Dipterocarpus alatus

Roxb. ex G. Don.

Dipterocarpaceae

yang, keruing

LOCAL NAMES
English (Indonesian gurjun,hairy-leafed apitong); Filipino (apinau,hairy-leafed apitong); French (kruen,keruing); Hindi (gurjin); Lao (Sino-Tibetan) (nha:ng,nha:ng khaw,nhang mouk); Thai (yang-na); Trade name (keruing,yang); Vietnamese (dzaunuoc,dzau con rai trang,d[aaf]u r[as]i)

BOTANIC DESCRIPTION
Dipterocarpus alatus is a medium-sized to fairly large tree of up to 40 m tall (sometimes more), bole tall, straight, cylindrical, branchless up to 20 m, up to 150 cm in diameter.

Leaves narrowly ovate to ovate to elliptical-oblong, 9-25 cm x 3.5-15 cm, base cuneate to rounded, apex acute or shortly indistinctly acuminate, secondary veins 11-18(-20) pairs, sparsely pubescent above, beneath densely persistently pubescent, petiole 2.5-4.5 cm long, stipules grayish-yellow pubescent.

Flowers large, actinomorphic, bisexual, scented; calyx persistent, 5-merous, united round the ovary into a tube, but not fused to it, with valvate lobes, 2 of them long, oblong to spatulate, more or less distinctly 3-veined, and 3 short, or rarely all short; petals large, oblong to narrowly oblong, strongly contorted, loosely cohering at base on falling, cream-white with a prominent pink, red or purple stripe down the centre.

Fruit a nut, surrounded by the calyx, comparatively large; fruit calyx tube glabrous, subglobose, with 5 wings, to 8 mm broad, 2 larger fruit calyx lobes up to 14 cm x 3 cm, 3 shorter ones up to 12 mm x 14 mm.

The specific epithet means winged in reference to the fruit.

BIOLOGY
Flowers are bisexual. Leaf and bud production in juvenile trees occurs from January to June, after which constant temperature and humidity prevent further production; leaf fall occurs in mid-November (at a time of low temperature and humidity and short day length), flowering in early December and fruit maturation in mid-February. Fruiting occurs almost every year, and there seems to be an ample supply of seeds.

Dipterocarpus alatus (Chongrak Wachrinrat)

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ECOLOGY
D. alatus is native to both evergreen and dry deciduous forests from east India and the Andaman Islands to Cambodia, Laos and Vietnam, south to the border of Thailand with Peninsular Malaysia and in Luzon with the mislaid name of D. philippinensis. The habit of the Philippine populations is more seasonal than usual for those in Indo-China, with a marked dry season of 6 months. It is a riparian species and is found in hill forests, mainly in association with Swintonia floribunda and Artocarpus chaplasha. It occurs gregariously along rivers in Indo-China and Thailand up to 500 m altitude, where it is a rapid colonizer of alluvial soils. In the Philippines it is rare, occurring in mixed dipterocarp forest in seasonal areas at low and medium altitudes.
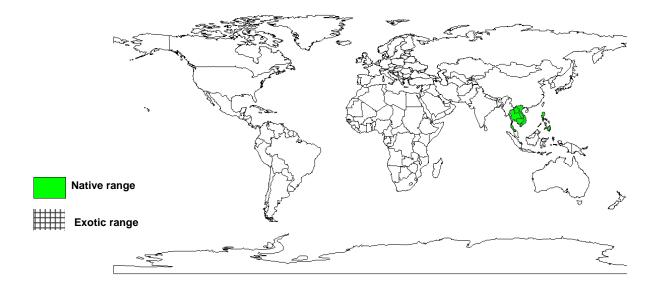
BIOPHYSICAL LIMITS
Altitude: 0-500 m, Mean annual rainfall: 1100-2200 mm, Mean annual temperature: 20-30 deg.C

Soil type: The tree prefers alluvial soils.

DOCUMENTED SPECIES DISTRIBUTION

Native: Cambodia, Laos, Myanmar, Philippines, Thailand, Vietnam
Exotic:

Native range

Exotic range

The map above shows countries where the species has been planted. It does neither suggest that the species can be planted in every ecological zone within that country, nor that the species can not be planted in other countries than those depicted. Since some tree species are invasive, you need to follow biosafety procedures that apply to your planting site.

PRODUCTS
Timber: This species is important for its timber. D. alatus, one of the most important timber species next to teak in Thailand.

Gum or resin: The oleoresin is used by indigenous people for illumination and waterproofing baskets and boats. In modern society it is used for paint, varnish and lacquer.

Essential oil: The tapped yaang oil is used as a fixative in perfumes.

Poison: D. alatus dust causes boils.

SERVICES
Reclamation: In Thailand the taungya reforestation method has been practiced primarily in order to rehabilitate wasteland with this tree.

Soil improver: The organic matter and NPK content of soils under the tree canopy have been shown to be higher than in soils further away from the tree.

Intercropping: The tree is intercropped with fruit trees.

TREE MANAGEMENT
Annual production of oleoresin per tapped tree is between 23 and 31 litres.

GERMPLASM MANAGEMENT
There are 130-500 seeds/kg. Seed storage behavior is intermediate, lowest safe moisture content is 17 %, no seeds survive further desiccation to 8 % moisture content. At 12 % moisture content, only 36 % germination occurred after 939 days hermetic storage at –18 deg. C compared to 80 % viability before storage. At 25 deg. C, seeds take 4-7 days to germinate.

PESTS AND DISEASES
The cerambycid, Celosterna pollinosa sulphurea [Cerosterna pollinosa sulphurea] attacks the tree in Thailand. Celosterna scabrator [Cerosterna scabrator] also damage D. alatus.

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