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Acacia auriculiformis Cunn. ex Benth.

Taxonomy and nomenclature

Family: Fabaceae (Mimosoideae)
Synonyms: *Acacia auriculaeformis* A. Cunn. ex Benth., *Racosperma auriculiforme* (A. Cunn. ex Benth.) Pedley.
Vernacular/common names: Northern black wattle (Australian trade name); coast wattle, ear pod wattle.

Distribution and habitat

Native to Australia, Papua New Guinea and Indonesia in hot humid and sub-humid lowlands with mean annual rainfall of 800-2500 mm and mean annual temperature of 20-30°C. Often found on river banks and in coastal areas.

It is cultivated widely in the tropics within an altitude range of 0-500 (-1000) masl, and even though frost does not occur in its natural range, it tolerates light frost. It is exceptionally tolerant to soil type in regard to fertility, salinity and pH. It can grow on acid mine spoils with pH 3 and on alkaline beach sands with pH 8-9. It does not tolerate shade or strong winds.

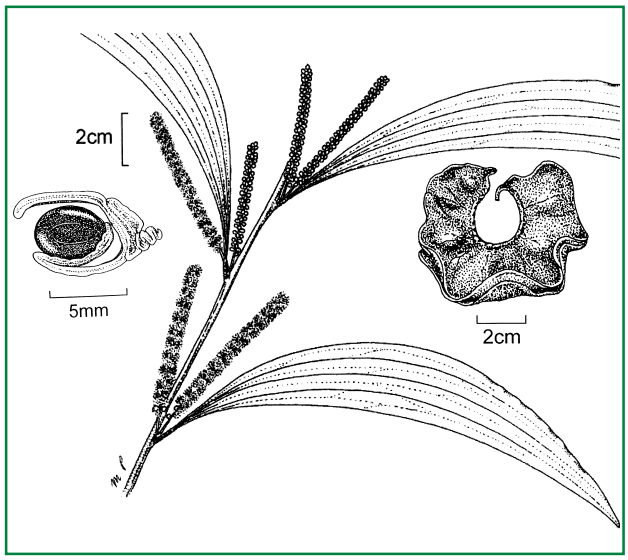
Isoenzyme analysis has revealed a marked genetic variation with 3 distinct groups corresponding to the geographic distribution in Papua New Guinea, Queensland and Northern Territory. Field trials show that provenances from Papua New Guinea have the highest production while those from Queensland have a high proportion of single stems. Those from the Northern Territory are inferior in both growth and form. The hybrid *A. auriculiformis* x *A. mangium* has shown desirable characteristics.

Uses

This species can grow under even the most difficult conditions in the tropics. The rapid early growth rate, ability to fix nitrogen, tolerance of infertile, acid, alkaline, saline or seasonally waterlogged soils and moderately dry seasons makes it very suitable for rehabilitation of degraded land. A valuable feature is the ability to compete with *Imperata cylindrica* reducing the grass to a sparse ground cover. The wood is excellent for firewood, charcoal, paper pulp and lighter construction work. Because of its spreading and competitive surface rooting habit it is not widely used in agroforestry systems but intercropping with peanut, rice, mung beans and kenaf has been successful.

Botanical description

A large shrub or medium-sized, evergreen tree, usually 8-20 m tall, on good sites up to 35 m. Bark grey or brown, longitudinally fissured. Leaves (phyllodes) 8-20 cm long, glabrous and curved, with 3 prominent nerves (four in *A. mangium*). Flowers bisexual, creamy yellow, scented, in up to 8.5 cm long spikes.



Seed with funicle, flowering branch and pod. Copyright: CSIRO, Forestry & Forest Products, Australian Tree Seed Centre.

Fruit and seed description

Fruit: flat, dehiscent, somewhat woody pod, 6.5 cm long, 1.5 cm wide, strongly curved and with undulate margins.
Seed: shiny black or brown, encircled by a long, red or yellow funicle. There are 55,000-75,000 seeds/kg.

Flowering and fruiting habit

The yellow flower spikes can be found on individual trees throughout the year but there is usually a distinct peak flowering season which may vary considerably with location.

Pollination is carried out by a wide range of insects. Seed is produced at an early age and normally in large quantities.

Phenology data:

Locality	Flowering	Fruiting
N. Territory	Apr-June	Aug-Oct
Queensland	Feb-May	Oct-Apr
Kuala Lumpur	Feb-May	Oct-Apr
Sabah	Feb-May	Oct-Apr
Java	Mar-June	
Thailand	Aug-Feb	
Vietnam	June-July	Nov-Mar

Harvest

Collection from the tree or from the ground. If collection is too early, it can be difficult to open the pods while late collection may result in loss of seeds.

Processing and handling

The pods are dried in the sun until they open. After extraction the funicle can be removed manually by rubbing the seed over a sieve.

Storage and viability

Seeds are orthodox and can be stored for several years in closed plastic bags. Moisture content for storage should be about 7%.

Dormancy and pretreatment

Pretreatment by scarification or immersion in boiling water for 1 min and left to soak for 24 hours.

Sowing and germination

Germination of 40-100% occurs after 6-15 days. Propagation by container plants, direct sowing or vegetatively by cuttings. Nursery techniques are described in Doran and Turnbull (1997).

Selected readings

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Forest tree form. Bensbach River, Balamuk, Western Provenance, Papua New Guinea. Photo: Maurice McDonald, CSIRO, Forestry & Forest Products, Australian Tree Seed Centre.

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