

Pterocarpus indicus Willd.

Family: Fabaceae
Subfamily: Papilionoideae

Vernacular names: Philippines: narra; Indonesia: sonokembang; Malaysia and Singapore: angkana, sena; Thailand: pradoo; PNG: New Guinea rosewood; English: narra (common for *Pterocarpus* spp.), Malay paduak, smooth narra, amboyna, Andaman redwood, red sandalwood; French: santal rouge

Trade Names: narra, amboyna, rosewood, Burmese rosewood

Distribution and habitat: The species is reported to be from the Hindustani and Indochina-Indonesian Centers of diversity. Rojo (1977) defined its western limit to be Southern Burma. Its occurrence then extends eastward to Thailand and Vietnam, farther eastward with the limits at the Solomons in the Pacific passing through Sumatra, West Java, Borneo, the Philippines, Sunda Islands, the Moluccas, Papua New Guinea, and the Pacific (Ryukyu, Carolines).



Natural distribution of *P. indicus* Willd.

The species grows in mostly lowland primary evergreen forests up to 600 m but can seemingly thrive in elevations up to 1300 m and prefers seasonal climate. It is also found to be growing along tidal creeks and rocky shores and is considered to be a pioneer species performing best in the open.

Rojo (1972) recognized two varieties of the species: smooth narra (forma *indicus*) and prickly narra (forma *echinatus*). The first bears smooth pods while the pods of the latter have pricks or thorns on the central outer part.

Description: A large, deciduous tree (up to 30 m high and 2 m dbh), trunks usually fluted and buttressed, crowns large and arching or drooping in mature trees. Leaves compound-pinnate with 6–12 sub-opposite to alternate leaflets which are elliptic-lanceolate to obovate, 2.5–7 cm long and 2–4.5 cm wide. Leaflet margins entire. Flowers orange-yellow, fragrant and borne in large axillary panicles. Fruits are large, 8–12 cm diameter, disc-shaped, indehiscent pods, green when immature and light brown when mature and winged; slightly bulging central part 2–5 cm across, bearing 1–3 seeds, very hard pericarp. Pods of prickly narra are covered with dense bristles about 1 cm long. Seeds asymmetrical, 10–12 mm long, 7–8 mm wide, 4–5 mm thick and pointed at the micropylar end. Red-brown seed coat very hard with large cotyledons and no endosperm.



Marilyn Quimado



Enrique Tolentino, Jr.

Flowers, pods and seeds of *P. indicus*

Uses: A premium timber species, used for fine furniture and wood panels as the wood is moderately hard and heavy, rose-scented, has exquisite grain pattern which takes a fine polish and a range of rich colors from yellow to red. It is also used for cartwheels, wood carving, and musical instruments. It is a popular species for street

plantings and landscaping due to its shade and bright, yellow flowers. Flowers are a source for honey and the red latex was used for curing tumors (Hartwell 1967–1971) and a source of kino, which Malays used for treating mouth sores while the root juice is used for curing syphilitic sores (Burkill 1966). The Javanese applies young leaves to boils, prickly heat and ulcers. Duke and Wain (1981) reported the use of the species as folk medicine for bladder ailments, diarrhea, dropsy and a host of other ailments; used in agroforestry systems (shelterbelts and shade trees) owing to its nitrogen-fixing ability.

Reproductive biology: Flowering occurs after shedding of leaves, normally before appearance of new leaves at the onset of the rainy season. Full sized buds do not open in daily sequence but buds burst in batches over intervals of several days. Bud burst is thought to be triggered by rain. The trees are visited by a large number of bee species of many genera that are mainly responsible for pollination. In the Philippines, flowering begins in January and peaks around April and May. Fruits develop in about 4–5 months.

Genetic diversity and conservation status: Populations over the natural range of distribution have been decimated due to indiscriminate cutting and general habitat loss. There is heavy exploitation in New Guinea where the largest remaining populations of the species are known to exist. In the Philippines, narra has become a popular species for reforestation and plantation development. It has been introduced widely into cultivation in the tropics.

Research on genetic conservation and breeding: There are limited studies on the conservation and breeding of narra. An investigation on the mating system of the species in Mt. Makiling, Los Baños, Laguna, Philippines was carried out using five polymorphic isozyme gene marker loci (de Guzman 1996). The population of trees studied was found to be predominantly outcrossing. There was also evidence of efficient long distance pollen transport. In another study, significant differences were also observed on stem diameter and fruit morphology of trees in a *P. indicus* population growing on a portion of the Mt. Makiling Forest Reserve in the Philippines (Valencia and Garcia 1993). Two provenance trials of the species have so far been conducted in the Philippines with seeds coming from different regions in the Philippines (Favila 1996).

Agencies active in genetic conservation and/or research of the species: Ecosystems Research and Development Bureau, Philippines; The University of the Philippines Los Baños– College of Forestry and Natural Resources; Forest Research Institute of Malaysia, Royal Forest Department of Thailand.

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