

## ***Polyalthia kanchanaburiana* (Annonaceae): a new species from Thailand**

SOMPORN KHUMCHOMPOO\* & AREE THONGPUKDEE\*

**ABSTRACT.** *Polyalthia kanchanaburiana* S. Khumchompoo & A. Thongpukdee is newly described from Thailand. It differs from *Polyalthia micrantha* most notably in its scandent habit, in a number of floral features including many more carpels 8–20 as opposed to 1–9 and a clavate not globose stigma and in its oblong-lanceolate leaf and acuminate leaf apex.

**Keywords :** *Polyalthia*, Annonaceae, Thailand.

### **INTRODUCTION**

The genus *Polyalthia* Blume comprises more than 150 species in Asia (Van Heusden, 1992) and may be polyphyletic (Mols et al., 2004). Its species are mainly distributed in tropical regions of Australia, New Guinea, the Solomon Islands, Fiji, Madagascar and East Africa (Verdcourt, 1971; Van Heusden, 1992; Kessler, 1993; Kessler et al. 2000) and are relatively numerous in Southeast Asia (Sinclair, 1955). There are eight species in Burma (Kurz, 1974), 27 in Vietnam (Ban, 2000), 32 in Singapore (Sinclair, 1955), seven in Sri Lanka (Huber, 1985) and 17 in China (Xueliang & Shijin, 2004). *Polyalthia* in Thailand was recently recorded by Bunchalee (2001) with 20 species and three varieties. In 2003 the authors collected a number of Annonaceous specimens from forests in the western region of Thailand including a new species of *Polyalthia* which was clearly allied to *Polyalthia micrantha* Boerl. but which differed in the characters summarised in Table 1.

***Polyalthia kanchanaburiana* S. Khumchompoo & A. Thongpukdee, sp. nov.** *P. micrantha* aqua foliis oblongo-lanceolatis (non oblongo-ovatis) apicibus acuminatis (non acutis), floribus solitariis terminalibus vel fasciculo 2–3-floribus, foliis oppositis, terminalibus vel caulifloris (non nisi solitariis), petalis exterioribus parvioribus (adversum aequimagna), carpidiis 8–19 (adversum 1–9), ovulis 3(1) (non 1–2), stigmatibus clavatis (non globosis) et appendice staminis truncata (non cylindrica) differt. Typus: Thailand, Kanchanaburi, Ban Rai, Queen's crab swamp forest, Thongpaphum National Park, 21 Nov. 2003, *Khumchompoo & Thongpukdee* 36–1 (holotypus BKF; isotypi CMU, K, KKU, L). Figs. 1–4.

Scandent shrub 1–2 m high. *Bark* densely lenticellate, brown, non aromatic. *Terminal* shoot pubescent with brown hairs when young. *Leaves* simple, distichous; petiole ca. 0.2 cm long, pubescent with brown hairs; blade coriaceous, oblong-lanceolate, 3–11 by 1.5–6 cm, apex acuminate, base obtuse, margin entire, metallic green above, pale green beneath; venation semicraspedodromous, midrib sunken above, prominent beneath, puberulent with brown hairs; secondary veins obscured above, slightly prominent beneath, in 6–8 pairs,

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\*Faculty of Science, Silpakorn University, Muang, Nakhon Pathom, 73000, Thailand.

