การศึกษาและวิจัยพรรณไม้วงศ์นุ่น-ทุเรียนของไทย

Studies on Bombacaceae of Thailand

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ABSTRACT

การศึกษาวิจัยเกี่ยวกับชนิดพันธุ์ของวงศ์ไม้นุ่น-ทุเรียนของไทย เพื่อนำผลไปเป็นส่วนของโครงการจัดทำหนังสือพรรณไม้ของประเทศไทย ที่กรมป่าไม้เริ่มมาตั้งแต่ พ.ศ. 2510 นั้น ได้รวบรวมตรวจสอบพรรณไม้ รวมทั้งเอกสารที่เกี่ยวข้องทั้งหมด เป็นที่ปรากฏว่า วงศ์นุ่น-ทุเรียนนี้เป็นวงศ์หนึ่งที่มีความสับสนเกี่ยวกับเอกสารและแนวความคิดเห็นของบรรดานักพฤกษศาสตร์มากพอสมควร แต่ในที่สุดพอเป็นที่สรุปได้ว่า วงศ์นุ่น-ทุเรียนของไทย ประกอบด้วยพรรณไม้ 5 สกุล จำนวน 12 ชนิด และ 1 พันธุ์ ได้แก่ **สกุลงิ้ว Bombax** มี 3 ชนิดกับ 1 พันธุ์ คือ งิ้ว *Bombax ceiba* L. งิ้วป่าดอกแดง *Bombax insigne* Wall. ex Kurz งิ้วป่าดอกขาว *Bombax anceps* Pierre และง้าว *Bombax anceps* Pierre var. *cambodiense* (Pierre) Robyns **สกุลนุ่น Ceiba** มีชนิดเดียวและเป็นพันธุ์ไม้ที่นำเข้าจากต่างประเทศคือ นุ่น *Ceiba pentandra* (L.) Gaertn. **สกุลทุเรียน Durio** มี 5 ชนิด คือ ทุเรียนป่า *Durio mansoni* (Gamble) Bakh. ทุเรียนลากขา *Durio graveolens* Becc. ทุเรียนดอน *Durio lowianus* Scort ex King ทุเรียนนก *Durio griffithii* (Mast.) Bakh. และทุเรียน(สวน) *Durio zibethinus* Murr. ซึ่งนำเข้ามาจากต่างประเทศ **สกุลช้างร้องไห้ Neesia** มี 2 ชนิด คือ ทุเรียนผี *Neesia altissima* (Blume) Blume และช้างไห้ *Neesia malayana* Bakh. และ **สกุลพิศวง Paradombeya** มีชนิดเดียวคือ พิศวง *Paradombeya burmanica* Stapt. ทั้งหมดได้จัดทำรูปวิธานของสกุลและชนิดตามความจำเป็นเพื่อสะดวกแก่การใช้ไว้พร้อมนี้

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During the course of revision of the family Bombacaceae for the Flora of Thailand it was found that there were 5 indigenous genera, 13 species and 1 varieties including one exotic genus and two exotic species. These are *Bombax* L., including *Bombax ceiba* L., *B. insigne* Wall. ex Kurz, *B. anceps* Pierre and *B. anceps* Pierre var. *cambodiense* (Pierre) Robyns.; *Ceiba* Mill., with only one introduce species, *Ceiba pentandra* (L.) Gaertn.; *Durio* Adan., including *Durio mansoni* (Gamble) Bakh., *D. graveolens* Becc., *D. lowianus* Scort. ex King, *D. griffithii* (Mast.) Bakh. and one exotic *D. zibethinus* Murr.; *Neesia* Blume, including *N. altissima* (Blume) Blume and *N. malayana* Bakh.; *Paradombeya* Stapf., with one species, *Paradombeya burmanica* Stapf. The taxonomic keys to genera and species are prorided.

BOMBACACEAE

Deciduous trees or shrubs. Leaves simple or digitately compound, alternate or spirally arranged. Stipules mostly caducous. Inflorescence solitary or cymose. *Flowers* bisexual, often large, 5 merous, regular; often with epicalyx. Stamens 5 or more, free or united into a bundle or tube, anthers basifixed or dorsifixed, 1–2 locular, opening length-wise; staminodes usually present. Ovary superior, 2–5 locular; locule 2(-many); style simple, lobed or flatted. *Fruit* a capsule, dehiscent, many seeds.

A family of 20 genera and about 180 species widely distributed in the tropical, with 5 genera including an exotic genera, and 13 species indigenous to Thailand.

KEY TO THE GENERA

1. Leaves simple
   2. Calyx free 5-merous, free, without epicalyx. Capsule ovoid, depressed at the top. Straggling shrub. **1. Paradombeya**
   2. Calyx monophyllus, with epicalyx before anthesis. Capsule ovoid or ellipsoid, not depressed at the top. Tree.
      3. Stamens forming a staminal-tube then devided to 5-bundles. Ovary hairy. Capsule with 5-angular and without spines **2. Neesia**
      3. Stamens with 5 freely bundles. Ovary with lepidotes. Capsule without angle but densely spiny **3. Durio**

1. Leaves digitate
   4. Stamens 5(–6). Capsule smooth with 5 longitudinal groves **4. Ceiba**
   4. Stamens numerous (not less than 50). Capsule smooth or with 5 longitudinal ridges **5. Bombax**

1. PARADOMBEYA

Stapf. in Hook. Ic. Pl. : t.2743 A.1902; Kou-mei, Fl. Reipub. Pop. Sin. 49. 2: 179. 1984.

Shrub. Leaves simple, alternate; stipules caducous. Flowers fasciculate, axillary. Calyx 5-merous, free. Corolla 5-merous, free. Stamens 15, in five groups. Staminodes 5. Ovary superior, 5-locular. Fruit a capsule.

A genus of about 5 species mainly in South Himalayan region; one species indigenous to Thailand.

Paradombeya burmanica Stapf. in Hook. Ic. Pl.: t. 2743 A.1902; Brandis, Ind. Trees: 702. 1906; Craib in Fl. Siam. En. 1: 178.1925. Figure 1.

T h a i l a n d.— NORTHERN: Chiang Mai (Doi Inthanon & Doi Chiangdao).

D i s t r i b u t i o n.— Burma (type).

E c o l o g y.— Scattered in savanna along the edge of evergreen forest; altitude 1000–2300 m. Flowering and fruiting during November-December.

N o t e.— This taxon is a rare species, and the sterile material is similar to *Pentapetes, Corchoropsis* and *Rinorea*, which often leads to misidenification.

2. NEESIA

Bl., Fl. Java 1: 7. 1828; Nov. Act. Nat Cur. 17: 83. 1835; Benth. & Hook. f., Gen. Pl. 1: 213. 1862; Mast. in Fl. Br. Ind. 1: 352. 1874; Ridl., Fl. Mal. Pen. 1: 265. 1922; Bakh., Bull. Jard. Bot. Buitenz. S.3.6.: 221. 1924; Furtado, Gard. Bull. S.S. 4: 421. 1929; Soepadmo, Reinwardtia 5. 4: 483. 1960.

Evergreen tree; young twigs stout, with stellate hairs, fimbriate scales, permanently leaf-scars. *Leaves* simple, spirally arranged; stipules extrapetiolar, caducous or persistent. *Flowers* in axillary cymse; buds conical or ovoid. *Epicalyx* before anthesis covering the bud. *Calyx* monophyllus, cone-shaped before anthesis, becoming disk-like after anthesis, lepidote outside, partly pubescent inside. *Corolla* 5, free petals, caducous. *Stamens* numerous, unequal, united at base forming a tube in 5 bundles, alternate with petals. *Ovary* ovoid, hairy, 5-locular; locule with many ovules, arranged in two ascending rows. *Fruit* a capsule, ovoid or ellipsoid, woody, 5-angular, loculicidally dehiscent.

A genus of about 8 species in tropical Asia; 2 species indigenous to Thailand.

KEY TO THE SPECIES

1. Flower bud ovoid or globose. Style conical, pilose; stigma capitellate	**1. N. altissima**
1. Flower buds conical. Style cylindrical, glabrous; stigma globose	**2. N. malayana**

1. Neesia altissima (BL.) Bl., Nov. Act. Caes. Leop. Car. 17(1a): 83. t.6. 1835; Bakh., Bull. Jard. Bot. Buitenz. S. 3. 6: 221. 1924; Furtado, Gard. Bull. S.S. 4: 424. 1929; Soepadmo, Reinwardtia 5. 4: 485. 1960.— *Esenbeckia altissima* Bl., Bijdr. Ned. Ind. 3 de Stuk.: 119. 1825. Figure 2.

T h a i l a n d.— PENINSULAR: Ranong, Surat Thani, Krabi, Yala.

D i s t r i b u t i o n.— Malay Peninsula, Indonesia (type).

E c o l o g y.— In tropical lowland forest; altitudes 50–300 m; Flowering in October-December; fruiting January-September.

V e r n a c u l a r.— Thurien-phee (ทุเรียนผี), Chang haek (ช้างแหก), Chang hae (ช้างแฮก) (Peninsular).

