



Adina cordifolia

Family: Rubiaceae

Haldu

Kwao

Other Common Names: Hnaw (Burma), Kwao, Kwow, Kan-luang (Thailand), Kovao, Gao (Cambodia).

Distribution: India, Ceylon, Thailand, and Burma; scattered in mixed deciduous forests.

The Tree: A large tree reaching a height of 100 ft with trunk diameters of 4 to 5 ft; long, straight, fluted stem which is sometimes buttressed.

The Wood:

General Characteristics: Heartwood yellow when freshly cut, turning pale yellowish reddish brown on exposure; not sharply demarcated from the yellowish-white rather thick sapwood. Lustrous; fairly straight-grained but sometimes interlocked; texture fine and even; without distinctive odor or taste.

Weight: Basic specific gravity (ovendry weight/green volume) varies from 0.54 to 0.63, depending on source; air-dry density 41 to 48 pcf.

Mechanical Properties: (First set of values based on the 2-in. standard, second set on the 2-cm standard.)

Moisture content (%)	Bending strength (Psi)	Modulus of elasticity (1,000 psi)	Maximum crushing strength (Psi)
15% (47)	12,230	1,340	6,040
12% (51)	13,000	NA	8,600

Janka side hardness 1,140 lb at 15% moisture content. Amsler toughness 133 in.-lb. 12% moisture content (2-cm specimen).

Drying and Shrinkage: Some tendency to check and split in air drying; otherwise reported to season fairly well. Kiln schedule T6-D2 is suggested for 4/4 stock and T3-D1 for 8/4. Shrinkage green to ovendry: radial 3.4%; tangential 6.8%. Reported to have a large movement in service.

Working Properties: Easy to work with hand and machine tools; turns well; takes a very fine and smooth finish.

Durability: Reports vary from moderately durable to nondurable.

Preservation: No information available.

Uses: Joinery, turnery, furniture, decorative paneling, bobbins, flooring.

Additional Reading: (17), (47), (51)

17. Farmer, R. H. (Editor). 1972. Handbook of hardwoods. H. M. Stationery Office, London.

47. Pearson, R. S., and H. P. Brown. 1932. Commercial timbers of India. Gov. of India Central Publ. Br., Calcutta.

51. Sallenave, P. 1955. Proprietes physiques et mecaniques des bois tropicaux de l'union Francaise. Publ. Centre Tech. For. Trop. No. 8, Nogent-sur-Marne.

From: Chudnoff, Martin. 1984. Tropical Timbers of the World. USDA Forest Service. Ag. Handbook No. 607.