

LOCAL NAMES

English (peltophorum); Indonesian (soga,petaian); Lao (Sino-Tibetan) (s'a:z kha:m,sa:ph'ang,sa f'ang); Malay (jemerelang,batai); Thai (nonsi,arang); Vietnamese (lim x[e]jt,lim v[af]ng)

BOTANIC DESCRIPTION

Peltophorum dasyrhachis is a deciduous tree, up to 30 m tall, with a straight trunk and rather diffuse crown; root system with well-developed taproot and few superficial lateral roots; trunk up to 70 cm in diameter; bark up to 10 mm thick, reddish-brown inside; young branches reddish-tomentose, glabrescent.

Leaves bipinnate, with 5-9 pairs of pinnae and 6-16 pairs of leaflets per pinna; stipules large, bipartite, branches pinnatifid or bipinnatifid; petiole up to 7 cm long, rachis up to 40 cm long, both reddish-pubescent; leaflets oblong-elliptical, 10-25 mm x 4-10 mm, sessile, base acute, obtuse or rounded, apex rounded-emarginate, finely pubescent, glabrescent, rather glaucous below, shiny above.

Inflorescence an axillary, unbranched raceme, 15-30 cm long; bracts linear, 10-12 mm long, persisting until flowers open; pedicel 1.7-4 m long; calyx deeply 5-lobed, lobes ovate, 10-15 mm x 5-6 mm, densely velvety outside, glabrous inside; petals 5, obovate, 15-25 mm x 10-12 mm, spreading, yellow, hairy towards the base inside; stamens 10, free, filaments 10-15 mm long, woolly at base, anthers dorsifixed; ovary sessile, 5 mm long, hairy, 4-8-ovuled, style filiform, 12 mm long.

Pod elliptical, sharp-pointed, 10-15 cm x 2-4 cm, flat, with a wing-like extension 4-5 mm broad on each suture, dull-brown when ripe, later blackish, 4-8-seeded, indehiscent, often hanging in bunches below the leaves.

Seed flattened oblongoid, 10-12 mm x 5 mm, transversely positioned.

Seedling with epigeal germination; hypocotyl 4-6 cm long; cotyledons stalked, 3-nerved, glabrous.

P. dasyrhachis (often erroneously spelled 'dasyrrhachis') is related to *P. pterocarpum* (DC.) Backer ex K. Heyne, an important source of 'soga' dye. *P. dasyrhachis* can be distinguished by its crown that is uneven and not umbrella-shaped, its branched stipules, and its thick, reddish tomentum. The two species have occasionally been confounded in the literature. In northern Vietnam, a form of *P. dasyrhachis* occurs with unbranched stipules and early falling bracts, named var. *tonkinense* (Pierre) K. & S.S. Larsen.

BIOLOGY

In Lampung (Indonesia), flowering takes place during the dry season (September-October) and fruits ripen 1 year later. In Indo-China, flowering is from February to April, while new leaves are formed and fruits ripen from May to November. Seed germinates in abundance after a bush fire.

ECOLOGY

P. dasyrhachis is found in secondary, deciduous or evergreen forest. Due to its relatively deep rooting system, it is drought tolerant. Its hairiness and fairly thick bark have been associated with its tolerance of fire.

BIOPHYSICAL LIMITS

Altitude: 0-1000, Mean annual rainfall: 700-2 500 mm, Mean annual temperature: 20-25 deg.C

Soil type: Mainly found on ultisols.

DOCUMENTED SPECIES DISTRIBUTION

Native: Malaysia, Thailand

Exotic:



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

Fuel: It is suitable as firewood.

Timber: The yellowish-red heartwood is heavy, but brittle and is attacked by termites and boring insects. It is locally used for planks in house-building, but is of little market value.

Medicine: The bark is used in an infusion for coughs.

SERVICES

Erosion control: The slow rate of decomposition of the leaves reduce erosion.

Reclamation: Its use in the reclamation of *Imperata cylindrica* (L.) Raeuschel grasslands is being tested; in Indonesia and Malaysia, young trees planted in tall *Imperata* grassland and left untended after planting remained alive, but grew slowly.

Shade or shelter: In the first half of the 20th century, *P. dasyrhachis* was used as a shade tree mainly in coffee in Java. In central Thailand it is maintained after bush fallow as a shade tree for fruit trees and for its role in soil improvement.

Soil improver: Due to a fairly high content of polyphenolic substances, leaf litter decomposition is slow, allowing a humus layer to build up in the soil. When hedge were pruned 2-4 times per year, an annual yield of prunings of 8 t/ha was found in Lampung (Indonesia), containing 200 kg nitrogen.

Other services: The slow rate of decomposition of the leaves is also contributes to the suppression of weeds. Seeds of *Imperata cylindrica* hardly germinate in soil covered by the leaves.

TREE MANAGEMENT

Husbandry: It has been tested as a tree in alley-cropping systems. When unpruned, it provides a rather dense shade to control weeds during fallow periods, and can be managed in hedges without too much shading of inter-row crops. Because its growth rate is slower than that of *Leucaena Leucocephala* (Lamk) de Wit and *Gliricidia sepium* (Jacq.) Kunth ex Walp., it requires less frequent pruning. Upon pruning, trees resprout abundantly and form a dense hedge. In Malaysia, trees may grow up to 7 m tall with a stem diameter of 5 cm in 2 years.

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GERMPLASM MANAGEMENT

The weight of 1000 seeds is about 37 g.

PESTS AND DISEASES

Pests: Few insects have been recorded as damaging the leaves, whereas large stem-boring insects attack older trees.

FURTHER READNG

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SUGGESTED CITATION

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