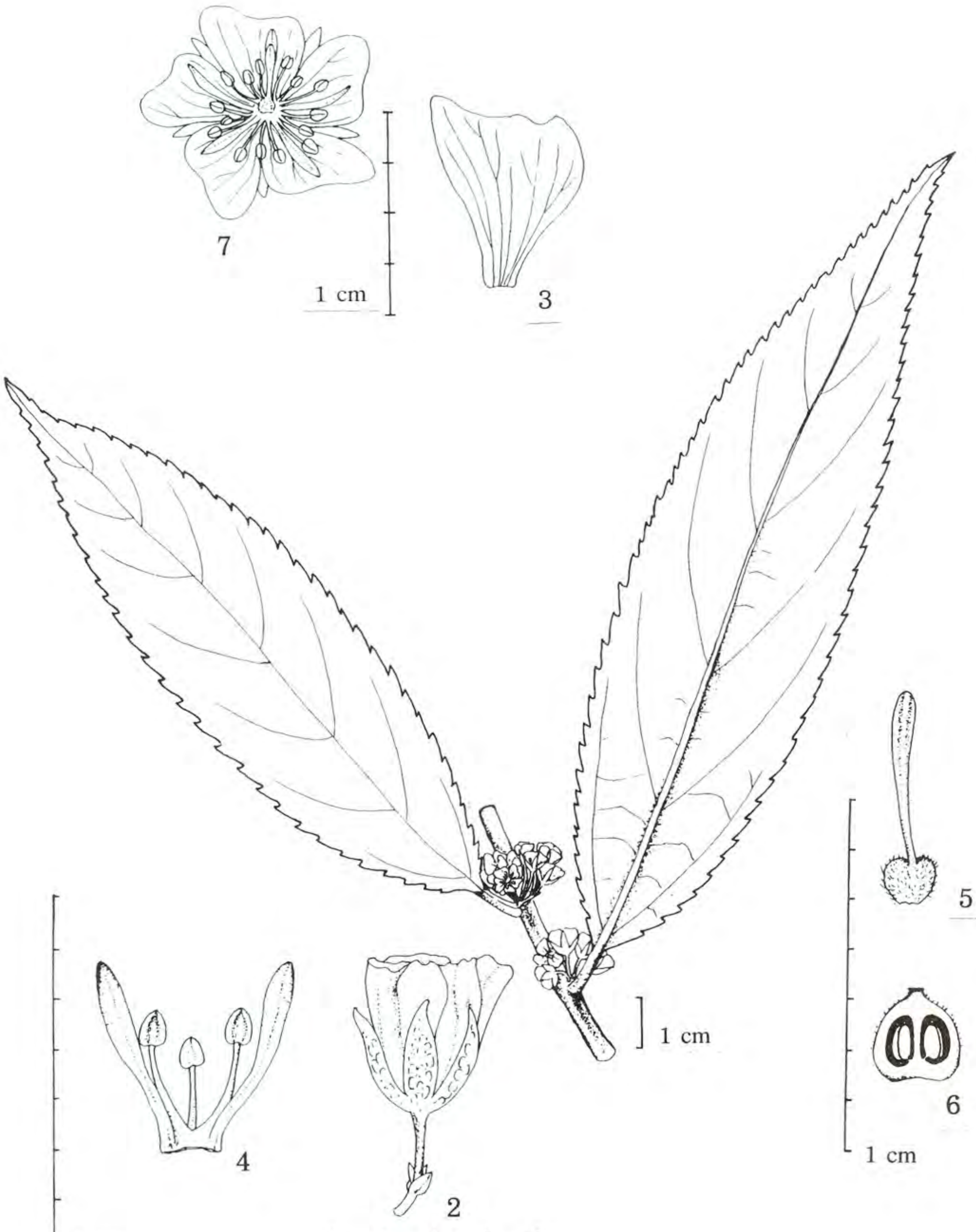


Figure 1. *Paradombeya burmanica* Stapf.: 1. Flowering branch; 2. Flower; 3. petal; 4 stamens and staminodes; 5. pistil; 6. longitudinal section of ovary; 7. flower diagram

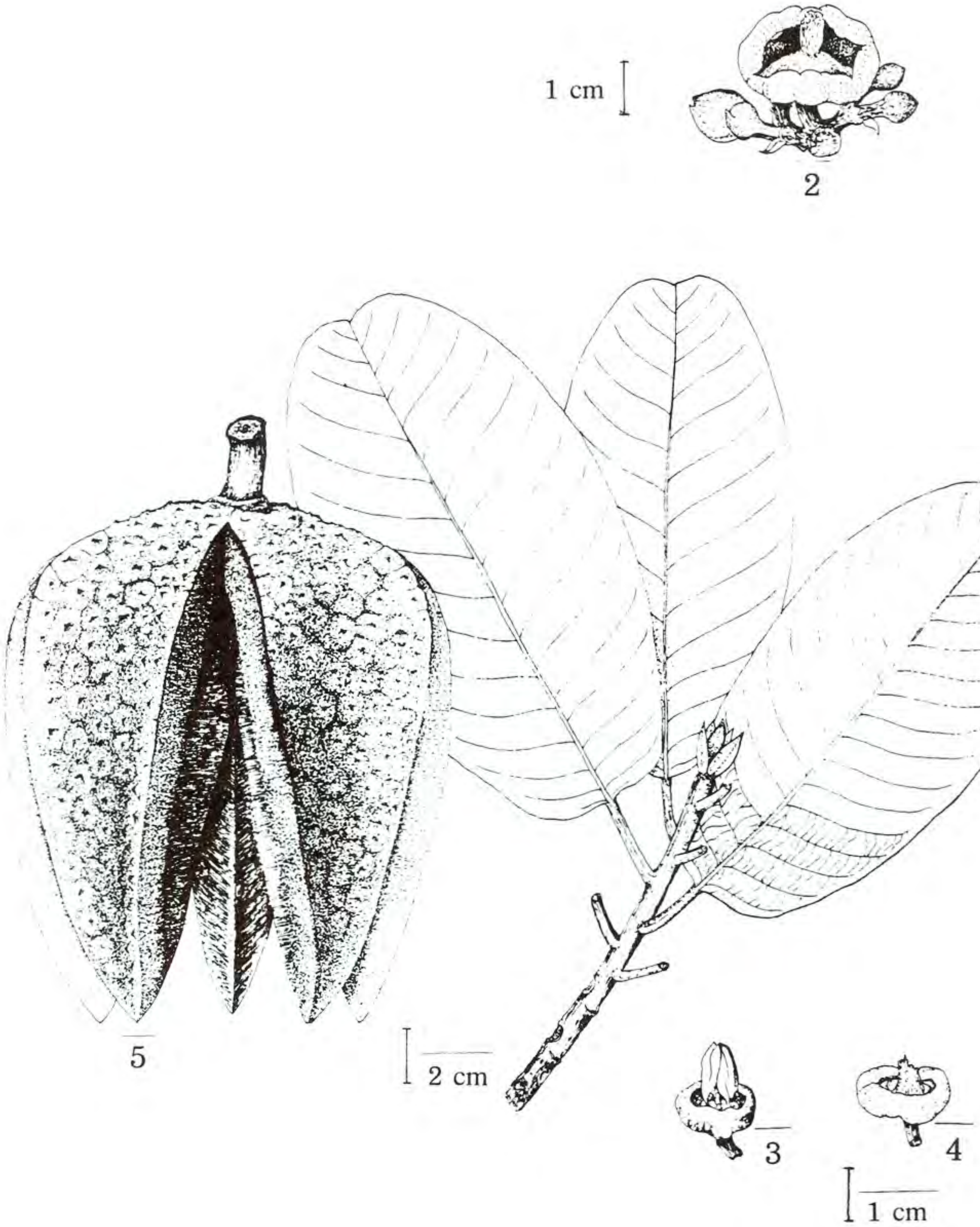


Figure 2. *Neesia altissima* (Bl.) Bl.: 1. Twig; 2. Inflorescence; 3–4. Flowers; 5. Fruit.

2. Neesia malayana Bakh., Bull. Jard. Bot. Buitenz. S. 3. 6: 221. 1924; Furtado, Gard. Bull. S.S. 4: 425. 1929; Soepadmo, Reinwardtia 5. 4: 491. Fig.8–9. 1960; Niyomdham, Fl. Peat Swamp. Narathiwat: 181. 1991. Figure 3.

T h a i l a n d.— PENINSULAR: Narathiwat.

D i s t r i b u t i o n.— Malay Peninsula (type), Indonesia.

E c o l o g y.— In swamp forest; altitude near sea-level; Flowering July-December; fruiting October-March.

V e r n a c u l a r.— Chang hai (ช้างไห้) (Peninsular).

3. DURIO

Adan., Fam. 2: 399. 1763; Benth. & Hook.f., Gen. Pl. 1: 213. 1862; Mast. in Fl. Br. Ind. 1: 350. 1874; Kurz, Fl. Burma 1: 131. 1877; Becc., Malesia 3: 219. 1889; Gagnep. in Fl. Gen. I.-C.1: 453. 1910; Ridl., Fl. Mal. Pen. 1: 261. 1922; Bakh., Bull. Jard. bot. Buitenz. S. 3. 6: 224. 1924; Wyatt-Smith, Kew Bull. 1953: 513; Kosterm., Reinwardtia 4. 3: 358. 1958.

