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SEED LEAFLET

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Neolamarckia cadamba (Roxb.) Bosser

(*Anthocephalus chinensis* (Lam.) A. Rich. ex Walp.)

Taxonomy and nomenclature

Family: Rubiaceae

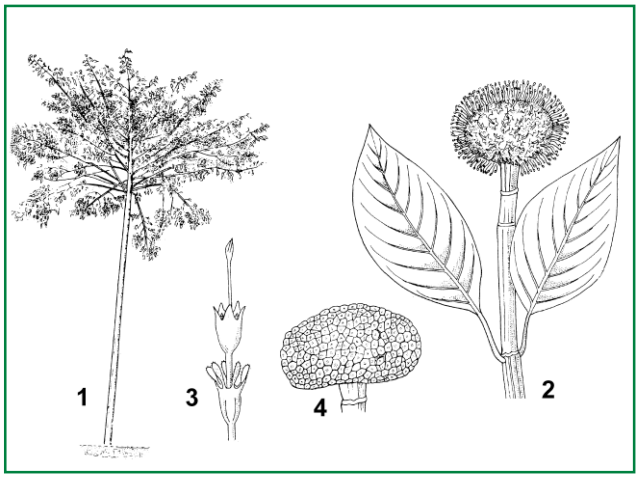
Synonyms: *Anthocephalus chinensis* auct., *A. cadamba* (Roxb.) Miq., *A. indicus* A. Rich., *A. morindaefolius* Korth.

Vernacular/common names: Kadam (Indian, French and trade name); common bur-flower tree (Eng.); kaatoan bangkal (Philippines); mai sa kho (Laos); kalempajan, jabon (Indonesia); kalempayan (Malaysia); thkoow (Cambodia).

Distribution and habitat

The area of natural distribution is from India, Nepal and India, through Thailand and Indo-China and eastward in the Malaysian Archipelago to Papua New Guinea. It has been introduced successfully to Africa and Central America.

It is a typical pioneer and common in secondary forest. Within the area of natural distribution it is found below 1000 m altitude and normally where there is more than 1500 mm rain/year but it can grow in dry areas with as little as 200 mm rain/year. It is very light demanding and intolerant to frost. It can grow on a variety of soils and tolerates periodic flooding.



1, Habit of young tree; 2, twig with inflorescence; 3, flower; 4,infructescence. From: Plant Resources of South-East Asia 5:1.

Uses

Kadam is a lightweight hardwood with poor durability. It is mainly used for pulp, producing low- and medium-quality paper. The wood can be used for light construction work but only indoors as it is perishable in contact with the ground.

It is fast growing and suitable for reforestation in watersheds and eroded areas and for windbreaks in agroforestry systems. It is also excellent as a shade tree for dipterocarp line planting. Leaves and bark are used in medicine.

Botanical description

Tree up to 45 m tall, without branches for more than 25 m. Diameter up to 100 (-160) cm but normally less; sometimes with buttresses. The crown is umbrella-shaped and the branches are characteristically arranged in tiers. Leaves simple, 13-32 cm long. Flowers orange, small, in dense, globose heads.

Fruit and seed description

The fruits are small capsules, packed closely together to form a fleshy, yellow or orange coloured infructescence containing approx. 8,000 seeds. The small capsules split into four parts releasing the seed at maturity. There are approximately 20,000 seeds per gram.

Flowering and fruiting habit

Flowering normally begins when the tree is 4-5 years old. The seeds are dispersed by wind or rain, floods and rivers.

Phenology data:

	Flowering	Fruiting
Philippines	Apr-May	Sep-Feb
India	May-June	Jan-Feb
Sabah	June-Sep	Sep-Feb
Sri Lanka		Sep
Indonesia	Apr-Aug	
Laos		Oct-Dec

Harvest

The seeds are mature when the fruit has changed colour to dark brown. The fruits are harvested from the tree by climbing or from covers on the ground after shaking the branches. If covers are not used, it is important to wipe the ground clean first.

The ripe fruits are often predated by birds and bats and fruits on the ground are eaten by ants, cattle and other animals.

Processing and handling

In Laos and Indonesia the fruits are cut into smaller pieces and dried in the sun. The dry fruits are gently crushed and cleaned by using a fine sieve.

In the Philippines the fresh fruits are macerated in water until the seeds are exposed and then dried in the sun.

Storage and viability

The seed should be stored in dry, airtight containers. In a cold store the seed will retain viability for up to two years, at ambient temperature up to 6 months.

Dormancy and pretreAatment

Pretreatment is not necessary.

Sowing and germination

Because of their small size, the seeds are mixed with fine sand (1:10) and sown in seed-beds. Alternatively, a salt or pepper pot can be used for sowing. The seed-beds should be protected form heavy rain and not watered to much as damping-off can be a problem.

Germination takes place after 2-3 weeks and when the seedlings are 8-12 weeks old, they are transplanted to nursery beds or plastic bags. It is recommended to use a medium that is enriched with organic matter.

After 6-7 months when the seedlings are about 30 cm tall, they are ready for transplanting into the field. They can be planted bare-rooted with little loss in survival rate. Planting distance in the field is 3-4 x 3-4 m. In Indonesia and the Philippines, good results have been obtained by planting *Leucaena leucocephala* between the lines.

Where there are enough seed producing trees, natural regeneration can be effected by clearing the ground before seed fall. A plantation in East Kalimantan, Indonesia, has been managed this way since 1938.

Phytosanitary problems

The fruits can be attacked by insects, the attack is seen as black spots on the surface. In Costa Rica soil-inhabiting ants eat the seeds in the seed-beds. A small ditch filled with water around the seed-bed will prevent this.

Selected readings

Soerianegara, I., Lemmens, R.H.M.J., eds., 1993. *Plant Resources of South-East Asia No. 5(1). Timber trees: major commercial timbers.* Wageningen, Netherlands: Pudoc Scientific Publishers. Also published by Prosea Foundation, Bogor, Indonesia.

Pollard, J.F., 1969. *A note on the nursery treatment of two species in Sabah*. Malay. Forester 32 (3), 269-71.

Photo: Rafael T. Cadiz

THIS NOTE WAS PREPARED IN COLLABORATION WITH THE INDOCHINA TREE SEED PROGRAMME

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