

Additions to the Leguminosae of Thailand

KAI LARSEN & SUPEE SAKSUWAN LARSEN

1. *Indigofera caudata* found in northern Thailand. (by Kai Larsen)

Two revisions of the genus *Indigofera* have recently been published. De Kort & Thijssse (1984) treated the genus for the whole of SE Asia and Thuan, du Phon and Niyomdham (1987) for Cambodia, Laos and Vietnam. According to these papers, *Indigofera caudata* has not previously been found in Thailand, and evidently it is a rare species with its main distribution in China: Yunnan. The material collected from Thailand has somewhat larger leaves and pods than described from neighbouring Laos. The ovary is pubescent as described by De Kort and Thijssse. The description below is based on the Thai material.

Indigofera caudata Dunn, Gard. Chron. 11: 210. 1902; de Kort & Thijssse, Blumea 30: 143. 1984; Thuan, du Phon & Niyomdham, Fl. du Cambodge, du Laos et du Viêtname 23: 73. 1887. Figure 27.

Shrub, up to 1 m high, branches erect, angular, covered by patent, brownish, simple hairs. *Leaves* imparipinnate; stipules narrowly triangular 6 mm long; petiole 1-3 cm; rachis 6-9 cm, hairy, slightly winged; leaflets opposite, 9-11, ovate-elliptic, 2.5-6.5 by 1-3 cm, tip acute, mucronate; base cuneate to obtuse; upper surface glabrous, lower surface with brown and white hairs, the brown ones mainly on the nerves; stipels subulate, 1-3 mm. *Racemes* axillary, tomentose, 8-18 cm, elongating in fruit to 25 cm, densely flowered; peduncle 1-2 cm; pedicels 1-2 mm. *Bracts* filiform, pubescent, ca 3 mm, surpassing the young flower buds in the apical part of the inflorescence. *Calyx* glabrous ca 2 mm with 5 triangular teeth. *Corolla* pale blue, 6-8 mm; standard ovate, 7 by 6 mm, hairy outside; wings 5 by 2 mm hairy with ciliate margins; keel petals 8 by 3 mm, hairy with ciliate margins; staminal tube ca 6 mm; anthers ca 1 mm; ovary hairy, slightly curved at apex, ovules 10-15; style glabrous, curved in an almost right angle. Pods ascending to spreading, cylindric, straight with curved, mucronate apex, densely brownish pubescent. *Seeds* 10-15, cubical, ca 1.5 mm.

T h a i l a n d.—NORTHERN: Nan: Larsen & al. 44450. Doi Khun Man Yao, ca 80 km NE of Nan, along road 1081; steep wayside surrounded by evergreen hillside forest, alt. ca 800 m.—Fruiting specimen, 17. 11. 1993 (AAU, BKF, PSU.—Larsen & al. 44487. Spun Waterfall, few km north of Ban Bo Kluei, east of road 1081; clearing in evergreen forest on sandy soil along stream, alt. 600 m.—Flowering specimen, 17. 11. 1993 (AAU).

D i s t r i b u t i o n.—China (Yunnan, type), Laos (Xieng Khouang).



Figure 27. *Indigofera caudata* Dunn

1. Flowering branch, 2. Flower, 3. Standard, 4-5 Wing, 6. Androecium, 7. Ovary.

E c o l o g y.— In Thailand see above. The two collections from Laos were collected at about 1500 m.

N o t e.— On the collecting day the species was first found in the morning as several fruiting specimens. The author regarded it as a common *Indigofera* species and when the same species was found in the afternoon, only a single flowering branch was collected to facilitate the determination.

2. The genus *Bauhinia*. (by Supee Saksuwan Larsen)

Since the publication of the Leguminosae–Caesalpinioideae in Flora of Thailand 4(1984) by K. & S.S. Larsen, & Vidal, one new species has been discovered, *B. aureifolia* K. & S.S. Larsen. Now the Malayan species *B. ferruginea* can be added to the flora thus bringing the total number of species in the genus *Bauhinia* up to 39.

This requires the following amendments of the key to *Bauhinia* in Flora of Thailand.