Evergreen trees; young twigs slender, covering with yellow or brown lepidotes. *Leaves* simple, alternate, entire, lower surface with hairy and yellow lepidotes; stipules subulate, caducous. *Flowers* 5-merous, in cymes or solitary on old branches or axillary, buds globose, ovoid or ellipsoid. *Epicalyx* 2, not covering the bud before anthesis. *Calyx* monophyllus before anthesis, then disk-like after anthesis, lepidote outside, glabrous or hairy inside. *Corolla* free petals, hypogynous, caducous. *Stamens* numerous, united at base forming in 5 groups, each united or free, anthers unilocular, basifixed opened length-wise or apically poricidal. *Ovary* ovoid globose or ellipsoid, lepidote, 5-locular; each locule with 2-many ovules, anatropous. *Fruit* a capsule, globose to ellipsoid often sulcate, woody and spiny, dehiscent or indehiscent.

A genus of about 27 species in tropical Asia; 5 species indigenous to Thailand.

KEY TO THE SPECIES

1. Base of five groups of stamens united to a tube enclose the ovary and lower part of style. Fruit globose
   2. Petals spathulate; red, orange or pink; not less than 3 by 1 cm. Staminal tube not less than 4 cm long; anthers globose, dehiscent by an apical pore. Fruit in dehiscent, up to 7 cm diam, spine subulate **1. D. mansoni**
   2. Petals obovate; white; up to 2.5 by 1 cm; Staminal tube up to 1.2 cm; anther reniform-shaped, dehiscent by a slit. Fruit dehiscent, not less than 10 cm diam., spines pyramidal **2. D. graveolens**
1. Base of five groups of stamens free. Fruit ellipsoid or ovoid
   3. Inflorescences on old branches; petals spathulate, not less than 2 by 1 cm, outer part hairy; anther reniform, dehiscent by a slit. Fruit in dehiscent; seeds completely covered by aril.
      4. Petals white, not less than 3 cm long, erect; style protruding above the stamens; fruit with pyramidal spine **3. D. zibethinus**
      4. Petals red or pink, up to 2 cm long, reflexed; style not protruding above the stamens; fruit with slender spines **4. D. lowianus**
   3. Inflorescences axillary; petals linear, up to 10 by 1 mm, glabrous, yellowish-white; anthers globose, dehiscent by an apical pore. Fruit dehiscent, with pyramidal spine; seed covered by aril at base only **5. D. griffithii**

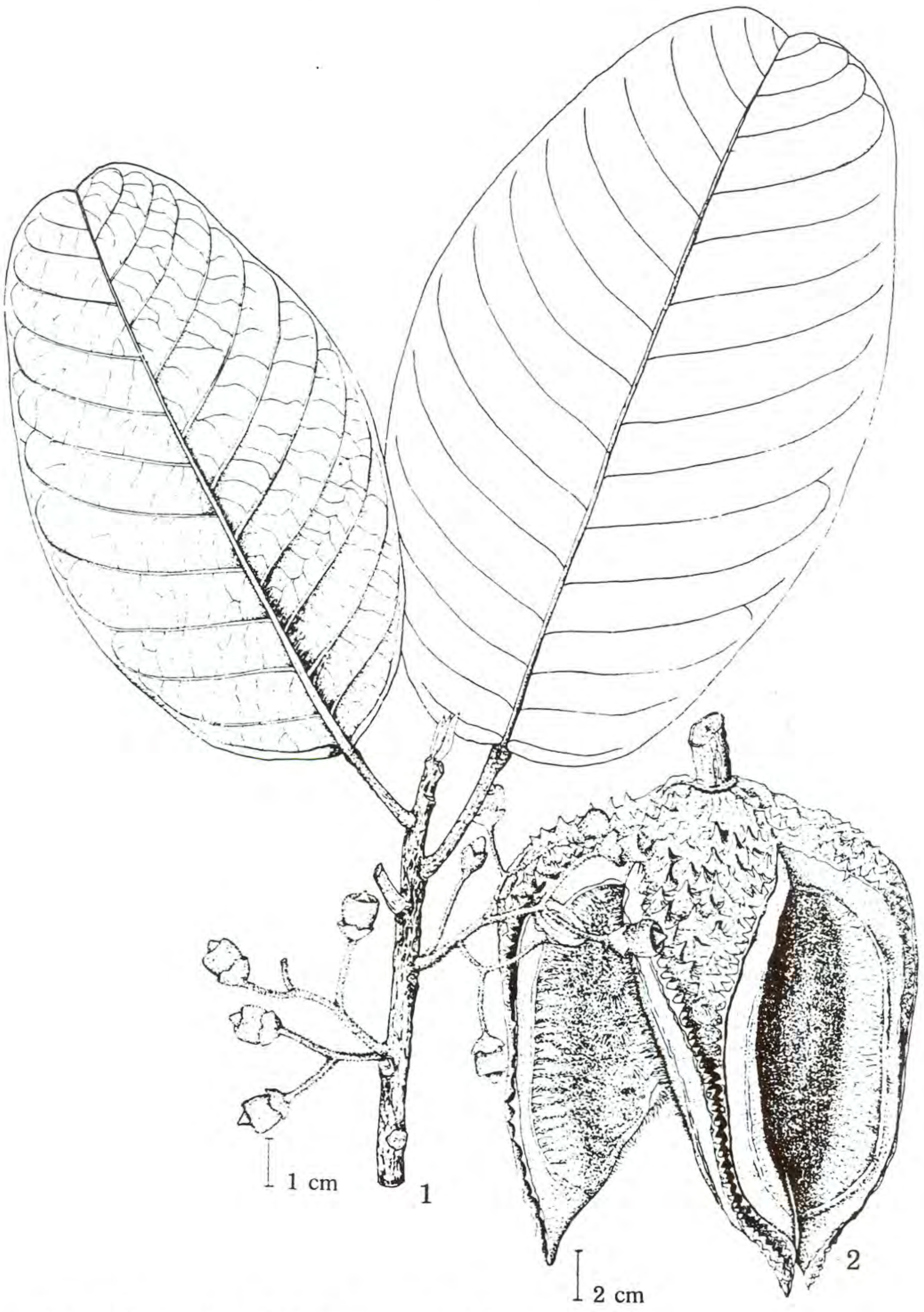


Figure 3. *Neesia malayana* Bakh.: 1. Flowering branch; 2. Fruit.

1. Durio mansoni (Gamble) Bakh., Bull. Jard. Bot. Buitenz. S. 3. 6: 228. 1924; Kosterm., Reinwardtia 4. 3: 54. 1958.— *Boschia mansoni* Gamble, Kew Bull. 1908: 44. Figure 4.

T h a i l a n d.— SOUTH-EASTERN: Chanthaburi; PENINSULAR: Ranong, Phangnga.

D i s t r i b u t i o n.— Burma (type).

E c o l o g y.— In evergreen forest; altitude 50–1000 m. Flowering and fruiting in February-April.

V e r n a c u l a r.— Thurian pa (ทุเรียนป่า), thurian thuean (ทุเรียนเถื่อน), rian nok (เรียนนก), Chakarian (ช้ากะเรียน) (Peninsular).

U s e s.— Seedling is used as the root-stock, for the cultivated *D. zibethinus*, wood is used for indoor woodwork.

2. Durio graveolens Becc., Malesia 3: 242. t.26. 1889; Wyatt-Smith, Kew Bull. 1953: 519; Kosterm., Reinwardtia 4. 3: 91. Fig. 26. 1958. Figure 5.

T h a i l a n d.— PENINSULAR: Yala

D i s t r i b u t i o n.— Malay Peninsula, Indonesia (type).

E c o l o g y.— In evergreen forest; altitude 50–300 m. Flowering and fruiting May-September.

V e r n a c u l a r.— Thurian lakkha (ทุเรียนลากขา) (Peninsular).

U s e s.— Seeds pulp are edible. Wood is used for indoor woodwork.

3. Durio zibethinus Murr., Syst. Nat. Veg.: 581. 1774; Mast. in Fl. Br. ind. 1: 351. 1874; Kurz, Fl. Burma 1: 132. 1877; Brandis, Ind. Trees: 78. 1907; Lec., Fl. Gén. I.-C. 1: 454. 1911; Ridl., Fl. Mal. Pen. 1: 261. 1922; Bakh., Bull. Jard. Bot. Buitenz. S. 3. 6: 229. 1924; Wyatt-Smith, Kew Bull. 1953: 530; Kosterm., Reinwardtia 4. 3: 72. 1958. Figure 6.

T h a i l a n d.— Cultivated in North, Central, South-East and Peninsula.

D i s t r i b u t i o n.— Cultivated mostly in South-East Asia. The wild one is perhaps indigenous to Sumatra and Borneo. (type not mention).

E c o l o g y.— Cultivated at low altitude, from sea-level up to 300 m. It was recorded that the fruits were not set above 1000 m altitude.

V e r n a c u l a r.— Thurian (ทุเรียน) (general), rien (เรียน) (Peninsular).

U s e s.— Seed pulp is a highly esteemed sweet fruit. Seeds are edible after cooked. Wood is used for interior woodwork and furniture.

4. Durio lowianus Scort ex King, J. As. Soc. Bengal 60. 2: 51. 1891;Ridl., Fl. Mal. Pen. 1: 263. 1922; Bakh., Bull. Jard. Bot. Buitenz. S. 3. 6: 231. 1924; Wyatt-Smith, Kew Bull. 1953: 522; Kosterm., Reinwardtia 4. 3: 78. 1958. Figure 7.

T h a i l a n d.— PENINSULAR: Ranong, Trang.

