

Notes on the genus *Alpinia* (Zingiberaceae) in Thailand

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ABSTRACT. Two new records from Thailand, *Alpinia scabra* (Blume) Baker and *A. blepharocalyx* K. Schum. with two varieties are described and illustrated.

The genus *Alpinia* is the largest in the Zingiberaceae with more than 200 species. It occurs throughout tropical Asia to New Guinea, Australia, the Solomon Islands, New Hebrides, New Caledonia, Fiji and Samoa (Larsen et al., 1998). In Thailand 15 species were enumerated by Larsen (1996). During revision of this genus for the Flora of Thailand, *Alpinia scabra*, *A. blepharocalyx* var. *blepharocalyx* and *A. blepharocalyx* var. *glabrior* (Hand.-Mazz.) T.L. Wu were found in Thailand. Furthermore one new species was discovered (Saensouk et al., in prep.). At present, 17 species and two varieties of *Alpinia* are recognized in Thailand.

Alpinia scabra (Blume) Baker in Hook.f., Fl. Brit. India 6: 256. 1892; Ridl., J. Str. Br. Roy. Asiat. Soc. 32: 164. 1899; K. Schum. in Engl., Bot. Jahrb. 26: 275 t.2, fig. C. 1899; K. Schum. in Engl., Pflanzenr. 20 (IV, 46): 334. 1904; Boerlage, Icon. Bogor. 4: 223. 1914; Ridl., Fl. Malay Penins. 4: 279. 1924; Smith, Edinb. J. Bot. 47: 57. 1990.—*Hellina scabra* Blume, Enum. Pl. Javae 1: 60. 1827.—*Languas scabra* (Blume) Burk., Gard. Bull. Singapore 6: 260. 1930; Holttum, Gard. Bull. Singapore 13: 158. 1950. Type: Indonesia, Blume s.n. (holotype ?L, not seen). Figs. 2,3.

Leafy shoots 2–3 m tall. *Leaves*: sheaths with short stiff hairs near base of petiole and ligule; ligule ovate, ca. 1 by 0.5 cm, apex rounded, shortly pubescent; petioles up to 1.5 cm long, shortly pubescent; lamina oblong, 25–50 by 4–6 cm, with stiff hairs on both surfaces, scattered stiff hairs along margin, base cuneate to attenuate, apex acuminate to caudate, to 3.5 cm long. *Inflorescence* paniculate, 30–40 cm long, usually with 2–3 large branches in the lower part, each subtended by long sheaths; sheaths 2–3, elliptic, 15–20 by 1.5 cm, apex acuminate to caudate to 1.5 cm; peduncles shortly pubescent; rachis rather stout, shortly pubescent, bearing many cincinni; peduncles of cincinni 1–2.5 cm long with up to 6 flowers on each. *Bracts* towards base of inflorescence very small, ovate, 2–8 by 2 mm, apex acute, shortly pubescent. *Bracteoles* ovate, ca. 1 by 1 mm, apex acute, shortly pubescent. *Pedicels* slender, ca. 5 mm long, green, glabrous. *Flowers* white; calyx tubular, 5–7 by 3 mm, white, apex equally 3-lobed, tip of lobes shortly pointed, pubescent; corolla tube slender, 6–8 by 3 mm, white; dorsal corolla lobe oblong, ca. 10 by 3 mm, apex hooded, up to 3 mm long, white, glabrous

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with crimson spots; lateral lobes oblong, ca. 6 by 3 mm, apex hooded, white, glabrous with crimson spots; labellum shorter than the corolla lobes, obovate, 7–9 by 4–5 mm, white, cleft almost to the base, the 2 halves with wavy margins; lateral staminodes elliptic to 1 mm long, glabrous. *Filaments* ca. 10 mm long, glabrous; anthers ca. 5 by 3 mm; anther-crest ca. 2 mm long, triangular, membranous, glabrous. *Ovary* ovoid, ca. 1 by 1 mm, glabrous; style slender, glabrous; stigma cup-shaped, glabrous except for cilia along margin. *Epigynous glands* 2, flat, ca. 3 mm long. *Fruit* unknown.

Thailand.— PENINSULAR: Yala [Betong district, Hala Bala Wildlife Sanctuary, 8 Feb. 1997, P. Puudjaa 329 (AAU, BKF)].

Distribution.— Peninsular Malaysia and Indonesia (Java).

Ecology.— In tropical rain forest.

Phenology.— Flowering February.

Note.— *A. scabra* is similar to *A. galanga* but differs in having larger and richer inflorescences branches, the tip of calyx lobes shortly pointed, the labellum shorter than the corolla lobes and the apex of labellum cleft to the base. The leaf surface is scabrate.