Page 6: the key should be changed as follows:

- 34. Buds large, obovoid or ellipsoid-clavate, ca 15 by 7 mm
 - 35. Pedicels 3–5 mm 28. *B. ridleyi*
 - 35. Pedicels 10–15 mm
 - 35 A. Stipules ovate-auriculate, ca 6 mm; petals with claw 20–25 mm. (Northern Thailand) 29. *B. nervosa*
 - 35 A. Stipules ovate-orbicular or reniform, 10–28 mm; petals with indistinct claw.— (Southern Thailand) 38. *B. ferruginea*
- 34. Bud smaller up to 10 mm long.....(as before)
 -
 - 40. Ovary glabrous; receptacle longer than 7 mm
 - 41.(as before)
 - 40. Ovary hairy; receptacle up to 5 mm
 - 42. Bud reddish-brown or brownish pubescent; ovary densely hairy all over
 - 43. Stipules falcate-ovate, 5 mm; lamina glabrous above, ± pubescent below; bracts subulate 5 mm, bracteoles minute 36. *B. ornata*
 - 43. Stipules falcate-auriculate, 10–15 mm; lamina silky hairy above (rusty or silvery), rusty velvety below; bracts ovate-lanceolate, 6–8 mm, bracteoles narrower, 4–6 mm 39. *B. aureifolia*
 - 42. Buds greyish sericeous; ovary hairy along suture only 37. *B. glabrifolia*

38. *Bauhinia ferruginea* Roxb., Fl. Ind., ed. Carey 2: 331. 1832; Baker in Hook. f., Fl. Br. Ind. 2: 283. 1878, excl. var. 2; Ridley, Fl. Mal. Pen. 1: 628. 1922; Larsen & Larsen in Fl. Males. (in press).— *Phanera ferruginea* (Roxb.) Benth. in Miq., Pl. Jungh.: 262. 1852; de Wit, Reinwardtia 3: 453. 1956.— *B. griffithiana* (Benth.) Prain, l.c. 183.— *Phanera griffithiana* Benth., l.c. 263.— *B. ferruginea* var. *griffithiana* (Benth.) Baker, l.c. 283.— *B. hullettii* Prain, l.c. 183.— *B. hullettii* (Prain) de Wit, l.c. 457.— *B. suffruticosa* Ridl., Trans. Linn. Soc. 2, 3: 295. 1893.

Two varieties may be distinguished:

1. Stipules on flowering shoots early caducous; indumentum of inflorescence axis and buds usually ferrugineous; bracts pubescent, broadly lanceolate, 5–10 mm var. *ferruginea*
1. Stipules on flowering shoots tardily caducous; indumentum of inflorescence axis and buds usually greyish to light brown; bracts sparsely pubescent, ovate, carinate, 10–15 mm var. *griffithiana*

var. griffithiana is found all over the Malay Peninsula, but not in Thailand, and at one locality on eastern Sumatra; whereas *var. ferruginea* is found only in the north of West Malaysia including Penang and in southern Thailand. See also note in Flora Malesiana. It should be observed that transitional forms do occur.

var. ferruginea (Syn.: *B. hullettii* Prain). Figure 28.

Large tendrilled climber; branches glabrescent. *Stipules* early caducous on flowering shoots, orbicular to ovate-orbicular or reniform, foliaceous, glabrous to sparsely hairy, mainly inside, 10–28 mm; petiole 2–4 cm, greyish pubescent when young, soon glabrous; lamina ovate-orbicular, 7–10 by 7–8 mm, 9–11-nerved; bifid 1/3; tip of lobes obtuse, base cordate; upper surface glabrous, lower minutely pubescent when young, soon glabrous; rarely pubescent on the nerves. *Inflorescence* terminal, corymbose to pyramidal racemes with ferrugineous axis; pedicels puberulous to almost glabrous, 1–2 cm long; bracts pubescent, lanceolate, 5–10 mm; bracteoles smaller, inserted in the lower half of the pedicel. *Buds* ellipsoid-clavate, ferrugineous pubescent, ca 15 mm, hypanthium 10–15 mm, striate with dilated base. *Calyx* early splitting into 5 reflexed sepals. *Petals* creamy white turning yellowish, rarely pinkish-red; densely woolly tomentose on the outer side, glabrous inside, 3–4.5 cm long, lanceolate, claw indistinct; during anthesis margin of petals becoming recurved, later the whole lamina becomes recurved. *Stamens* 3 fertile, filaments pink, glabrous, 5–6 cm; anthers red, oblong, ca 5 mm; staminodes 2–3 (or more?), 12–20 mm, sometimes with minute anthers. Whole gynoecium densely ferrugineous tomentose, rapidly lengthening during anthesis; stipe 1–22 cm; ovary ca 1 cm; style 1–2.5 cm; stigma large, peltate. *Pods* ± oblong, dehiscent, woody, 15 by 4–6 cm, glabrous. *Seeds* few, 2–2.5 cm diam.

