THAI FOR. BULL. 13 : 23–33. 1980.

# TACCACEAE

**Chamlong Phengklai***

Perennial herb with creeping or tuberous rhizome. Leaves rosulate entire or much-lobed with long petiole. Inflorescence in 4 or many umbels with involucral bracts. Flowers regular, bisexual, perianth funnel-shaped or globose with 6 persistent lobes. Stamens 6, epipetalous. Ovary inferior, 1-celled, 3 carpellary, apotropous with anatropous ovules; style single with 3 reflexed stigmata. Fruit indehiscent with many seeds.

A monogeneric family with 20 species mostly occurred in the tropics throughout the Old World, very rare in South America. In Thailand, sofar only 5 species have been recorded.

## TACCA

*Tacca*, J.R. & G. Forst., Char. Gen. Pl. : 35. 1775; Drenth, Blumea **20.** 2 : 367. 1972.— *Schizocapsa* Hance, J. Bot. **19** : 292. 1881.

### KEY TO SPECIES

1. Leaves entire, elliptic, oblong to lanceolate
   2. Leaf-base not attenuate along the petiole
      3. Involucral bracts not decussate, outer 2 opposite, inner 2 more or less in the axil of the outers — *T. integrifolia*
      3. Involucral bracts decussate — *T. chantrieri*
   2. Leaf-base attenuate along the petiole — *T. plantaginea*
1. Leaves distinctly shallow or deeply lobed
   4. Each lobe pinnately divided. Filiform bracts present — *T. leontopetaloides*
   4. Each lobe simple. Filiform bracts absent — *T. palmata*

**1. Tacca integrifolia** Ker-Gawl, Bot. Mag. **35** : t. 1488. 1812; Hook.f., Fl. Br. Ind. **6** : 287. 1892. Drenth, Blumea **20** (2) : 388. 1972; in Fl. Males. I. **7** : 811. 1976.—*T. cristata* Jack, Mal. Misc. **1** (5) : 23. 1821; Hook. f., Fl. Br. Ind. **6**: 287. 1892; Ridl., Fl. Mal. Pen. **4** : 310. 1924.— *T. aspera* Roxb., Fl. Ind. ed. Carey **2** : 169. 1832.—*T. laevis* Roxb., Fl. Ind. ed. Carey **2** : 171. 1832; Hook. f.,

*Forest Herbarium, Royal Forest Department, Bangkok 9, Thailand.

Fl. Br. Ind. **6** : 288. 1892; Gagnep., in Fl. Gén. I.-C. **6** : 695. 1934; Smitinand, Nat. Hist. Bull. Siam. Soc. **20** : 60. 1961.— *T. lancaefolia* Zoll. & Mor, Mor. Syst. Verz. : 91. 1846.— *T. chantrieri* ( non André ) Ridl., Fl. Mal. Pen. **4** : 309. 1924. — Figure 9.

*Herb* with cylindrical rhizome. *Leaves* rosulate, 3–12 together, oblong to lanceolate, 20–60 by 7–17 cm; base oblique, not attenuate along petiole; apex acuminate to cuspidate; secondary nerves 8–10 pairs; petiole including sheath 20–50 cm long. *Inflorescence* 1–4, up to 60 cm long, each 6 ( 30 ) - flowered. *Involucral bracts* 2 pairs, greenish-white to dark purple, not decussate, sessile; outer pair opposite, elliptic to lanceolate, 1.5–14 by 0.5–7 cm; inner pair inserted more or less in axils of outer bracts, ( ob- ) lanceolate or spatulate, 2.5–22 by 1–11 cm. *Filiform bracts* 5–25, white or greenish-yellow, 10–20 cm long. *Flowers* 1.5–3 by 0.5–3 cm in anthesis, greenish to dark purple. *Perianth* 6; 3 outers elliptic or oblong, 6–15 by 4–10 mm; 3 inners ovate or obovate, 5–15 by 5–16 mm. *Stamens* greenish-yellow, free. *Ovary* 3–15 by 2–7 mm. *Pedicel* 2–4 cm long. *Fruit* slightly 6-angled, 2.5–5 by 1–2.5 cm; perianth persistent; seeds concave, 3.5–6 by 1.3–5 mm and 1–2 mm thick.