**Table 1.** Comparative morphological characters of *Polyalthia micrantha* Boerl. and *P. kanchanaburiana*

Characteristic	<i>Polyalthia micrantha</i>	<i>Polyalthia kanchanaburiana</i>
Habit	small tree, 1–5 m.	scandent shrub, 1–2.5 m.
Leaf shape	oblong-ovate	oblong- lanceolate
Leaf apex	acute	acuminate
Leaf size	4–9 by 0.8–4 cm.	6–11 by 1.5–3 cm.
Lateral nerves	6–10 pairs	6–8 pairs
Midrib	glabrous above, puberulent beneath	puberulent on both sides
Venation	2° angle of divergence <60 degree	2° angle of divergence ≥ 60 degree
Flower	solitary	solitary and 2–3-flowered-fascicle
Position of flower	cauliflorous on branch, axillary	terminal, leaf – opposed, cauliflorous on branch and stem
Pedicle length	0.2–0.7 cm	0.5–0.8 cm
Sepal	triangular, 2 by 4 mm	triangular, 3 by 3 mm
Outer & inner petals	equal size, 6 by 2 mm	outer petals (5 by 3 mm) smaller than inner petals (13 by 5 mm)
Stamen appendage	cylindrical	truncate
Carpel number	1–9	8–20
Stigma shape	globose	clavate
Ovule : carpel	1–2	3(1)
Fruit and seed	ovoid subspheroidal, 1–2 seeded	spheroidal, 1-seeded
Distribution	Indonesia, Sri Lanka	Thailand (Kanchanaburi)
Phenology	Flowering: September–January Fruiting: December–February	Flowering: May–June Fruiting: June–November

2° angle of divergence ≥ 60 degree. *Inflorescence* fascicled, 2–3-flowered and solitary, leaf-opposed, terminal or cauliflorous; pedicel 5–8 mm long, red, pubescent; sepals 3, valvate, triangular, ca. 3 by 3 mm, acute, abaxially puberulent, adaxially glabrous, green when young, red when mature; petals 6 in 2 whorls, free, valvate, later spreading, fleshy, the outer smaller than the inner; outer petals ovate, 3–5 by 3–4 mm, acute, apical half green when young turning to light yellow when mature, basal half red; inner petals lanceolate, 5–13 by 3–5 mm, acute, tip recurved when young, later spreading, ca. 1.5 cm indiam. at anthesis, greenish yellow when young, later light yellow, puberulent on both sides, with oil glands on adaxial surface; torus convex, raised ca. 1 mm high; stamens numerous, wedge-shaped, appendage red, truncate, filament ca. 0.2 mm long, anther 2-lobed; carpels 8–20, light yellow, cylindrical, ca. 0.8 mm long; stigma clavate, villous; ovary sessile, villous, usually with (1–)3 ovules. *Fruit* mostly aggregated, monocarps 4–8, spheroidal, green when young, brownish red when mature, 0.5–1 cm in diam., fruit pedicel 0.8–1 cm long, monocarpic stalk ca. 1 mm. *Seed* 1 with longitudinal circumferential groove, light brown. *Pollen grains* monad, spheroidal, isopolar, inaperturate, psilate, grain 25–30 µm.

Distribution.— Endemic to Thailand.

Ecology.— Scattered in Queen's crab swamp forest (Phu Pu Rachini), 400–600 m. altitude.

Phenology.— Flowering in May–June. Fruiting in June–November or possibly throughout the year.

Etymology.— *Polyalthia kanchanaburiana* is named after the type locality.

Notes.— *Polyalthia kanchanaburiana* is very similar to *P. micrantha* but differs in having 8–20 carpels, (1–)3 ovules, a clavate stigma, a truncate staminal appendage, unequal whorled petals and an acuminate leaf apex.