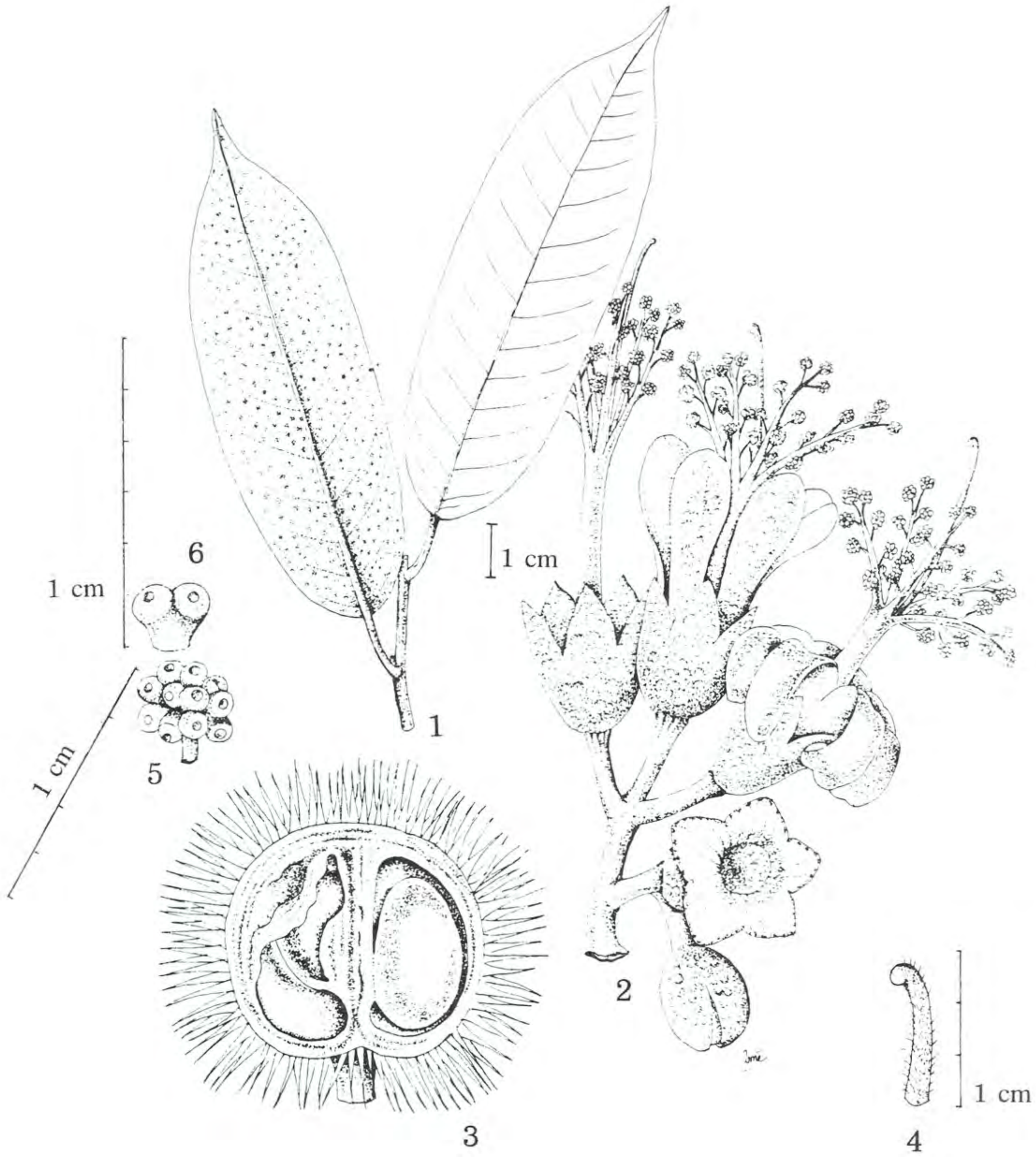


Figure 4. *Durio mansoni* (Gamble) Bakh.: 1. Twig; 2. Inflorescences; 3. Fruit (vertical side); 4. Style; 5. Group of anthers; 6. Anther.

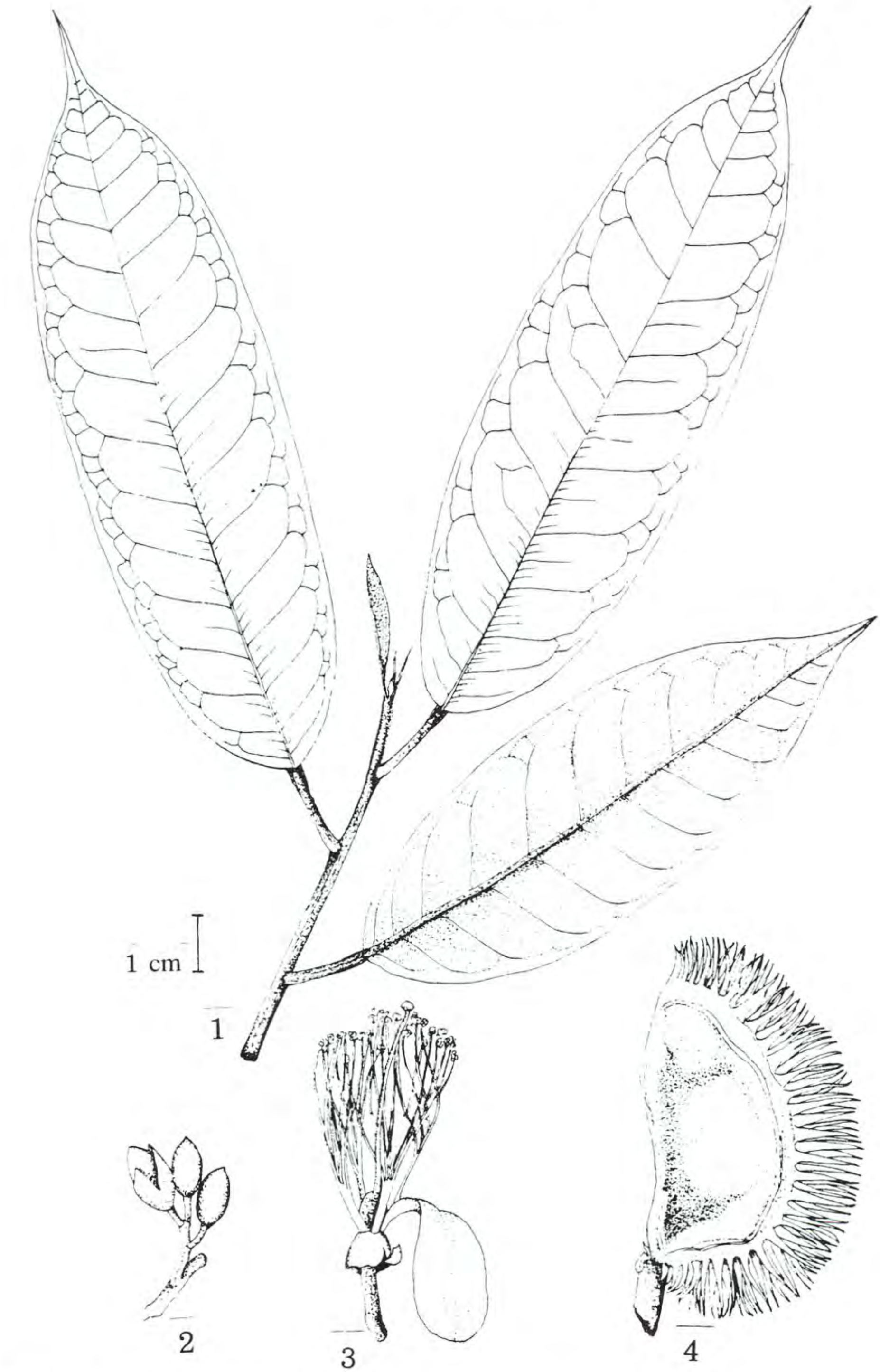


Figure 5. *Durio graveolens* Becc.: 1. Twig; 2. Inflorescence; 3. Flower; 4. a part of fruit.