Thailand.— NORTHERN : Chiang Mai, Doi Suthep, *Kerr 1168, 1168A, 3482* ( BK, BM ), *Noi s.n.* ( BK ). PENINSULAR : Chumphon, Langsuan, *Put 1614* ( BK,BM ), *Smitinand 10638* (BKF). Ranong, Pak Chan, *Kerr 11672* (BK, BM ). Surat Thani, *Kerr 14615* ( BK,BM ). Nakhon Si Thammarat, Khiriwong, Thap Chang, *Smitinand 808* ( BKF ). Trang, Khao Chong, *Kerr 15182* ( BK,BM ), Palian, *Kerr 19089* ( BK,BM ). Narathiwat, Chatwarin, *Smitinand 10970* ( BKF, K,L ). Pattani, Bacho, *Kerr 7223, 10084* ( BK,BM ); Pattani, *Kerr 7348* ( BK,BM ), Bukit, *Put 3613* ( BK, BM ). Phatthalung, Ban Khram, *Kerr 15298* ( BK, BM).

Distribution.— China, India ( type ), Bangladesh, Burma, Laos, Malay Peninsula, Indonesia.

Ecology.— In evergreen forest, altitudes 10–100 m. Flowering and fruiting February–August.

Vernacular.— Maan phlaen ม่านแผลน, Waan phangphon ว่านพังพอน, Nilaphusee นิลพุสี, Ruesee lom ฤษีลม, Maa thonlak ม้าถอนหลัก ( Peninsular ).

Uses.— Rhizome are used medicinally.

2. **Tacca chantrieri** André, Rev. Hort. **73** : 541. 1901; Drenth, Blumea **20** : 393. 1972; in Fl. Males. I. 7 : 813. 1976.— *T. macrantha* Limpr., Inaug. Diss. Breslau : 45. 1902.— *T. vespertilio* Ridl., J. Str. Br. R. As. Soc. **49** : 46. 1907.— *T. minor* Ridl., Mat. Fl. Mal. Pen. **2** : 78. 1907; Fl. Mal. Pen. **4** : 311. 1924.




Figure 9. *Tacca integrifolia* Ker–Gawl

—*T. garrettii* Craib, Kew Bull. 1912 : 406.— *Schizocapsa breviscapa Limpr.*, Pflanzenr. **92** : 11. 1928; Gagnep, in Fl. Gén. I.-C. **6** : 693. 1934.— *Tacca paxiana* Limpr., Pflanzenr. **92** : 16. 1928; Gagnep. in Fl. Gén. I.-C. **6** : 694. 1934.—*T. roxburghii* Limpr., Pflanzenr. **92**: 18. 1928; Smitinand, Nat. Hist. Bull. Siam. Soc. **20** : 61. 1961.— Figure 10.

*Herb* with cylindrical rhizome. *Leaves* rosulate, 3–12 together, elliptic oblong to lanceolate, 25–60 by 6–18 cm, glabrous; base slightly acute, more or less oblique, not attenuate along the petiole; apex acuminate to cuspidate, secondary nerves 8–10 pairs; petiole including sheath 15–30 cm long. *Inflorescence* 1–2, up to 70 cm long, each 4–6 ( 25 ) - flowered. *Involucral bracts* 2 pairs, green to dark purple, decussate, sessile; outer pair ovate or lanceolate, ± 6 by 1 cm; inner pair ovate or obovate, varying in size, 7–17 by 4–8 cm. *Filiform bracts* 6–25, greenish purple, 10–25 cm long. *Flowers* 1–2.5 by 0.6–2 cm in anthesis, greenish to dark purple. *Perianth* 6; 3 outers ovate or triangular, 5–12 by 3–8 mm; 3 inners 4–11 by 4–12 mm. *Stamens* greenish-yellow, free. *Ovary* 2–7 by 3–5 mm. *Pedicel* 2–3.5 cm long. *Fruit* triangular oblong, 1.5–3 by 1–2 cm, each side has an undulate, longitudinal ridge; perianth persistent; seeds reniform, 3–4 by 2–2.3 mm, and 1–1.5 mm thick.