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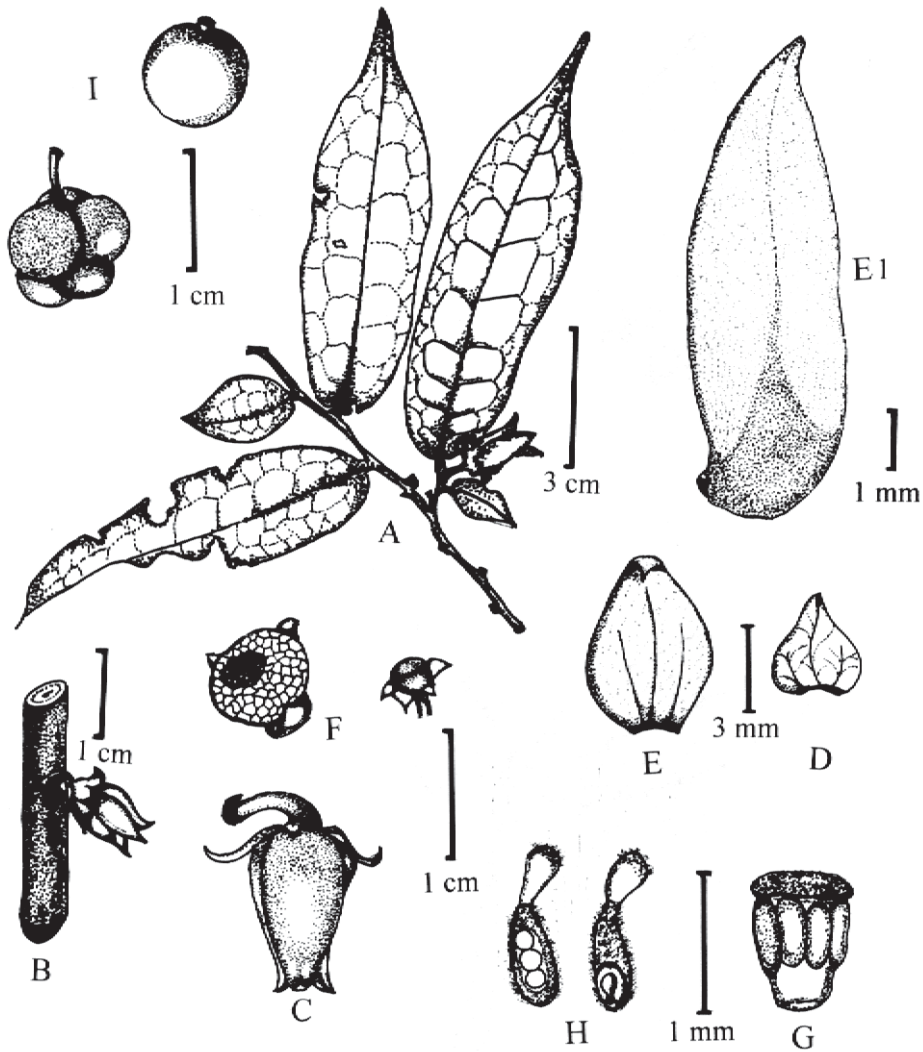


Figure 1. *Polyalthia kanchanaburiana* S. Khumchompoo & A. Thongpukdee: A. flowering branch; B-C. flower; D. sepal; E. outer petal; E1. inner petal; F. gynoecium; G. stamen; H. dissected pistil with ovules; I. fruits (monocarp). All from Khumchompoo & Thongpukdee 36-5.

