



Donax canniformis (G.Forst.) K.Schum. Marantaceae

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Synonyms

Actoplanes canniformis (G.Forst.) K.Schum.; *Actoplanes grandis* (Miq.) K.Schum.; *Actoplanes ridleyi* K.Schum.; *Arundastrum canniforme* (G.Forst.) Kuntze; *Arundastrum grande* (Miq.) Kuntze; *Clinogyne canniformis* (G.Forst.) K.Schum.; *Clinogyne dichotoma* Salisb. ex Benth.; *Clinogyne grandis* (Miq.) Benth. & Hook.f.; *Donax arundastrum* Lour.; *Donax gracilis* K.Schum.; *Donax grandis* (Miq.) Ridl.; *Donax parviflora* Ridl.; *Ilythuria canniformis* (G.Forst.) Raf.; *Maranta arundastrum* (Lour.) M.R.Almeida; *Maranta arundinacea* Blanco; *Maranta dichotoma* D.Dietr.; *Maranta grandis* Miq.; *Maranta tonchat* Blume; *Phrynium canniforme* (G.Forst.) Schrank; *Phrynium dichotomum* Roxb.; *Thalia canniformis* G.Forst. (POWO 2020).

Local Names

Brunei Darussalam: bamban, banban batu; **Cambodia:** draem run; **Indonesia:** bamban, bumban, bomban (General), banban (Malay, Javanese, Sundanese), bangban (West Java), bemban (Ketapang, Sanggau, Musi Rawas), bemban or jemban (Serampas), bamban, mboeyo (Buton Island), moa, obiyawa (Togutil), mboue (Bau-bau), moa (Moluccas); **Malaysia:** babalit (Lundayeh), bamban (Negeri Sembilan), bemban (Tok Ngah, Serawak), bemban hutan (Pahang), lias (Sabah), bemben, bembanayer, buluhleck (Kelabit); **Philippines:** aralu (Lanao-Mindanao), bamban, banban (Tagalog, Ilokano, Bisaya, Manobo, Sulu, Bulidnon), bamban

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(Sierra-Madre, Tagalog), dilang-aso, bamban (Western Mindanao), banban (Polillo Island, Mindoro), basayan (Cagayan), binbin (Casiguran), bonbon (Bicol), buldong (Palawan), bunban (Bisaya), manban (Samar); **Thailand**: khlum (General), klah, blah, klum (Central, Surat Thani, Trat); **Vietnam**: dong s[aa]jy (Amanina et al. 2017; Apal et al. 2018; Arisandy and Triyanti 2020; Hariyadi and Ticktin 2012; Kamaludin 2018; Kulip 2003; Kulip and Majawat 2000; Liyanti et al. 2015; Malabrigo et al. 2014; Malini et al. 2017; Milow et al. 2011; Neamsuvana et al. 2015; Nordin and Zakaria 2016; Ong et al. 2011; Slamet et al. 2020; Slamet and Andarias 2018; Suksthan et al. 2010; Syarif and Yafie 2017; Sebua and Nuñez 2020; Teo 2003)

Botany and Ecology

Description: An upright herb with a richly branched stem, rhizomatous, terrestrial shrub with tall, branching aerial stems 2.0–4.5 m, each stem protected at the base by a papery bract ca. 20–30 cm, after which there are no internodes or leaves until the height of 1.0–2.5 m, at which point the plant branches out to many secondary branches, which branch further to produce numerous leaves. The length of internodes decreases as the order of branches increases. Leaf sheath 7–20 cm, green, glabrous except for a few hairs at the very base and adjacent to the pulvinus; petiole absent; pulvinus 1–4 cm; lamina oblong-ovate, 15–38 × 8–21 cm, apex acuminate, acumen 0.5–1.0 cm, base rounded, upper leaf surface medium to dark green, glabrous, lower surface light green, glabrous except for a pubescent narrow strip close to the midrib (top of midrib glabrous). Inflorescence terminal, several (three to many) emerging at the base of a leaf near the apex of the stem, spreading, base obscured by an enveloping leaf sheath; peduncle absent or very short; bract at the base of the synflorescence 5–10 × 0.8–1.0 cm, often absent; synflorescence heavily branched, lax, 11–20 cm; with variable orders of branching, each branch producing 10–20 fertile bracts, each fertile bract with a single flower-pair or a new branch, fertile bracts linear, narrow, deciduous, acute, 2.5–4.0 × 0.5–0.8 cm, tomentose, light green, soon drying to straw-yellow and papery, prophyll 18–22 × 2–4 mm, interphyll absent; Pedicel of individual flowers 3–6 mm, with a short and very thick bracteole (which functions as an extrafloral nectary), 2.5 × 2.5 mm. Flower 1.7–1.9 cm long, with a very faint scent of jasmine; sepals 3, free, subulate with a distinct basal thickening, glabrous except for a few long hairs at the thickening, 5 × 0.5 mm, white; floral tube 6–7 mm long, incompletely fused; petal lobes equal, elliptic, acute, 10–12 × 5–6 mm, white, with a translucent margin, reflexed; staminodial tube 2–3 mm longer than the floral tube; outer staminodes 2, almost equal, free part of both staminodes elliptic, white with a slightly yellow margin, rolled in bud, only apex slightly crumpled, 9–10 × 2.5–4.5 mm; hooded staminode cucullate, almost white, free part 4 × 2.7 mm, appendix recurved, sulfur-yellow, ca. 2 × 1 mm; fleshy staminode almost tubular, opening up towards the apex, white, sulfur yellow towards apex, free part 7–8 × 5–7 mm, with a tall and thin, sail like white appendix that curves along the margin, 3 × 2 mm; fertile stamen 4.5 × 1.7 mm (including the fertile anther and appendage), recurved, linear with a blunt tip, anther