Thailand.— NORTHERN : Chiang Mai, Doi Inthanon, *Garrett 45* ( BKF ); Doi Suthep, *Phengnaren 221* (BKF), *Singhasathit 197* (BKF), *Soerensen, Larsen & Hansen 4622, 5491* ( BKF,C ); Doi Chiang Dao, *Smitinand & St. John 6819* ( BKF ), *Suvanakoses 939, 939A* ( BKF ); Wang Tao, *Soerensen, Larsen & Hansen 2963* ( BKF,C ). Lampang, Ngao, *Sangkhachand 24* ( BKF ). Phrae, Huay Hom, *Chantanamuk 47* ( AAU,BKF ). NORTH-EASTERN : Phetchabun, *Smitinand & Suvanakoses 474* ( BKF ). Loei, Chiang Kham, *Pinnin 297* ( BKF ). Khon Kaen, Dong Lan, *Soerensen, Larsen & Hansen 6125* (BKF,C). EASTERN : Nakhon Ratchasima, Khao Yai National Park, *Phengklai 641* ( BKF ). CENTRAL : Saraburi, *Marcan 818* ( BM ). SOUTH-EASTERN : Chon Buri, *Marcan 205* ( BM ); Sriracha, *Maxwell 75-672* ( BK ). Chanthaburi, Pong Nam Ron, *Smitinand 3450* ( BKF ); Makham, *Lakshnakara 562* ( BK ), *Maxwell 73-396* ( BK ); Khao Sabap, *Put 932* ( BK,BKF ), *Kerr 18038* ( BM ). Trat, Khlong Madua, *Smitinand 1342* ( BKF ); Khlong Sam, *Kerr 9325* ( BK ). SOUTH-WESTERN : Kanchanaburi, Sangkhla Buri, Pompe, *Beusekom & Phengklai 94* ( BKF,L ); Erawan National Park, *Beusekom et al. 3888* ( BKF,L ); Sai Yok, *Larsen 10424* ( AAU, BKF ), *Phengklai 219* (BKF ). PENINSULAR : Chumphon, Thasae, *Jarey 85* ( BK ). Surat Thani, Bang Bao, *Smitinand 3789* (BKF); Samui, *Put 1284* (BK,BM). Nakhon Si Thammarat, Khiriwong, *Smitinand 709, 786* ( BKF ); *Smith 693* ( BK ), *Suvanakoses 1850* ( BKF ). Yala, Bannang Sata, *Suvanakoses 1742* ( BKF ). Narathiwat, Sungai Padi, *Charoenphol, Larsen & Warncke 3997* ( AAU,BKF,C ).




Figure 10. *Tacca chantrieri* André

Distribution.— South China, India, Bangladesh, Burma, Laos, Vietnam, Malay Peninsula ( type ), Singapore.

Ecology.— In evergreen forest, altitudes 50–1,000 m. Flowering and fruiting all year round.

Vernacular.— Dee nguu waa ดีงูหว้า, Niam ruesee เนียมฤษี (Northern); Khlumlia, คลุ้มเลีย, Waan hualaa ว่านหัวพา, Dee plaa chon ดีปลาช่อน ( South-eastern ); Nilaphuusee thai นิลพูสีไทย, Mangkon dam มังกรดำ ( Central ); Klaa-di klaa-muu-yee กลาดีกลามุยี, Nilaphuusee นิลพูสี, Maa thonlak ม้าถอนหลัก, Waan phangphon ว่านพังพอน ( Peninsular ).

Uses.— Young leaves and young inflorescence are eaten as vegetable after cooking. The bitter rhizomes are used for medicinal purpose.

3. **Tacca plantaginea** ( Hance ) Drenth, Blumea **20** : 391. 1972.— *Schizocapsa plantaginea* Hance, J. Bot. **19** : 292. 1881; Smitinand, Nat. Hist. Bull. Siam Soc. **20** : 61. 1961.—Figure 11.