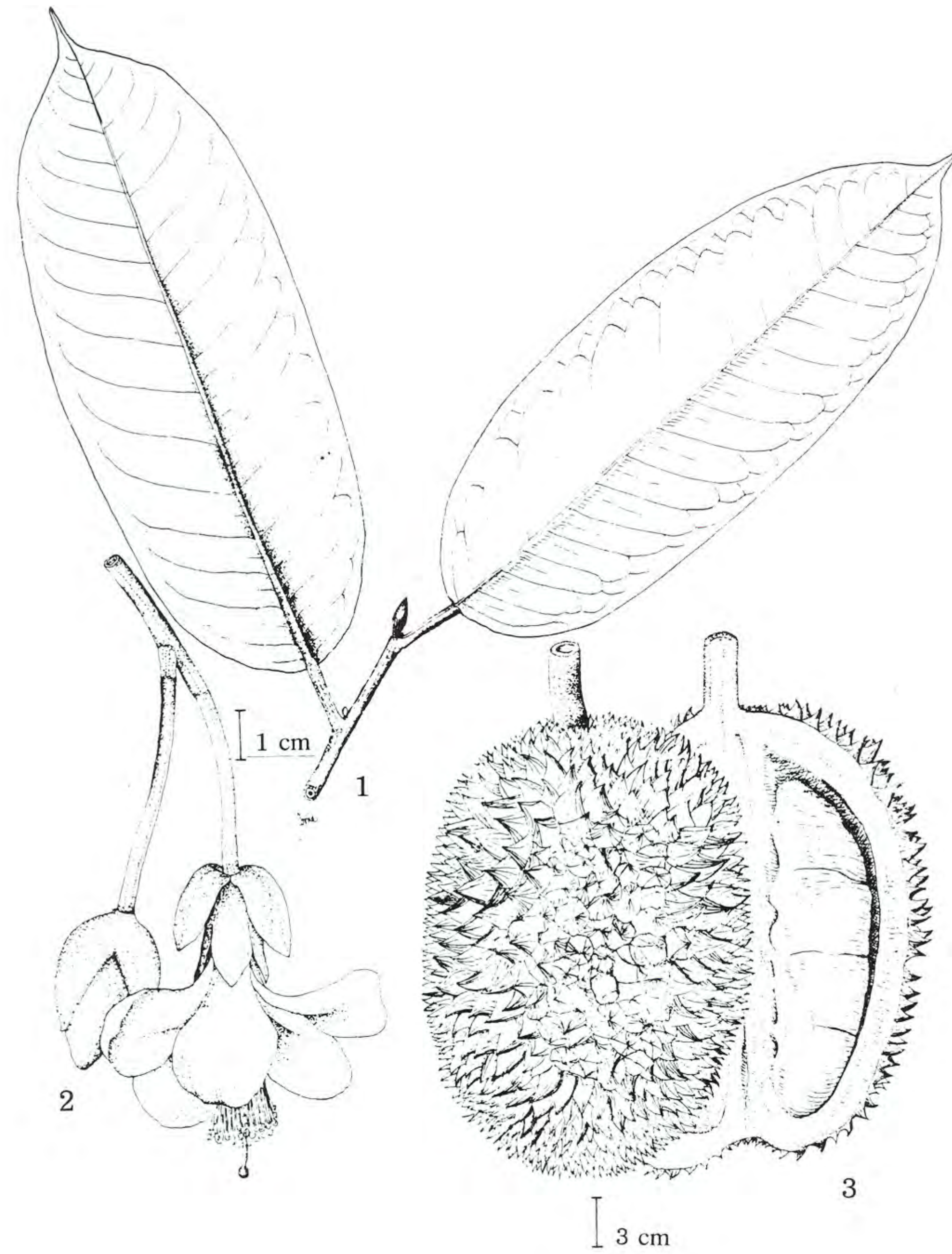


Figure 6. *Durio zibethinus* Murr.: 1. Twig; 2. Flowers; 3. Fruit.

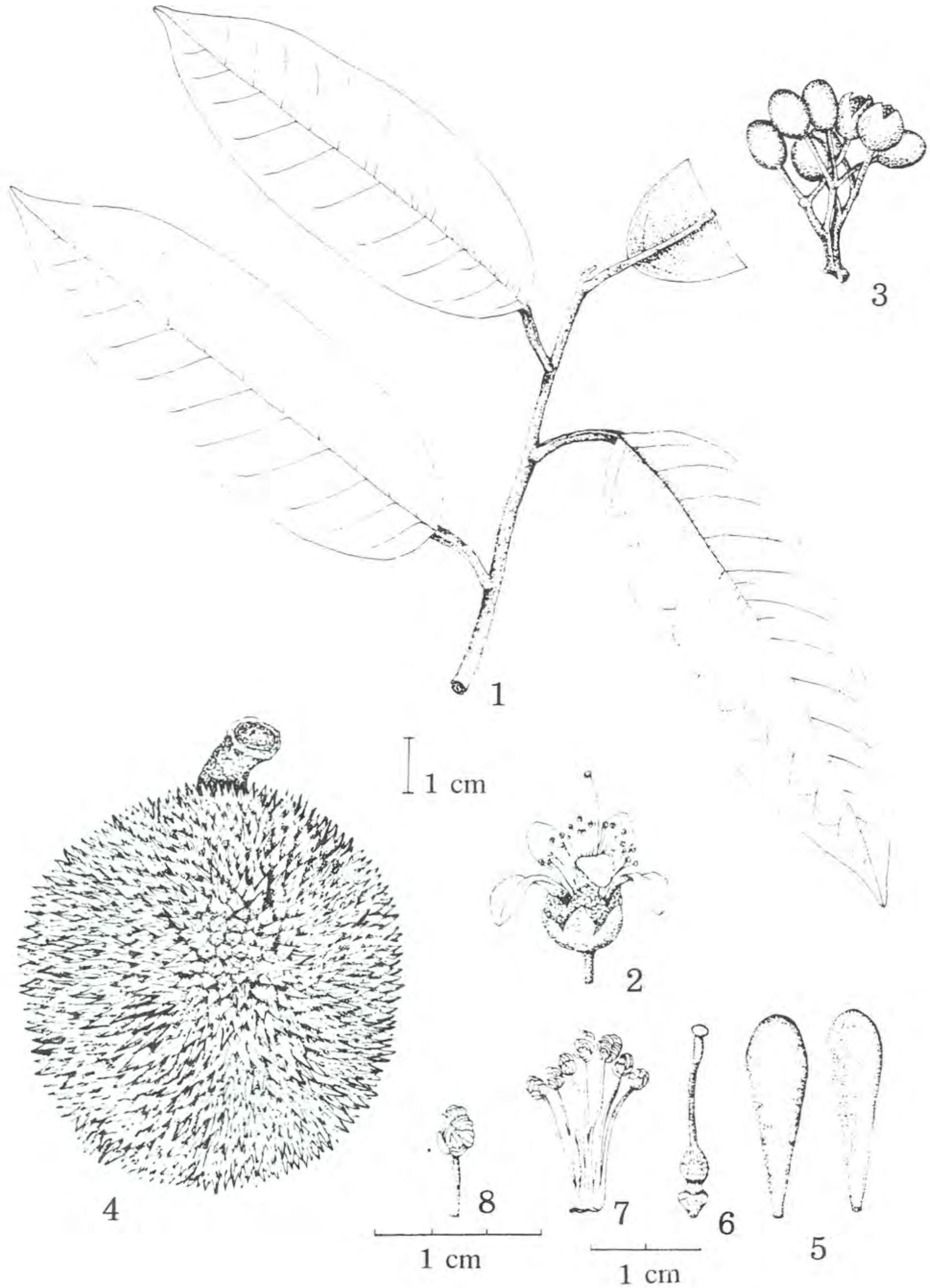


Figure 7. *Durio lowianus* Scort. ex King.: 1. Twig; 2. Flower; 3. Inflorescence; 4. Fruit; 5. Petals; 6. Pistil; 7–8. Stamens

D i s t r i b u t i o n.— Malay Peninsula (type), Indonesia.

E c o l o g y.— In evergreen forest; altitudes 50–100 m. Flowering and fruiting during March-August.

V e r n a c u l a r.— Thurian don (ทุเรียนดอน), Charian (ช้าเรียน), Thurian nok (ทุเรียนนก), Karian (กาเรียน) (Peninsular).

U s e s.— Seed aril is edible. Wood is used for indoor construction.

5. Durio griffithii (Mast.) Bakh., Bull. Jard. Bot. Buitenz. S. 3. 6: 227. 1924. pro parte; Waytt-Smith, Kew Bull. 1953: 520; Kosterm., Reinwardtia 4. 3: 61. 1958.— *Bochia griffithii* Mast. in Fl. Br. Ind. 1: 352. 1874; Ridl., Fl. Mal. Pen. 1: 265. 1922. Figure 8.

T h a i l a n d.— PENINSULAR: Trang, Yala.

D i s t r i b u t i o n.— Malay Peninsula (type), Indonesia.

E c o l o g y.— In evergreen forest; altitudes 150–300 m. Flowering and fruiting June-December.

V e r n a c u l a r.— Thurian nok (ทุเรียนนก) (Peninsular).

U s e s.— Wood is used for interior woodwork.

4. CEIBA

Mill., Gard. Dict. Abrid. ed. 4: 1754; in Adans. Fam. Pl. 2: 399. 1763; Medic., Geschlecht. Malv. Fam.: 15. 1787; Gaertn., Fruct. 2: 244. t.133. 1791; Bakh., Bull. Jard. Bot. Buitenz. S. 3. 6: 192. 1924.

Tree. *Leaves* digitately compound, spirally arranged; stipules caducous. *Flowers* 5-merous, hermaphrodite, tufted or solitary. Calyx cup-shaped. Corolla free, erect. Stamens 5(–6), united near base. Ovary superior, 5-locular. *Fruit* a capsule, woody, dehiscent into 5(–6) valves. Seeds many, covered with silky woolly cotton.

A genus of about 10 species mainly in tropical America, Africa to Asia (cultivated). One species is cultivated in Thailand.

Ceiba pentandra (L.) Gaertn, Fruct. 2: 244. t.133. 1791; Bakh., Bull. Jard. Bot. Buitenz. S. 3. 6: 194. 1924; Craib in Fl. Siam. Enu.1: 164. 1925; Kou-mei, Fl. Reipub. Pop. Sin. 49. 2: 109. Fig. 30. 1984.— *Bombax pentandrum* L., Sp. Pl. 1: 511. 1753.— *Eriodendron anfractuosum* DC., Prod. 1: 479. 1824; Mast. in Fl. Br. Ind. 1: 350. 1875; Brandis, Ind. Trees: 76. 1906; Gagnep. in Fl. Gen. I.-C. 1: 446. Fig. 42. 1910. Figure 9.

T h a i l a n d.— Cultivated through out the country.