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

D i s t r i b u t i o n.— West Malaysia (type from Penang).

E c o l o g y.— In Thailand found in peat swamp forests at sea level. In Malaysia up to 800 m alt., often on sandy soil.

N o t e.— *B. ferruginea* is easily recognized by the unique character of the petals, first erect, then the margin recurves and finally the whole petal becomes recurved.

39. Bauhinia aureifolia K. & S.S. Larsen, Nord. J. Bot. 11: 633. 1991.— *B. chrysophylla* K. Larsen & S.S. Larsen, Nord. J. Bot. 9: 253. 1989 non Vogel 1839. Figure 29.

Large, woody, tendrilled liana, 100 cm DBH, main stem angular-terete; young branches rusty pubescent with long persistent indumentum. *Leaves* broadly ovate to subrotundate up to 19 by 18 cm; nerves 11–13; apex bilobed 1/3 with wide sinus; tip of lobes rounded triangular, base deeply cordate; leaves at young branches reddish pubescent mainly on the nerves; at the flowering branches upper surface with golden-rusty to reddish indumentum or silvery, most often persistent; lower surface rusty velvety.

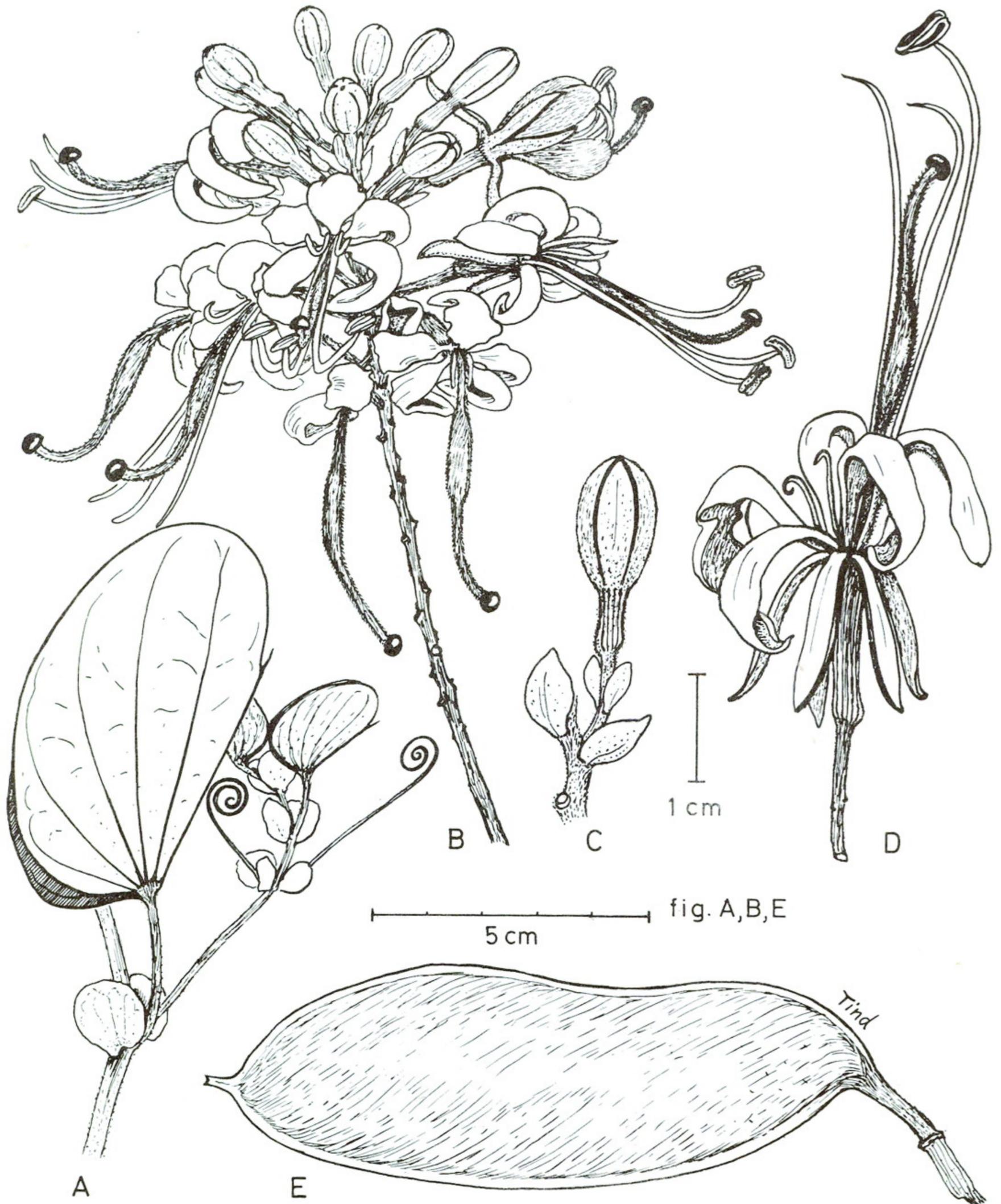


Figure 28. *Bauhinia ferruginea*

A. Young shoot with stipules; B. Inflorescence; C. Flower bud with bracts and bracteole; D. Flower in late anthesis; E. Pod. — Del. Kirsten Tind.