Alpinia blepharocalyx K. Schum. in Engl., Pflanzenr. 20 (IV, 46): 334. 1904; T.L. Wu, H.T. Tsai, S.Q. Tong, P.S. Chen, S.W. Zhao & H.W. Li, Fl. Reip. Pop. Sin. 16(2): 89. 1981; Smith, Edinb. J. Bot. 47: 57. 1990; Larsen, Thai For. Bull. (Bot.) 24: 35. 1996; J.H. Shan in Z. Wu & P.H. Raven, Fl. China 24: 339. 2000 Type: China, *Henry* 11962 (holotype K!; isotype E).— *A. bracteata* Roxb., Hort. Bengal.: 2. 1814; Fl. Ind. 1: 61. 1820; Baker in Hook.f., Fl. Brit. India 6: 256. 1892; Gagnep. in Lecompte, Fl. Indo-Chine 1: 95. 1908., non *A. bracteata* Rosc., Trans. Linn. Soc. 11: 281. 1814. Figs. 1, 4.

KEY TO THE VARIETIES

1. Lower surface of lamina densely villous var. **blepharocalyx**
 1. Lower surface of lamina sparsely pubescent along the margin and midrib, otherwise glabrous var. **glabrior**

var. **blepharocalyx**

Leafy shoots 2–3 m tall. *Leaves*: sheaths shortly pubescent along margin near base of ligule and on petiole; ligules oblong-ovate or ovate, 0.5–1 by 0.5–1 cm, apex acute-rounded or truncate, densely pubescent; petioles 1.5–4 cm long, glabrous or pubescent; lamina oblong to lanceolate, 55–60 by 7–12 cm, upper surface glabrous, lower surface densely villous, base attenuate, apex acuminate to caudate or mucronate. *Inflorescence* a drooping raceme, 10–20 cm long, when young covered by 1 broad sheath; peduncles 1.5–10 cm long, densely pubescent; rachis stout, 15–20 cm long, densely brown pubescent, bearing many cincinni, peduncles of 1-flowered cincinni 0.5–1 cm long, densely brown pubescent. *Bract* absent. *Bracteoles* green to dark red when young, dry and brittle when mature, broadly obovate when flattened, 2.7–4.5 by 2–2.5 cm, apex equally bilobed, pubescent. *Pedicels* 0.5–1 cm long, shortly brown pubescent. *Calyx* tubular, 2.4–2.6 by 1 cm, apex unequally 3-lobed, deeply split to 1 cm on one side, pubescent; corolla tube 2–2.5 cm long, shorter than calyx, pubescent; dorsal corolla lobe

oblong, 2.5–4 by 1.7–2.5 cm, apex bluntly hooded, shortly pubescent; lateral lobes smaller, oblong, 1.7–3.5 by 1–1.5 cm, apex bluntly hooded, shortly pubescent; labellum strongly concave, red, yellow along margin, obovate to suborbicular, 3.5–5 by 3.5–4 cm, margin crinkled, apex 3-lobed, 2 lobes nearly equal, mid-lobe small, apex 2- to 3-dentate, pubescent at base of labellum; lateral staminodes small, curved, oblong to linear, 7–8 mm long, apex acuminate or unequally 2-dentate, sparsely pubescent. *Filaments* 15–20 by 4 mm, glabrous or sparsely shortly pubescent; anthers 12–15 by 5–6 mm, shortly pubescent; anther-crest 1 mm long, apex acute, shortly pubescent along margin or wanting. *Ovary* ovoid, 4–5 by 3–4 mm, densely pubescent; style slender, glabrous; stigma cup-shaped, glabrous. *Epigynous glands* 2, ca. 5 mm long. *Fruits* unknown.

Thailand.— NORTHERN: Chiang Mai, Lampang; NORTH-EASTERN: Loei.

Distribution.— India, Bangladesh, Myanmar, South China, Laos and Vietnam.

Ecology.— Along margins of evergreen forest and open grassy pine forest, 800–2000 m.

Phenology.— Flowering December–May.

Specimens examined.— *Nanakorn* QBG 5468 (QBG); *Nanakorn* QBG 8777 (QBG); *Nanakorn* QBG 9420 (QBG); *Maxwell* 01-09 (CMU); *Kerr* 4747 (BK, C); *Larsen & Larsen* 47310 (AAU); *Løjtnant & Niyomdham* 124 (AAU), *Løjtnant & Niyomdham* 162 (AAU); *Sadakorn* 474 (BK), *Sutheesorn* 2263 (BK); *Smitinand* 10260 (BK).

var. **glabrior** (Hand.-Mazz.) T. L. Wu in T. L. Wu & S. J. Chen, *Acta Phytotax. Sin.* 16(3): 35. 1978; Wu, Tsai, Tong, Chen, Zhao & Li, *Fl. Reip. Pop. Sin.* 16(2): 90. 1981; Shan in Wu & Raven, *Fl. China* 24: 339. 2000.— *Languas blepharocalyx* var. *glabrior* Hand.-Mazz., *Symb. Sin.* 7: 1322. 1936. Type: China, *Handel-Mazzetti* 5750 (holotype ?W, not seen). Figs. 3–4.

