side.

Fruit and seed description

Fruit: winged nut, 1.5-2 cm in diameter. The wings develop from the persistent sepals that are 11-14 cm long, 1.5-2 cm wide, red when young and yellowish brown when mature. 1 kg contains about 260 fruits. The single seed is tightly enclosed in the pericarp and is normally not extracted.

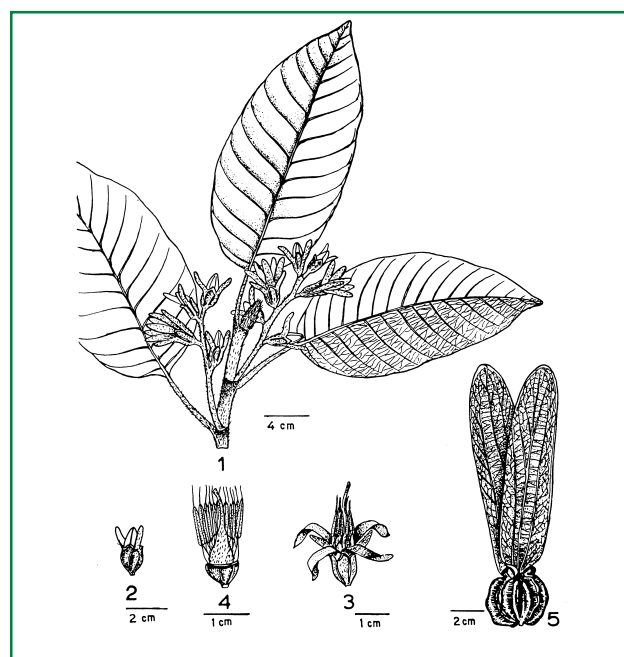
Flowering and fruiting habit

In Vietnam flowering occurs in January - February in trees more than 8-9 years old and fruiting in April - May. In Bangladesh flowering is from January to March with fruiting in March. In Myanmar flowers appear from December onwards. In India flowering occurs January to March and fruits ripen from the end of March to the middle of May. Some fruits ripen as early as January but they are invariably attacked by insects.

Harvest

Fruits are collected from trees that are more than 15 years old. Best quality of seed is achieved when mature fruits are collected from the tree. Fruits collected from the ground have low germination and are often attacked by insects. According to Le Dinh Kha (1999), the fruits should be collected when the wings have turned brown and the fruit coat has changed colour from green to grey but before turning brown. At this stage of maturity the moisture content is about 40%.

However, as the trees are tall and straight and without branches, climbing the crown is difficult and in most places the fruits are collected from the ground.



1, Flowering shoot; 2, flower bud; 3, flower; 4, stamens and pistil; 5, fruit. (FAORAP, 1985).

Before collection, the ground must be cleaned and old fallen fruits be removed. Freshly fallen fruits should be collected twice every day in order to avoid insect attacks.

Processing and handling

Because of the high moisture content at the time of harvest, the fruits must be dried slowly in the shade in a well-ventilated place. After drying, the wings are removed manually.

Storage and viability

Although the seeds are sensitive to desiccation, they tolerate drying down to fairly low moisture content. In a study from Vietnam best results were achieved when seeds were dried to moisture content between 10 and 15% and stored at 10 or 20°C. Under these conditions the seeds retained almost 30% germination after 3 months, compared to initial germination of 41%. Seeds that were stored at ambient temperature died in less than 2 months.

Dormancy and pretreatment

The seeds are not dormant and pretreatment is not necessary.

Sowing and germination

Germination in the nursery normally begins after 4 days and is terminated within 2–3 weeks. After 8–12 months when they are about 30 cm tall, the seedlings are ready for planting out.

To ensure establishment of the seedlings, weeding is necessary during the first 2–3 years.

Vegetative propagation by cuttings taken from coppice shoots produced after hedging has been tried with success.



Monospecific natural stand of *Dipterocarpus alatus* near Vientiane, Laos. Photo: Dorthe Jøker, DFSC.

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Authors: Dorthe Jøker and Nguyen Duc To Luu

Danida Forest Seed Centre
Krogerupvej 21
DK-3050 Humlebaek
Denmark

Phone: +45-49190500
Fax: +45-49160258
Email: dfsc@sns.dk
Website: www.dfsc.dk