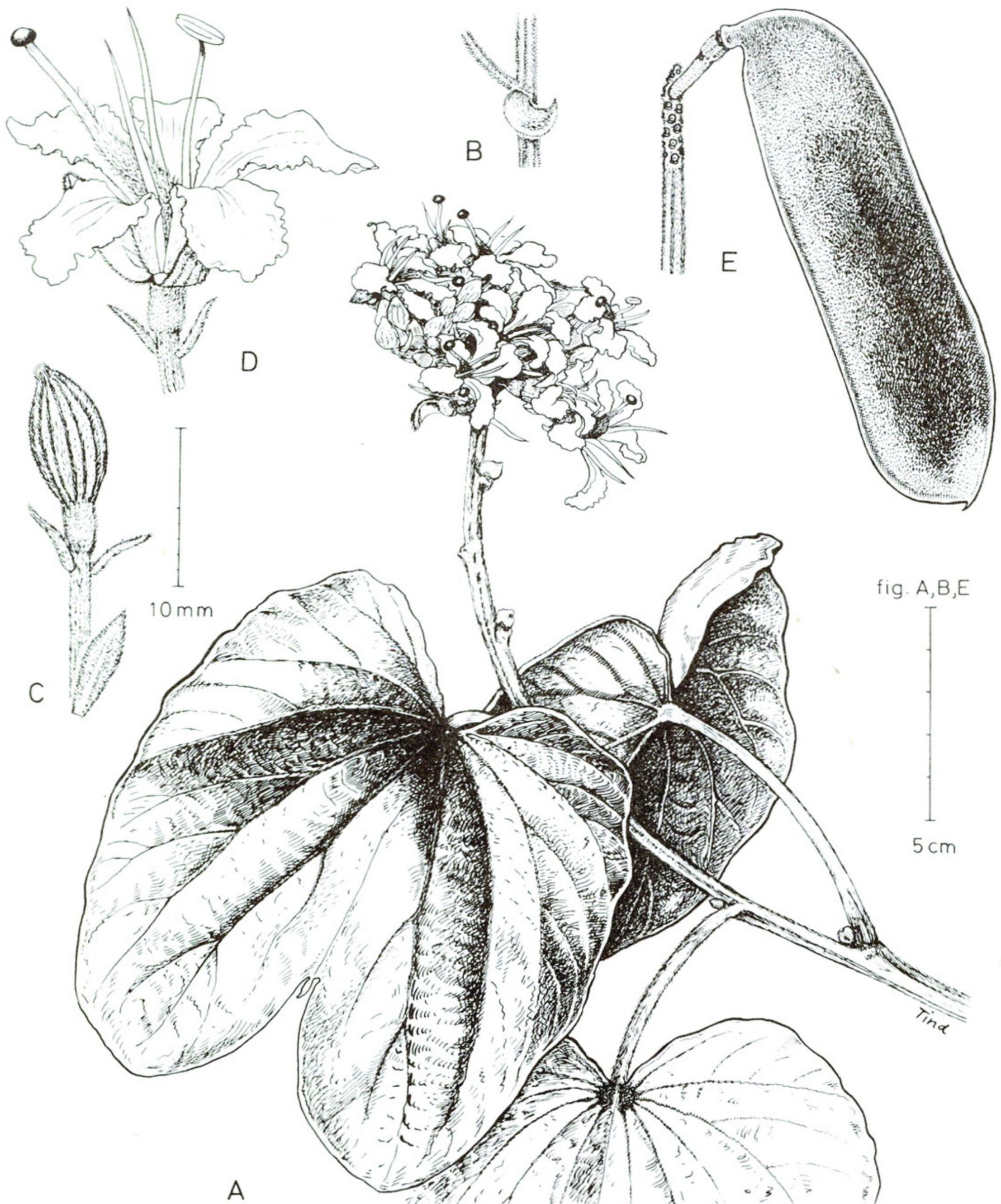


Figure 29. *Bauhinia aureifolia* K. & S.S. Larsen

A. Flowering shoot; B. Petiole with stipule; C. Flower bud with bract and bracteoles; D. Flower; E. Pod. - Del. Kirsten Tind.

Stipules falcate-auriculate, caducous, reddish velvety, 1–1.5 cm. *Flowers* fragrant in dense, corymbose, rusty inflorescences, often 2–3 together. *Pedicels* ca. 1 cm. *Bracts* ovate-lanceolate, acuminate, 6–8 mm; bracteoles narrow lanceolate-subulate, 4–5 mm, inserted near the base of the hypanthium. *Buds* ellipsoid, ca 1 cm, reddish pubescent; hypanthium short, tubular ca 4 mm. *Calyx* splitting into 3–5 segments, inside glabrous. *Petals* white turning creamy, subequal, spatulate with crenulate margin, light rusty hairy outside, glabrous inside, 15–18 mm. *Stamens* 3 fertile; filaments greenish, glabrous, slightly longer than the petals; anthers elliptic, pinkish, 2–3 mm; staminodes 1–2, minute, subulate. *Ovary* sessile, ca 7 mm long, densely reddish-brown longhaired; style greenish, slender, glabrous towards the stigma, ca 10 mm; stigma green, peltate. *Pods* dehiscent, woody, broadly strapshaped, 20–23 by 5–5.6 cm, with 15 mm long stout stalk, brownish velvety. *Seeds* 4–6, suborbicular, 2.5–2.8 mm diam.

T h a i l a n d.— PENINSULAR: Narathiwat. Endemic (type: Niyomdham & al. 1837, Bacho Nat. Park; AAU holo, iso BKF, K).

E c o l o g y.— Along waterfall in evergreen forest at low altitude.

This species forms one population at an altitude of 70–100 m in margin of rather undisturbed evergreen forest along waterfall. It consists of at least 9 large specimens reaching ca 40 m up in the surrounding trees. Several seedling were observed. Another large climber, *Bauhinia integrifolia*, with orange-red flowers, common all over peninsular Thailand is also found here. *B. aureifolia* is by the local people called “The Golden Leaved Liana”. From the distance the leaves shine golden or silvery among the green leaves of the surrounding trees.

The species has been planted at Chatwarin waterfall by the local foresters. It has also been transferred to the Prince of Songkhla University, Hat Yai and to a private garden in Bangkok where it thrive well. A specimen is also grown in the greenhouse at Aarhus University (AAU).

V e r n a c u l a r.— Thao bai see thong (เตาใบสีทอง), thao daa oh (เตาดาโอะ) (Narathiwat).

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