emerging at 2.0–2.5 mm measured from the base of the free part of the stamen, 1.7×0.6 mm; style with a 4 mm free part, curved inwards, asymmetrical with several lobes towards the apex, stigmatic cavity ca. 1 mm diameter; ovary globose, $1.8\text{--}2.4 \times 1.9\text{--}2.1$ mm, light brown, sericeous. Fruits globose, 10–12 mm in diameter, sericeous when young, maturing almost glabrous; only one seed develops (the other two can be seen as aborted seeds in mature fruit), aril absent, white or greenish cream and fleshy at maturity, green while immature, indehiscent (Teo 2003; Ardiyani et al. 2010; Niissalo et al. 2016).

Distribution and Habitat: *Donax canniformis* is native to Andaman Island. The plant is widespread and common throughout South East Asia, from India to the Solomon Islands. More particular to Bismarck Archipelago, Borneo, Cambodia, Jawa, Lesser Sunda Island, Malaya, Maluku, Marianas, Myanmar, New Guinea, Nicobar Island, Philippines, Santa Cruz Island, Solomon Island, Sulawesi, Sumatera, Taiwan, Thailand, Vanuatu, and Vietnam (Ardiyani et al. 2010; POWO 2020). Occasionally it is also cultivated (Teo 2003). This species mostly occurs in primary and secondary lowland rainforest, on hillslopes, rock beds along small streams and wet areas such as alluvial flatland. It is common, especially in open and disturbed places (Ardiyani et al. 2010). The plant also grows in wet locations such as swamps and periodically flooded areas. In South-East Asia, it occurs up to about 1000 m altitude not only in secondary forest, teak forest, and bamboo forest but also in coconut plantations and near paddy fields (Teo 2003).

Phenology: *Donax canniformis* flowers and fruits throughout the year in Java. In Indo-China, the flowering season happens from May to September, and fruiting in February. In Thailand, flowers can be seen from March to April (Moungsrimuangdee et al. 2017) (Figs. 1, 2, 3, and 4).

Local Medicinal Uses

Indonesia: In Indonesia, the juice from young, uncurled leaves of *D. canniformis* is used to treat eye diseases, while the leaves from young stems is believed to be effective against snakebites (Teo 2003). The local people of Serampas in Jambi use the fruits commonly to treat abscesses (Hariyadi and Ticktin 2012). In Sekabuk Village of West Kalimantan, and Karang Wangi, West Java, this plant is used to cure eye sore (Leonardo et al. 2013; Malini et al. 2017). The local community in the vicinity of Lore Lindu National Park, Central Sulawesi, use the leaves to treat hernia. They heat the leaves and smear them on sore stomach three times a day (Apal et al. 2018). The Bau-Bau of Central Sulawesi consume the ripe fruits to cure boils (Slamet and Andarias 2018). **Malaysia:** The stem is used as medicine to treat fever (Milow et al. 2011). Plant extract is applied thrice a day for sore eyes by the Malay people in Pahang (Nordin and Zakaria 2016). In Ulu Kuang, the raw leaves and fruits are eaten to cure boils and abscess (Azliza et al. 2012). **Philippines:** Root decoction is considered an antidote against snakebites and blood poisoning. The juice from crushed roots is used against fungal infections; an infusion of young shoots is taken to lower fever (Teo 2003). Fruits are chewed to cure boils

Fig. 1 Living plant of *Donax canniformis* (MARANTACEAE), Sanggau, West Kalimantan, Indonesia. (© M. Silalahi)



(Langenberger et al. 2009). **Thailand:** The local community around upper Songkhla Lake consume a rhizome decoction to cure fever; the rhizome decoction is also a thirst-quencher (Neamsuvana et al. 2015).