*Herb* with cylindrical rhizome. *Leaves* rosulate, 3–8 together, lanceolate, 10–35 by 3–8 cm, base cuneate, attenuate along petiole; apex acuminate; secondary nerves 3–5 pairs; petiole including sheath 8–30 cm long. *Inflorescence* 1–6, up to 25 cm long, each 6–20-flowered. *Involucral bracts* 2 pairs decussate, sessile; outer pair ovate, 1–3 by 0.5–2 cm; inner pair ovate, 0.5–2.5 by 0.3–1 cm. *Filiform bracts* 6–20, up to 8 cm long. *Flowers* 1–2 by 0.5–1 cm in anthesis, greenish-white to brownish or dark purple. *Perianth* 6 ; 3 outers ovate or triangular, 5–11 by 2–5 mm; 3 inners broadly ovate, 4–5 by 4–5 mm. *Stamens* greenish, free. *Ovary* 3–6 by 4–7 mm. *Pedicel* 1.5–3 cm long. *Fruit* triangular, funnel-shaped, ± 1 by 0.7 cm, perianth persisted; seeds oblong-ovoid, 2–2.5 by 0.6–1 mm and ± 5 mm thick.

Thailand.— NORTHERN : Phitsanulok, Nakhon Thai, *Kerr 8891* ( BK,BM ). Tak, *Kerr 6151* ( BK,BM ). NORTH-EASTERN, Phetchabun, Nam Nao, *Smitinand 530* ( BKF ). CENTRAL : Saraburi, Muak Lek, *Marcan 801, 1847* ( BK,BM ). SOUTH-WESTERN : Kanchanaburi, Sai Yok, *Larsen 10352* ( AAU,BKF).

Distribution.— South China ( type ), Vietnam, Laos.

Ecology.— In dry evergreen and mixed deciduous forest, altitude 100–600 m, usually along streams. Flowering & fruiting May–September.

Vernacular.— Phak khee paa ผักคี้ปา ( North-eastern ); Nuat suea หนวดเสือ ( Central ).

4. **Tacca leontopetaloides** ( Linn. ) O. Ktze, Rev. Gen. Pl. **2** : 704. 1891; Drenth, Blumea **20**. **2** : 375. 1972; in Fl. Males. I. 7 : 809. 1976.— *Leontice leontopetaloides* Linn., Sp. Pl. **1** : 313. 1753.— *Tacca pinnatifida* J.R. & G. Forst., Char. Gen. Pl. : 35. t. 35. 1775; Hook.f., Fl. Br. Ind. **6** : 287. 1892; Ridl. Fl. Mal. Pen. **4** : 309. 1924; Gagnep., in Fl. Gén. I.-C. **6** : 697. 1934.—




Figure 11. *Tacca plantaginea* (Hance) Drenth
A.–B. Leaves, C. Inflorescent, D. Fruit

*T. viridis* Hemsl., Hook., Ic. Pl. IV. **6** : t. 2515, 2516. 1899; Ridl., Mat. Fl. Mal. Pen. **2** : 78. 1907; Gagnep. in Fl. Gén. I.-C. **6** : 697. 1934.—Figure 12.

*Herb* with starchy tuber, *Leaves* 1–3, palmately 3-sect, each of the 3 segments pinnately lobed to dissected, up to 70 by 120 cm; petiole including sheath 20–170 cm long. *Inflorescence* 1 or 2, up to 170 cm long, each 20–40-flowered. *Involucral bracts* 4–10, dark green, sessile; 2 (–4) outer ones sessile, (ob-) lanceolate, oblong or lanceolate, 2.5–10 by 1.2–3.5 cm; 2–7 (–10) inner ones more or less similar in shape to the outers, 2.5–10 by 0.7–5 cm. *Filiform bracts* 20–40, dark purple or blackish-brown, 10–25 cm long. *Flowers* 6–17 by 6–13 mm in anthesis, yellowish-green or blackish-purplish green. *Perianth* 6 ; 3 outers elliptic or lanceolate, 4–7 by 2–3 mm; 3 inners ovate or oblong, 5–7.5 by 2.5–5 mm. *Stamens* white or dull yellow to brown or purple, free. *Ovary* 2–5 by 2–4 mm. *Pedicels* 2.5–6 cm long. *Fruit* globose, 1.5–2.5 cm in diam; seeds ovoid to ellipsoid, 5–8 by 3–5 mm and 1.5–3 mm thick.