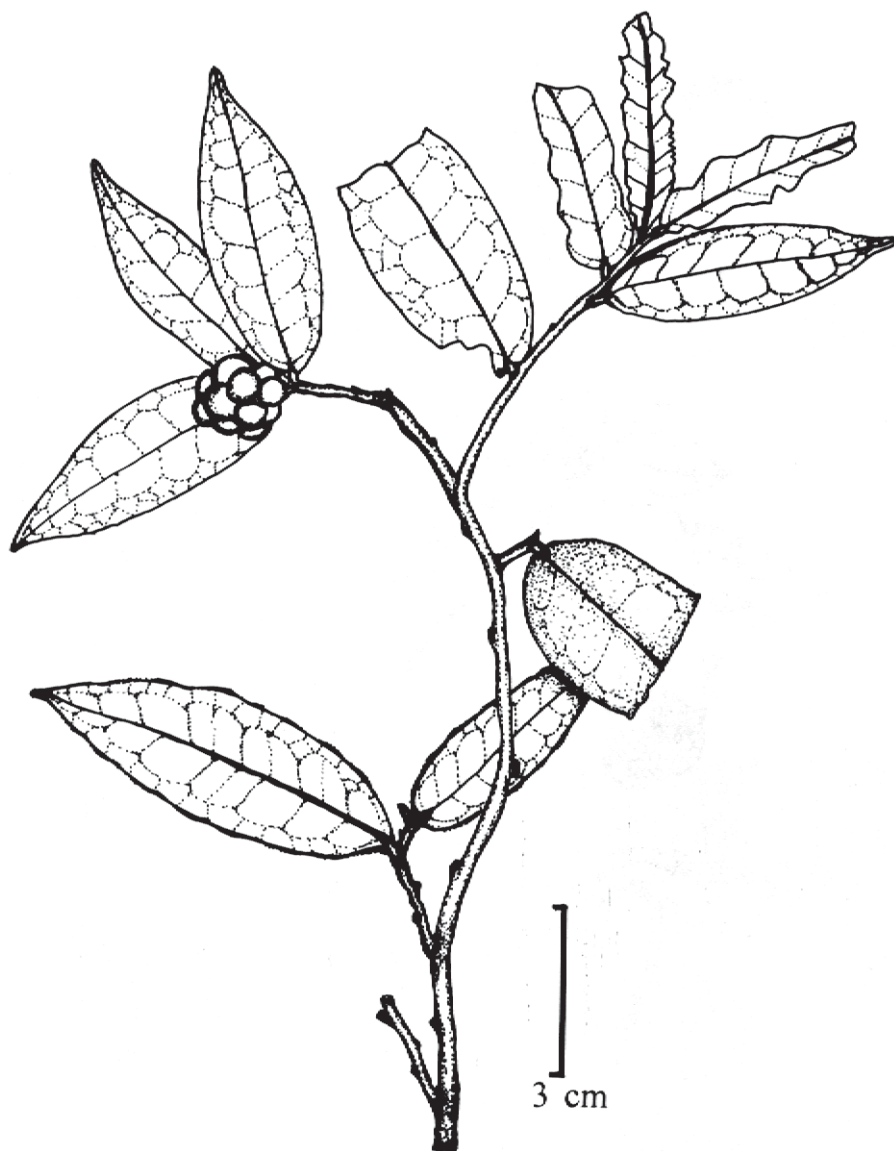


Figure 2. *Polyalthia kanchanaburiana* S. Khumchompoo & A. Thongpukdee: infructescence branch (Khumchompoo & Thongpukdee 36-6).



Figure 3. *Polyalthia kanchanaburiana* S. Khumchompoo & A. Thongpukdee: A. flowering; B. fruits (monocarp); (Khumchompoo & Thongpukdee 36-5).

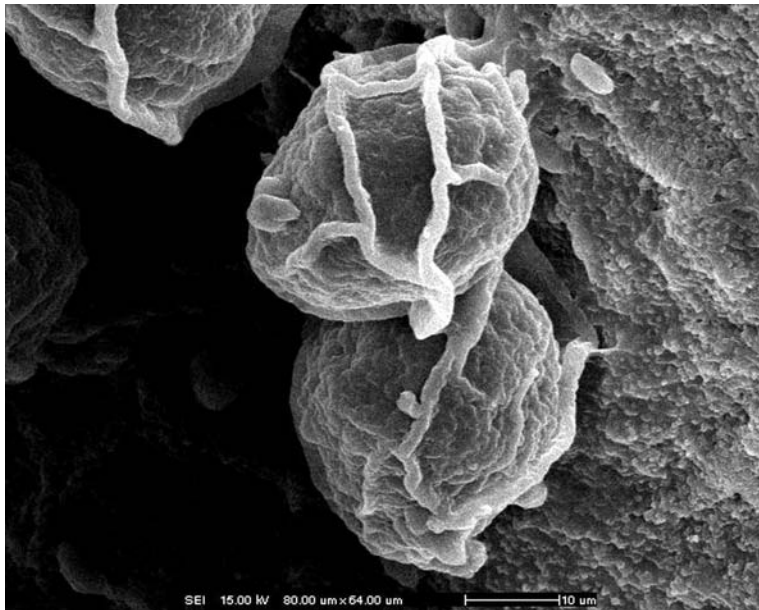


Figure 4. Pollen grains of *Polyalthia kanchanaburiana* S. Khumchompoo & A. Thongpukdee: scanning electron micrograph; (Khumchompoo & Thongpukdee 36-5).