Acacia hybrid *(mangium x auriculiformis)*

SOMYOS KIJKAR
Association of South-East Asian Nations (ASEAN)
Forest Tree Seed Centre, Thailand

FABACEAE (BEAN FAMILY)

No synonyms

Krathin tepnarong

The *Acacia* hybrid, a cross between *A. mangium* and *A. auriculiformis*, grows in Indonesia, Malaysia, Thailand, Vietnam, and China (Kha 1996; Kijkar 1992; Rufelds 1987, 1988).

The *Acacia* hybrid is a medium-sized tree that looks similar to *A. mangium*. In 2 years, the tree can reach 8 to 10 m and 7.5 to 9.0 cm d.b.h. The species grows on sandy loam or sandy clay loam soils; however, it also thrives on lateritic crude soils. *Acacia* hybrid is found where temperatures range from 12 to 35 °C, annual precipitation is 1200 to 1850 mm, and elevation is 50 to 350 m.

The wood properties of *Acacia* hybrid are similar to those of *A. mangium*, although the hybrid has a slightly higher wood density (0.455 g per cm^3) (Kha 1996). Its straw-colored softwood is good for chipwood, pulp, paper production, medium density fiber board, and oriented-strand board. Its dark-colored heartwood is used in general construction and for furniture, small hand tools, small construction beams, housing tools, and parquet flooring (Kha 1996, Pinso and Nasi 1991).

Flowers appear in July and August and again in November and December. *Acacia* hybrid begins to set flowers at about 3 years. The flowers are creamy to whitish and arranged in a straight or slightly bent, 8- to 10-cm-long spike. Because male flowers in the hybrid are usually located toward the bottom of the spike, less than 3 percent of the inflorescences produce fruits (Kijkar 1992). The pod (fruit) is usually very curly and twists like pods of all *Acacia* species. The pods mature in about 3 months (Ibrahim 1993). A pod holds 5 to 9 seeds. The seed is about 0.3 x 0.4 cm and about half of it is attached to the pod by a yellowish-red funicle. After collection by cutting small twigs where matured pods are found, seeds are extracted by threshing and winnowing. Seeds average approximately 75,500 to 80,000 per kg .

Because the seedcoat is plastic-like and very hard, pretreatment is recommended. Seeds can be scarified by soaking them in concentrated sulfuric acid for 15 minutes and rinsing thoroughly in water, or soaking them in hot water overnight. With presowing treatments, seeds of *Acacia* hybrid will germinate in 7 to 10 days. However, *A.* hybrid seeds are not commonly used in regeneration programs because they may produce *A. auriculiformis* (52 percent) or *A. mangium* (2 to 3 percent) (Kijkar 1992, 1997). The species should be propagated vegetatively by rooting cuttings or by tissue culture. Both methods have proven very successful (Darus 1993, Kijkar 1992).

Cuttings of rejuvenile materials of *Acacia* hybrid usually root well (more than 92 percent). Coppicing shoots from the stumps or rejuvenile shoots from the hedge orchard should be treated with rooting hormone (Indole Butyric Acid—IBA 100 ppm or commercial powdered hormone—Seradix No. 3) and kept under controlled conditions. Relative humidity should remain above 80 percent and temperature below 30 °C.

Tissue culture techniques have also been successfully developed using aseptic emerging seedlings as multiplication materials (Darus 1993).

Young stecklings should be kept under 50-percent shade for 3 to 4 weeks before hardening; plantlets from tissue-cultured hybrids must be acclimatized before outplanting to open areas.

ADDITIONAL INFORMATION

The *A.* hybrid differs from *A. auriculiformis* and *A. mangium* in several ways. When *A.* hybrid is young, the bark is greenish white, similar to the bark of *A. auriculiformis*. As it ages, the bark turns greenish brown or brown. It is as smooth as the bark of *A. auriculiformis*, with slightly scalely and shallow furrows at the foot of the tree (Kha 1996, Kijkar 1992, Lapongan 1987, Pinso and Nasi 1991, Rufelds 1988). The hybrid's branching behavior differs from *A. mangium* and *A. auriculiformis*. The tree has many small and light branches that can be

easily pruned. Its main stem, though not as straight as that of *A. mangium*, is much straighter than the main stem of *A. auriculiformis*. Unlike the stem of *A. mangium*, that of *Acacia* hybrid has no angles or ribs (Darus and Ghani 1989, Kijkar 1992). Its phyllode is about 4 to 6 cm wide and 15 to 20 cm long with four veins similar to those of *A. mangium*, but the vein on the outer edge of the crescent is not easy to see. Its seeds are similar in appearance to those of *A. auriculiformis* except that the funicles of the hybrid are lighter and are only partly attached to the seeds (Kijkar 1992).