Thailand.— NORTH-EASTERN : Nong Khai, Phon Phisai, *Chantanamuk 564* ( BK ). EASTERN : Nakhon Ratchasima, Phimai, *Smitinand 4819* ( BKF, C,K ). Si Sa Ket, *Kerr 4137* ( BM ). CENTRAL : Bangkok, *Kerr s.n.* ( BM ), *Marcan 2137* ( BM ). Saraburi, Samlan *Maxwell 73-542* ( BK ). SOUTH-EASTERN : Prachin Buri, Aranyaprathet, *Kerr 19589* ( BK,BM ). Chon Buri, Siracha, *Maxwell 75-552*. Trat, Ko Chang, *Kerr 9288* (BK,BM); *Rabil 68* ( BK,BM ); *Geesink & Phengklai 6280* ( BKF,L ); *Maxwell 73-302*. PENINSULAR : Surat Thani, Ko Tao, *Kerr 11219* ( BK,BM ); Ko Phangan, *Phromdet 24* ( BKF,L ).

Distribution.— Widely distributed from West Africa to South-east Asia, South Pacific and North Australia, India ( type ).

Ecology.— Common along sea shores, from sea level to 10 m altitude. Flowering and fruiting August–September.

Vernacular.— Thaao yaai mom ท้าวยายม่อม, Mai thao ruesee ไม้เท้าฤษี, Buk ro บุกรอ, Singto dam สิงห์โตดำ ( Central, South-eastern ).

Uses.— The starchy tuber yields cooking flour. It is also used in local medicine against diarrhoea.

5. **Tacca palmata** Bl., En. Pl. Java **1** : 83. 1827; Ridl., Fl. Mal. Pen. **4** : 309. 1924; Smitinand, Nat. Hist. Bull. Siam Soc. **20** : 61. 1961; Drenth, Blumea **20** (2): 397. 1972; in Fl. Males. I. 7 : 814. 1976.—Figure 13.

*Herb* with solid tuber. *Leaves* 1–3, palmatisect with 5–7 segments; segments obovate or lanceolate, 10–20 by 2.5–5 cm; base attenuate along petiole; apex acuminate; petiole 50–60 cm long. *Inflorescence* 1 or 2, 50–60 cm long, each up to 30 flowers. *Involucral bracts* 4, decussate; outer pair ovate, sessile, 6–3 by 3–5 cm; inner pair broadly ovate or cordate, petiolate, 5–7 by 3.5–5 cm;