D i s t r i b u t i o n.— India (type), cultivated in tropical South America, Africa and Asia.

E c o l o g y.— Mostly cultivated; altitudes 10–350 m. Flowering and fruiting January-March.

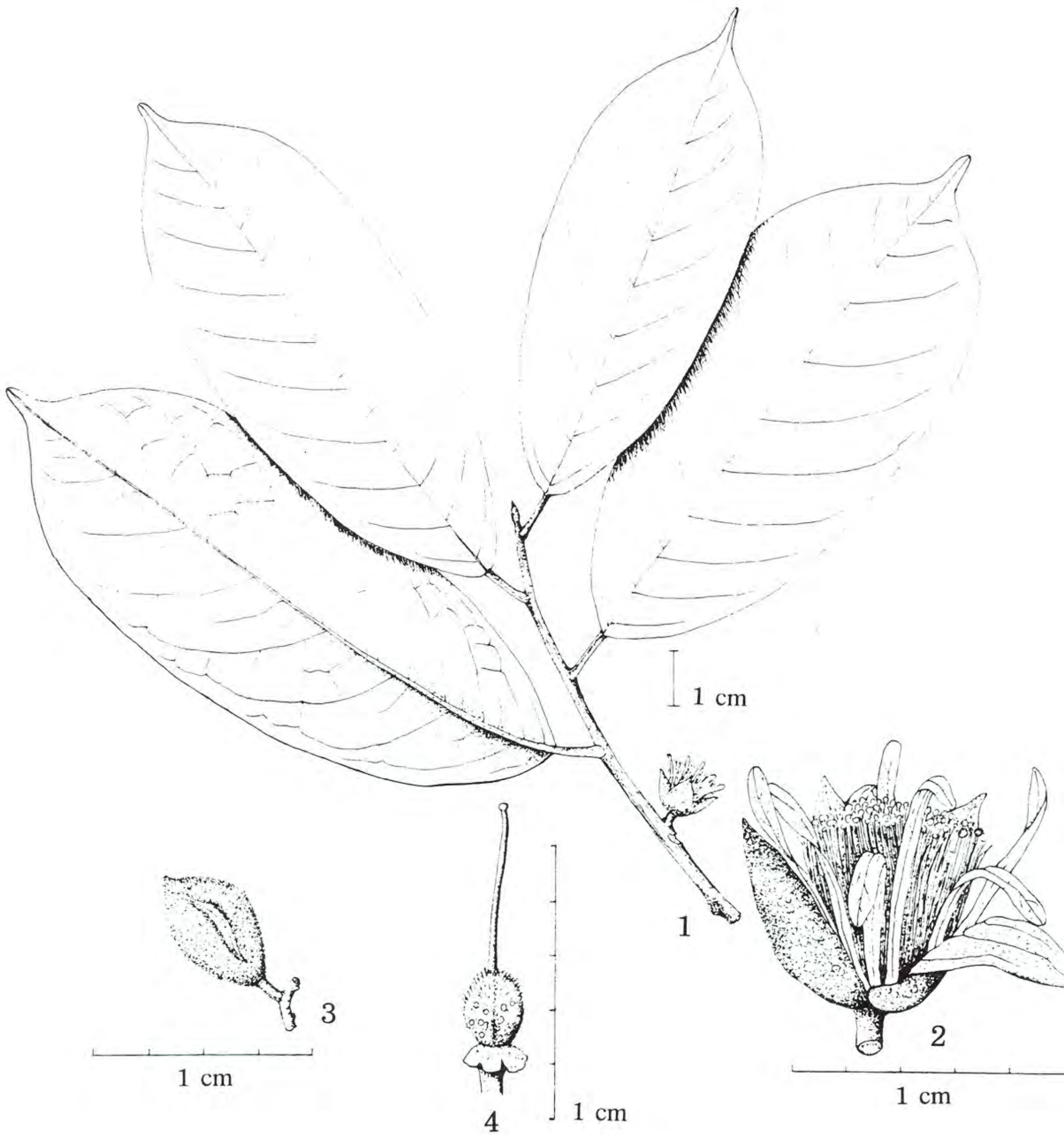


Figure 8. *Durio griffithii* (Mast.) Bakh.: 1. Twig; 2. Flower; 3. Young fruit; 4. Pistil.

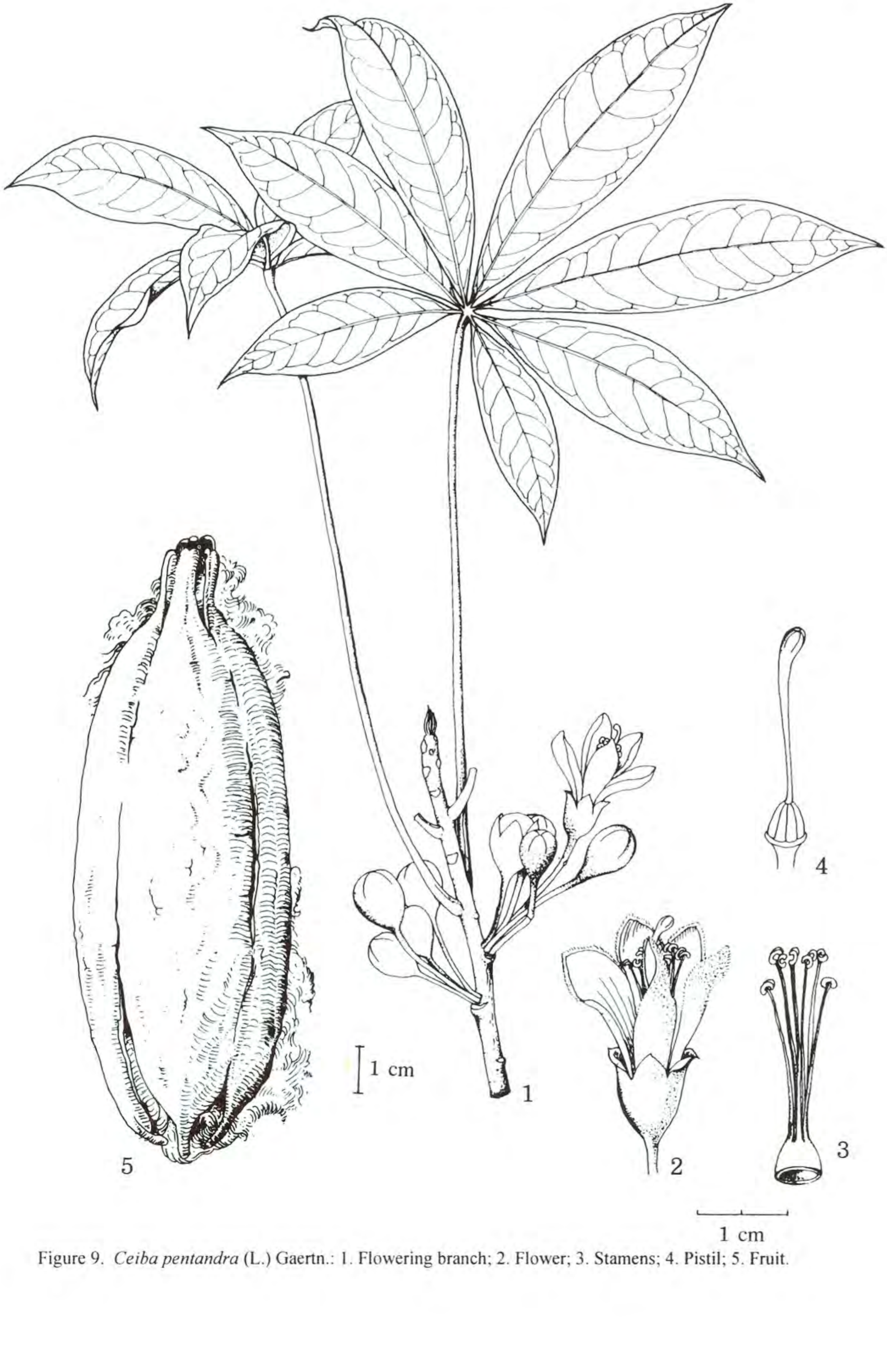


Figure 9. *Ceiba pentandra* (L.) Gaertn.: 1. Flowering branch; 2. Flower; 3. Stamens; 4. Pistil; 5. Fruit.

V e r n a c u l a r.— Nun (นุ่น), ngao (ง้าว), ngiu noi (งิ้วน้อย), ngiu soi (งิ้วสร้อย), ngiu sai (งิ้วสาย) (General & Northern).

U s e s.— The cotton is used for stufting mattresses and pillows. Young fruits and young flowers are consumed by local people. Wood is used for toy, boat and indoor furniture.

5. BOMBAX

L., Sp. Pl. 1: 511. 1753; Mast. in Fl. Br. Ind. 1: 349. 1874; Gagnep., Fl. Gén. I.-C. 1: 447. 1910; Ridl., Fl. Mal. Pen. 1: 260. 1922; Bakh., Bull. Jard. Bot. Buitenz. S. 3. 6: 174. 1924.

Deciduous tree, often thorny. *Leaves* digitately compound, spirally arranged; stipules caducous. *Flowers* 5-merous, hermaphrodite, solitary or tufted. *Calyx* tubular, campanulate or cup-shaped. *Corolla* free, erect or reflexed. *Stamens* numerous, 5–10 groups on a short staminal-tube. *Ovary* superior, ovoid, 5-locular; style filiform, stigmas 5. *Fruit* a capsule, woody, dehiscent into 5 valves. *Seeds* many, covered with silky woolly cotton.

