

2. *Aquilaria crassna* Pierre

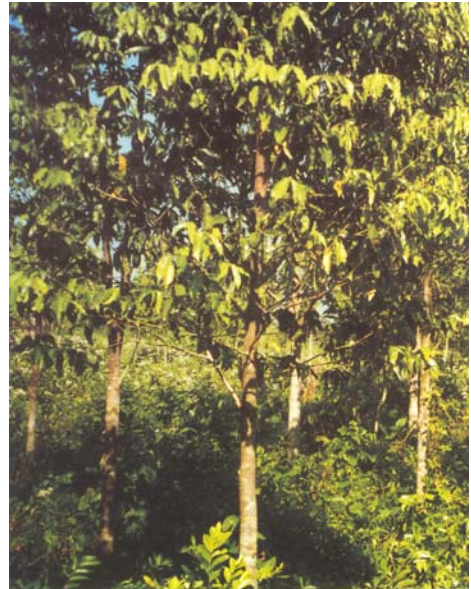
Taxonomy and Commercial Grade

Cambodian name	: Chan Crassna
Scientific name	: <i>Aquilaria crassna</i> Pierre
Synonym	: Argar wood : Eagle wood : Aloe wood or Chankrosna
Family	: <i>Thymelaeaceae</i>
Commercial Grade-Cambodia	: 3rd category

Distribution and Habitat: Various species that produce agarwood (Eaglewood) are found from India to New Guinea, including all Southeast Asian countries and Hainan Island of southern China (Zich and Compton, 2001). It is a light-demanding species, and in Cambodia it is found in Pursat, Koh Kong, Monduliri, Sihanoukville, and Kampong Speu. The species occurs sparsely in primary and secondary forest, and usually on ferrallitic soils with shallow to moderately deep layers (Khorn, 2002; see map).

Gene Ecological Zones: Coastal Cardamoms (A), Northern Cardamoms (B), Central Lowlands (d), Southern Annamites (g).

Botanical Description: *Aquilaria crassna* is a timber species with a thin crown and straight stems. It usually reaches from 15-20 m high (CTSP, 2001), but it can grow up to 30-40 m (Dy Phon, 2000), and produce boles from 40-50 cm in dbh. Chan crassna is a light-demanding species that can regenerate under a forest canopy of 0.4 – 0.6 shading. The tree normally grows from 300-800 m a.s.l on deep sandy clay soils (CTSP, 2001), but some individuals have been discovered at 2000 m a.s.l (Singandan et al, 2001). The tree occasionally produces a valuable resin called "Chankrosna" in its stem. Although this resin occurs naturally in only a small percentage of trees in the Thymeleaceae family, the quality resins are harvested from a several species of *Aquilaria* (Zich and Compton, 2001).



Flowering and Fruiting Habit: Trees begin flowering at an age of 6-8 years, and usually from March-April. Fruits are produced in June-July of the same year. The flowers are small, pale blue-yellow (FIPI, 1996)

Fruit and Seed Description: The fruit is a hard and dry, obovoid capsule which measures from 3-4 cm in diameter. It is covered with short, grayish-yellow hairs (FIPI, 1996).

Seed Collection: Seeds can be collected from the tree or from the ground after shaking the branches. In seed-source areas, the ground is usually cleared and sometimes burnt to prepare for seed collection. To ease collection, a cover can be spread out on the ground. The optimal time of collection is reached when the fruits have changed in colour from green to brownish. Maturity can be confirmed by a cutting test.

Sowing and Germination: Initial trial results show that *Aquilaria crassna* is easy to plant and very suitable for plantings under the canopies of mixed stands (CTSP, 2001).

Seedling Production: Some local people in the Districts of Thmar Beng, Modulsima, and Sre Ambil (Koh Kong Province) have collected seeds in natural forests or villages to produce seedlings in home gardens. The seedlings have been distributed to neighbouring villages in order to plant on farmland. At present, these plantations exhibit good growth (CTSP, 2001).

Uses: The accumulation of "Chankrosna" in *Aquilaria* wood is dependant on special physiological conditions that are poorly understood. In 2000, the resin-wood cost USD800-1,500 for 1 kg. The product is in high demand for use in the production of high quality cosmetics, fine art, medicine, and high-value incense (CTSP, 2001). High demand, particularly in Middle Eastern and Asian markets, combined with a decreasing supply, has pushed prices progressively higher to the extent that top grade resin can sell for over USD10,000/kg in end-use markets (Zich and Compton, 2001). The bark produces good fiber for hammocks and paper pulp as well (FIPI, 1996), and the roots can be used for incense. The wood is very fragrant and has been traded since biblical times for use in religious, medicinal and aromatic preparation. In traditional medicine, wood mixed with other drugs is used against malaria (Dy Phon, 2000).

Current Status: Because the wood of Changkrassna is very valuable, and has a high demand in global markets, this species is over-exploited and in danger of extinction if adequate protection measures are not implemented. Since its natural genetic variability is now endangered, there is need for research on improvement and management. Distribution of the species is scattered, and it is very difficult to find mature trees for seed collection. In Southeast Asian, Agarwood collection is reportedly becoming more difficult year-by-year as supplies of mature trees dwindle (Zich and Compton, 2001).

In 2002, the second CTSP meeting on the Forest Gene Conservation Strategy defined *Aquilaria Crassna* Pierre as a priority species in need of immediate conservation interventions and appropriate protection.

IUCN Classification: CR A1cd

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