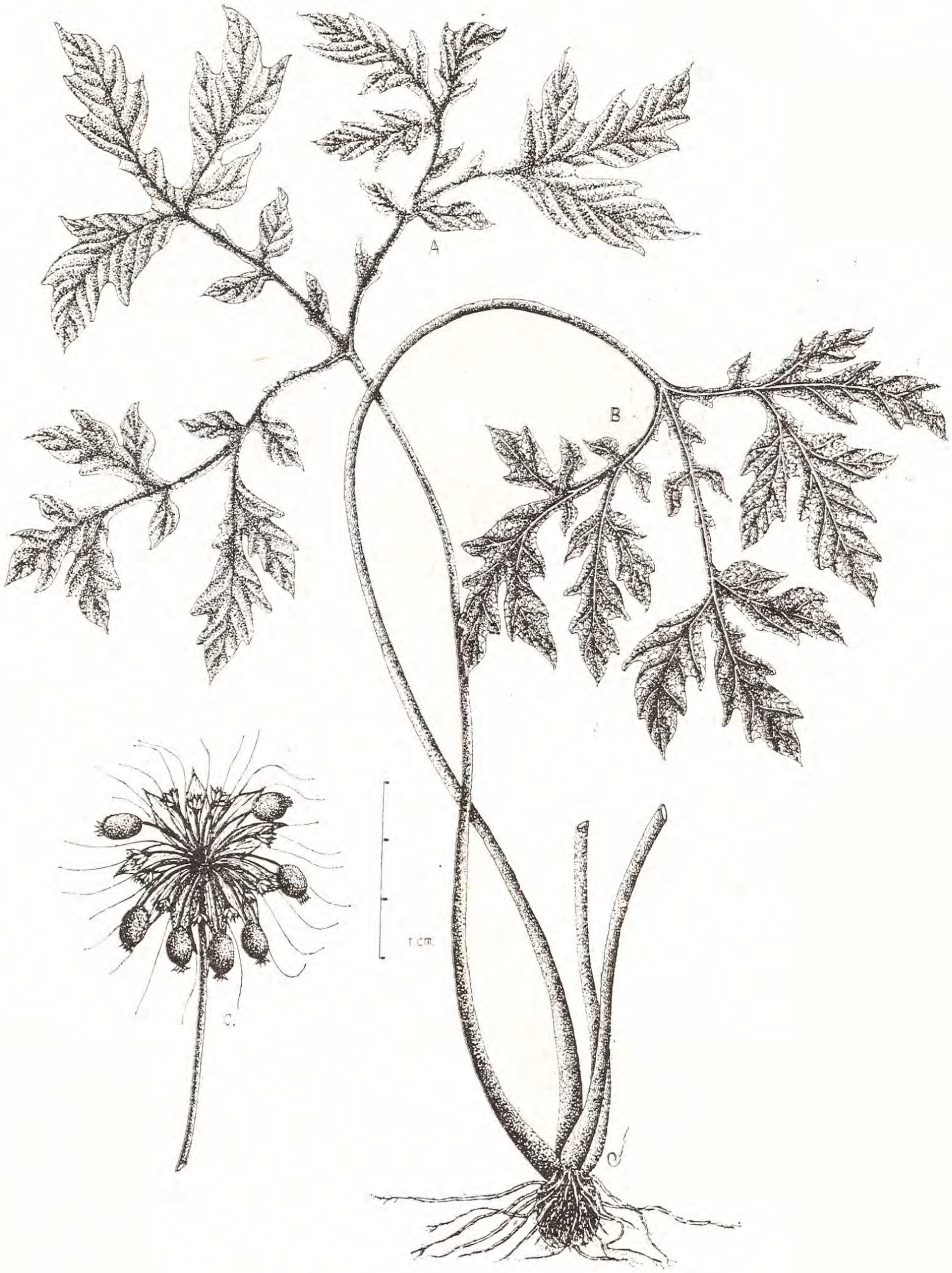



Figure 12. *Tacca leontopetaloides* ( Linn.) O. Ktze
A–B : Habit, C : Fruits.