KEY TO THE SPECIES

1. Stamens 10 groups; stigma spreading; calyx cup-shaped. Capsule with smooth or only 5 longitudinal grooves, straight **1. B. ceiba**
1. Stamens 5 groups; stigma cohering; calyx urceolate tubular or campanulate. Capsule with 5 longitudinal ridges, curved to one side
   2. Calyx urceolate to tubular; petals red or orange, glabrous except near base inside, recurved in anthesis **2. B. insigne**
   2. Calyx campanulate; petals white, sparsely hairy inside, strongly reflexed in anthesis **3. B. anceps**

1. Bombax ceiba L., Sp. Pl. 1: 511. 1753; Bakh., Bull. Jard. Bot. Buitenz. S. 3. 6: 181. 1924; Furtado, Gard. Bull. S.S. 10: 180. 1938; Smitinand, Thai Pl. Names: 50. 1980.— *B. malabaricum* DC., Prodr. 1: 479. 1824; Mast. in Fl. Br. Ind. 1: 349. 1874; Brandis, Ind. Trees: 77. 1906; Gagnep. in Fl. Gén. I.-C. 1: 448. 1910; Craib in Fl. Siam. En. 1: 164. 1925; Kou-mei, Fl. Reipub. Pop. sin. 49. 2: 106. 1984. Figure 10.

T h a i l a n d.— Cultivated for many purpose, spontaneous to all over the country.

D i s t r i b u t i o n.— Tropical America, Caraibeis (type), Tropical Eastern Himalaya to South-East Asia (cultivated for cotton)

E c o l o g y.— Mostly cultivated; altitudes 10–800 m. Flowering and fruiting during January-March

V e r n a c u l a r.— Ngiu (งิ้ว), Ngiu ban (งิ้วบ้าน), Ngia daeng (งิ้วแดง) (Southwestern); Ngiu pong (งิ้วปง), Ngiu pong daeng (งิ้วปงแดง) (Southeastern)

U s e s.— The cotton is used for stuffing mattresses and pillows. Young fruits and young flowers are consumed by local people. Wood is used for toy, dug out boat and indoor furniture.

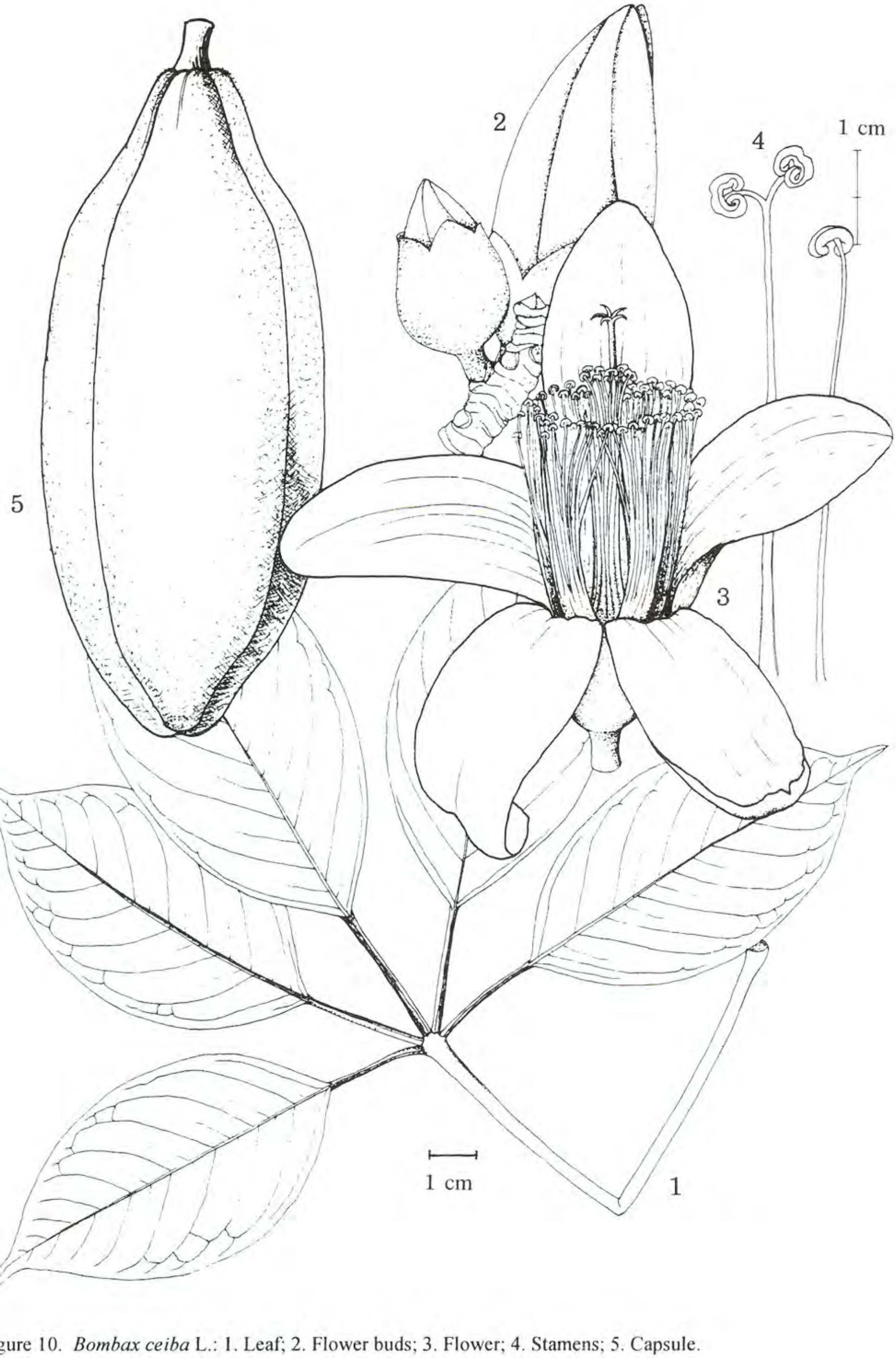


Figure 10. *Bombax ceiba* L.: 1. Leaf; 2. Flower buds; 3. Flower; 4. Stamens; 5. Capsule.

2. Bombax insigne Wall., Pl. Asiat. Rar. 1: 71. tab. 79. 1830; Kurz, J. As. Soc. Bengal: 61. 1873; Mast. in Fl. Br. Ind. 1: 349. 1874; Brandis, Ind. Trees: 77. 1906; Gagnep. in Fl. Gén. I.-C. 1: 448. 1910; Kou-mei, Fl. Reipub. Pop. Sin. 49. 2: 106. 1984.— *Salmalia insignis* (Wall.) Schott. et Endl., Melet. Bot.: 35. 1832.— *Bombax insulare* Ridl., Fl. Mast. Pen. 1: 260. 1922; Craib in Fl. Siam. Enu. 1: 163. 1925.— *Gossampinus insignis* (Wall.) Bakh., Bull. Jard. Bot. Buitenz. S. 3. 6: 190. 1924. Figure 11.

T h a i l a n d.— NORTHERN: Chiang Mai, Chiang Rai; NORTH-EASTERN: Udon Thani; SOUTH-WESTERN: Kanchanaburi.

D i s t r i b u t i o n.— India, Burma (type), South China, Laos.

E c o l o g y.— In mixed deciduous and dry dipterocarp forest; altitude 150–500 m. Flowering and fruiting during January-March.

V e r n a c u l a r.— Ngiu pa dok daeng (งิ้วป่าดอกแดง) (Northern).

U s e s.— The cotton is used for stuffing mattresses and pillows. Wood is used for toy and indoor furniture.

3. Bombax anceps Pierre, Fl. For. Cochinch.: t. 175. 1889; Gagnep. in Fl. Gén. I.-C. 1: 450. 1910; Brandis, Ind. Trees; 78: 1906.— *B. valetonii* Hochr, Bull. L'Inst. Bot. Buit. 19. 1: 15. 1904.— *B. kerrii* Craib, Kew Bull. 1915: 424; Craib in Fl. Siam. Enu. 1: 164. 1925.— *Gossampinus anceps* (Pierre) Bakh., Bull. Jard. Bot. Buitenz. S. 3. 6: 190. 1924.— *G. valetonii* (Hochr.) Bakh., l.c.: 191. 1924. Figure 12.

T h a i l a n d.— NORTHERN: Chiang Mai, Nan, Phrae, Uttaradit, Tak, Kamphaeng Phet; SOUTH-WESTERN: Kanchanaburi, Prachuap Khiri Khan; CENTRAL: Saraburi; SOUTH-EASTERN: Chanthaburi.

D i s t r i b u t i o n.— Cambodia (type), Malay Peninsula.

E c o l o g y.— In mixed deciduous and dry dipterocarp forest, often on lime-stone hill; altitude 100–900 m. Flowering and fruiting during November to February.

V e r n a c u l a r.— Ngiu pa dok khao (งิ้วป่าดอกขาว), Ngiu dok khao (งิ้วดอกขาว), Ngiu pha (งิ้วผา), Krai (ไกร) (Northern); Ngiu pha (งิ้วป่า) (Peninsular); Ngiu pha (งิ้วป่า) (Southwestern); Nun pha (นุ่นป่า) (Central).