Phytochemistry

Methanolic extract of leaves shows antibacterial activity against *Staphylococcus aureus*. The leaves contain saponins, phenolics, and tannins (Hidayatullah et al. 2017). The leaves also possess anti-inflammatory activities (Paramita et al. 2017).

Local Food Uses

Malaysia: Green fruits of *D. canniformis* are eaten raw (Kulip and Majawat 2000; Ong et al. 2011). **Philippines:** The ripe fruit is edible (Suksthan et al. 2010) and can be eaten raw as snacks (Langenberger et al. 2009).

Fig. 2 Flowers of *Donax canniformis* (MARANTACEAE), Sanggau, West Kalimantan, Indonesia. (© M. Silalahi)

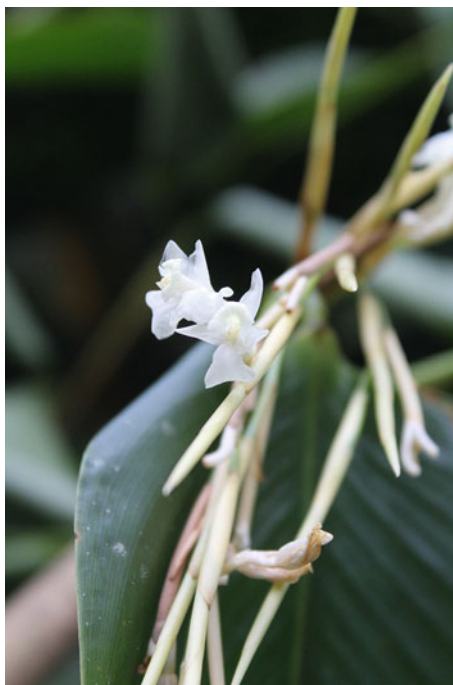


Fig. 3 Fruits of *Donax canniformis* (MARANTACEAE), Sanggau, West Kalimantan, Indonesia. (© M. Silalahi)



Biocultural Importance

Indonesia: The Tajio tribe in Kasimbar village of Parigi in Central Sulawesi used the plant in the ritual *monafute pae* (planting rice) (Rahyuni et al. 2013). **Malaysia:** Young stem is used for making mat, and the old one is used for making fish trap

Fig. 4 Various handicrafts made from the stem or the bark of *Donax canniformis* (MARANTACEAE), Sanggau, West Kalimantan, Indonesia. (© M. Silalahi)



(Kulip and Majawat 2000). Leaves are used to wrap food in Penang. It imparts a characteristic flavor to the wrapped foods (Mustafa et al. 2012). **Philippines:** The young shoots are used as a betel nut substitute by the local people in North East Luzon Island (Suksthan et al. 2010).

Economic Importance

Throughout South-East Asia, the stem of this plant is used for making fish traps, for stitching hatch and as cordage, contributing to sustenance of local livelihoods (Teo 2003). **Indonesia:** The Ketapang and Galik Sekam communities in West Kalimantan use the stem as wicker and handicraft material (Liyanti et al. 2015; Kamaludin 2018). The Galik Sekam also use the stem fiber to tie the roof of cattle pen (Wahyudi and Syarief 2016). The stems are also used in Buton Island as handicraft material and in textiles (Slamet et al. 2020). **Malaysia:** The stem is used as handicraft material, for example, for making basket (Milow et al. 2011). Plant bark and young stem is used for making mat, while old ones are used for making fish trap (Kulip and Majawat 2000; Kulip 2003). In Sarawak, fine patterned baskets, and hats, mats, baskets, and baby carrier made from *D. canniformis* are popular. Throughout Borneo, stems are made into strings for musical instruments. The Semai in West Malaysia make blowpipe dart from stem (Teo 2003; Amanina et al. 2017). **Philippines:** The plant is a substitute for rattan that is used in novelty items such as placemats, baskets, and flowerpot holders (Agduma et al. 2011). The stem is made into a wide range of handicrafts including hats, waste baskets, laundry baskets, flowerpot holders, trays, table, magazine rack, and bookshelves (Teo 2003). The stem is also used in construction of drying racks. The epidermal fibers are used as cordage in house construction and for making baskets (Suksthan et al. 2010; Langenberger et al. 2009). The barks are used in *nipa* business in Surigao Del Sur Mountain Range (Blasco et al. 2014).

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