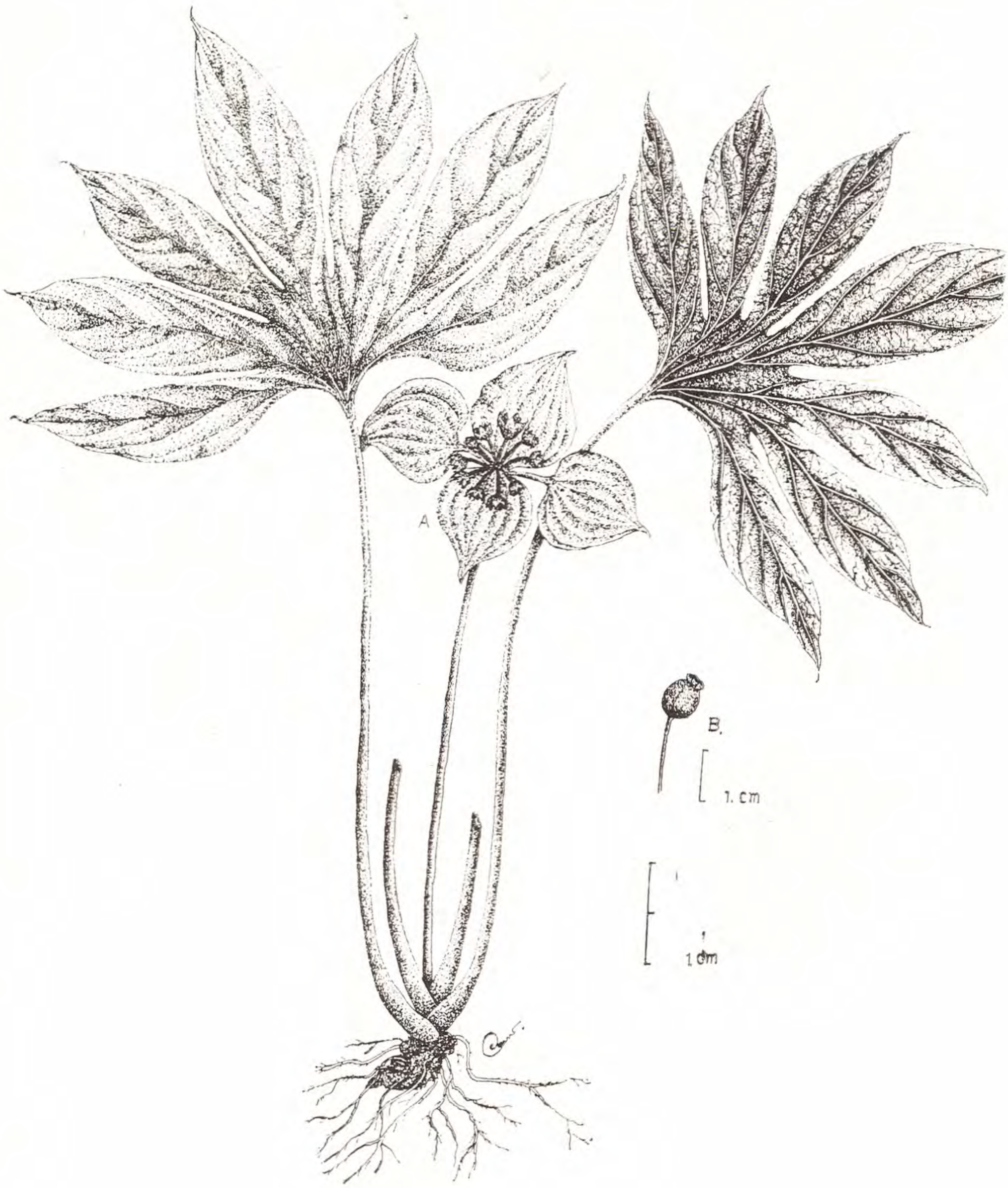



Figure 13. *Tacca palmata* Bl.
A. Habit, B. Fruit

petiole 1.5–2 cm long. *Filiform bracts* absent. *Flowers* 6–17 by 5–10 mm in anthesis, green to dark purple. *Perianth* 6 ; 3 outers ovate, 2–6 by 2.5–6 mm; 3 inners 3–5 by 2–4 mm. *Stamens* greenish, free. *Ovary* 2–5 by 1–4 mm. *Pedicels* 1–2 cm long. *Fruit* globose up to 1 cm diam; seeds more or less pyramidal, 3–5 by 2–4 mm and 2–3 mm thick.

Thailand.— SOUTH-EASTERN : Chanthaburi, *Kerr 10030* ( BM ), *Suthison 270* ( BK ), *Chantanamuk 920* ( BK ); Makham, *Sangkhachand 144* (BKF, C,K ). Trat, Huai Raeng, *Smitinand 1330* ( BKF ). PENINSULAR : Chumphon, Langsuan, *Kerr 11930* ( BK,BM ). Surat Thani, Ko Phangan, *Phromdet 38*, *Put 786* ( BK,BM ). Nakhon Si Thammarat, *Kerr 15688* ( BK,BM ); Thung Song, *Rabil 160* ( BK,BM ); Chawang, *Thavorn 766*. Songkhla, Padang Besa, *Kerr 3697*.

Distribution.— Cambodia, Vietnam, Malay Peninsula, Indonesia ( type ), Philippines.

Ecology.— In mixed deciduous and evergreen forests, altitudes 50–300 m. Flowering and fruiting May–July.

Vernacular.— Buk ruesee บุกฤษี ( South-eastern ); Khot din คดดิน ( Peninsular ).

Uses.— Tuber has some medicinal value and is used as poultice for fresh wounds.

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