U s e s.— The cotton is used for stuffing mattresses and pillows. Wood is used for toy and indoor furniture.

var. **cambodiense** (Pierre) Robyns; Smitinand, Thai Pl. Names: 50. 1980.

This variety is differed from the typica by its hairy along style and leaves especially on the lower surface and petiole.

T h a i l a n d.— NORTHERN: Tak.

D i s t r i b u t i o n.— Cambodia (type), Burma

E c o l o g y.— In mixed deciduous forest alt. 300–500 m.

V e r n a c u l a r.— Ngao (ง้าว), Ngao pha (ง้าวป่า) (Central); Ngin pha (งิ้วผา) (Northern).

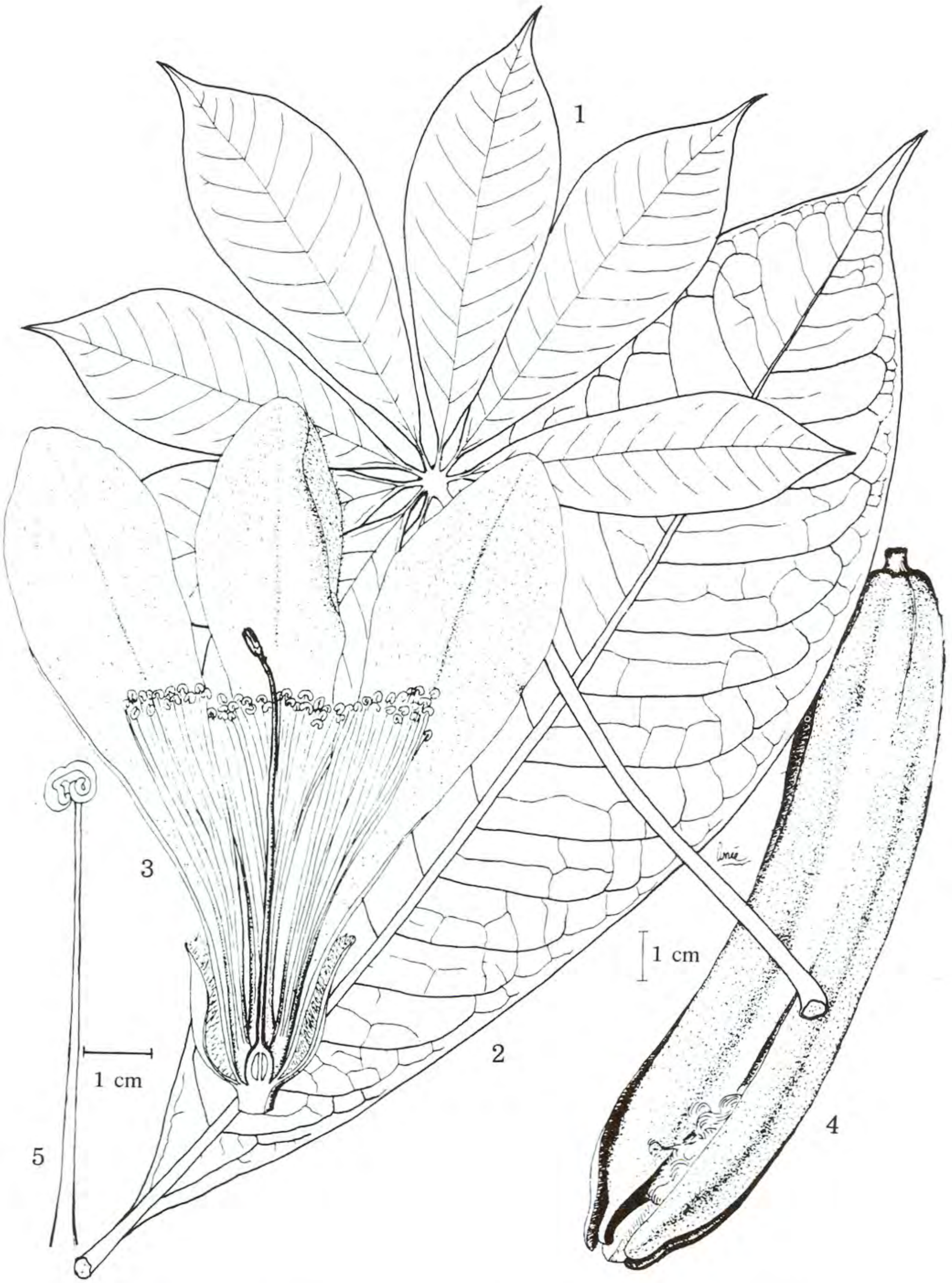


Figure 11. *Bombax insigne* Wall.: 1. Leaf; 2. Leaflet; 3. Cross section of flower; 4. Capsule; 5. Stamen.



Figure 12. *Bombax anceps* Pierre.: 1. Leaf; 2. Flower; 3. Capsule.

CODE OF GENERA & SPECIES NUMBERS

1. PARADOMBEYA
1.1 P. burmanica Stapf.
2. NEESIA
2.1 N. altissima (Bl.) Bl.
2.2 N. malayana Bakh.
3. DURIO
3.1 D. mansoni (Gamble) Bakh.
3.2 D. graveolens Becc.
3.3 D. zibethinus Murr.
3.4 D. lowianus Scort ex King
3.5 D. griffithii (Mast.) Bakh.
4. CEIBA
4.1 C. pentandra (L.) Gaertn.
5. BOMBAX
5.1 B. ceiba L.
5.2 B. insigne Wall. ex Kurz
5.3 B. anceps Pierre
5.3.1 B. anceps Pierre var. cambodiense (Pierre) Robyns

INDEX TO COLLECTOR'S NUMBERS

Beusekom C.F. et al. **3496:** 5.3 (BKF, C); **3638:** 5.2 (BKF); **4710:** 5.3 (BKF).

Bjoernland et al. **660**: 5.1 (C).

Bunchai K. 1596: 5.2 (BKF).

Garrett H.B.G. 1425: 1.1 (K).

Geesink R. et al. 7678: 3.1 (C, K); **8241:** 1.1 (C).

Hansen B. et al. **10882:** 1.1 (C, K); **11820:** 3.2 (BKF, C); **12650:** 1.1 (C)

Kerr A.F.G. 2927: 4.1 (K); **6532:** 1.1 (BK, C, K); **10012:** 3.3 (BK, K); **10012A:** 3.3 (BK, K); **10150A:** 5.3 (BK, C, K); **10151:** 5.2 (BK); **11421:** 5.3 (BK); **11664:** 2.1 (BK, K); **11762:** 3.1 (BK, K); **12161:** 2.1 (BK); **12161A:** 2.1 (BK, C, K); **14061:** 5.3 (BK); **16608:** 5.3 (BK); **17909:** 5.3 (BK); **17936:** 5.3 (BK); **18382:** 3.1 (BK, C, K); **19914:** 5.3 (BK).

Konta F. et al. **49086:** 5.1 (BKF).

Lakshanakara M.C. 765: 3.3 (K).

Larsen K. et al. **8993:** 5.2 (C); **9458:** 5.1 (C).

Marcan A. 212: 4.1 (K)

Maxwell J.F. 70–16: 3.3 (BK); **72–46:** 5.1 (AAU); **73–726:** 5.3 (BK); **74–33:** 5.1 (AAU); **74–291:** 5.3 (BK); **75–9:** 5.3 (AAU).

Murata G. et al. **T-17278:** 5.3 (BKF).

Nakkan D. 193: 3.3 (BKF); **205:** 3.3 (BKF).

Nim-a-nong B. Sn: 5.1 (BKF).

Niyomdham C. 637: 2.2 (C); **737:** 2.2 (C); **1395:** 3.3 (AAU); **1417:** 3.4 (BKF); **1934:** 2.2 (BKF).

Phengklai C. 1241: 2.1 (BKF); **9011:** 5.1 (BKF).

Pooma R. 16: 5.3 (BKF); **1033:** 5.2 (BKF).

Phuwadol K. Sn.: 3.1 (BKF); Sn: 3.4 (BKF).

Pinnin S. et al. **526:** 3.1 (BKF)

Pisuksantivatana Y. 1197–82: 3.1 (BK).

Premrasami T. 276: 3.3 (BKF).

Put 2097: 5.3 (BK); **2216:** 5.3 (BK).

Santisuk T. 22: 3.1 (BKF); **492:** 3.5 (BKF, C); **501:** 5.1 (BKF); **748:** 5.3 (BKF); **749:** 5.1 (BKF); **1442:** 5.3 (AAU).

Schmidt Johs. 113: 4.1 (C); **886:** 4.1 (C).

Shimizu T. et al. **T-27403:** 2.1 (BKF).

Smitinand T. 178: 4.1 (BKF); **5483:** 5.3 (BKF); **5484:** 5.1 (BKF); **7017:** 5.3 (BKF); **8864:** 5.3.1 (BKF); **10666:** 3.4 (BKF); **11446:** 5.3 (BKF); **11793:** 5.3 (BKF).

Soeja DD. 5906: 2.1 (BKF).

Sorensen Th. et al. **405:** 5.1 (C); **6654:** 5.1 (C); **6668:** 5.1 (C).

Suthison S. 3405: 3.4 (BK).

Thonanon N. 12: 2.1 (BKF).

Winit 91: 3.5 (BKF).

Wongprasert T. 87: 2.1 (BKF).

Youngboonkerd A. 44: 3.3 (BK); **551:** 3.2 (BK); **552:** 3.2 (BK); **624:** 3.1 (BK).