Lower surface of lamina sparsely pubescent along margin and midrib, otherwise glabrous.

Thailand.— NORTHERN: Chiang Mai; NORTH-EASTERN: Loei.

Distribution.— India, Bangladesh, Myanmar, South China, Laos and Vietnam.

Ecology.— Along margins of evergreen forest and open grassy pine forest, 1000–1400 m.

Phenology.— Flowering February–April.

Specimens examined.— *Nanakorn* s.n. (QBG); *Kerr* 8662 (BK, C); *Kerr* 20144 (BK); *Suwatabhan* 113 (BK); *Sørensen et al.* 2326 (AAU).

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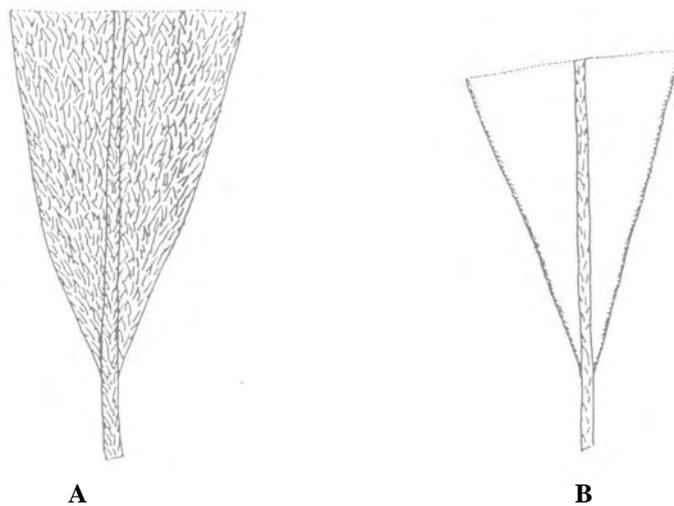


Figure 1. Lower surface of leaves in varieties of *Alpinia blepharocalyx*: A. var. *blepharocalyx*; B. var. *glabrior*. Scale bars = 5 cm.

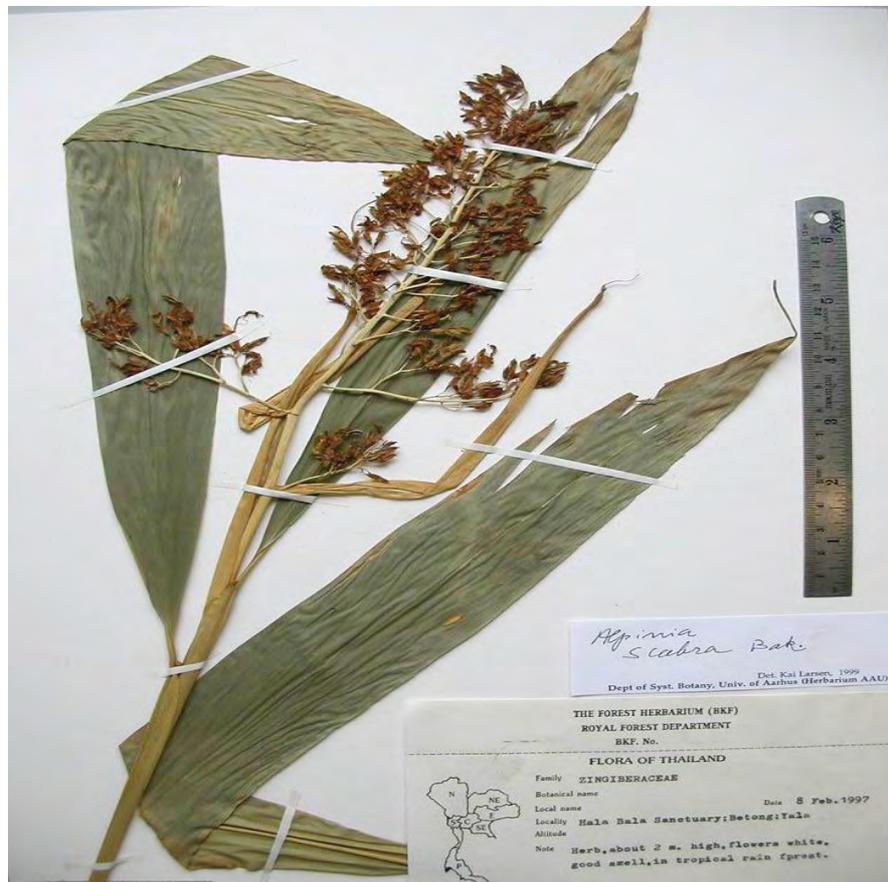


Figure 2. *Alpinia scabra*: Specimen collected from the Hala Bala Wildlife Sanctuary, Betong, Yala by P. Puudjaa, 8 Feb. 1997 (AAU, BKF).

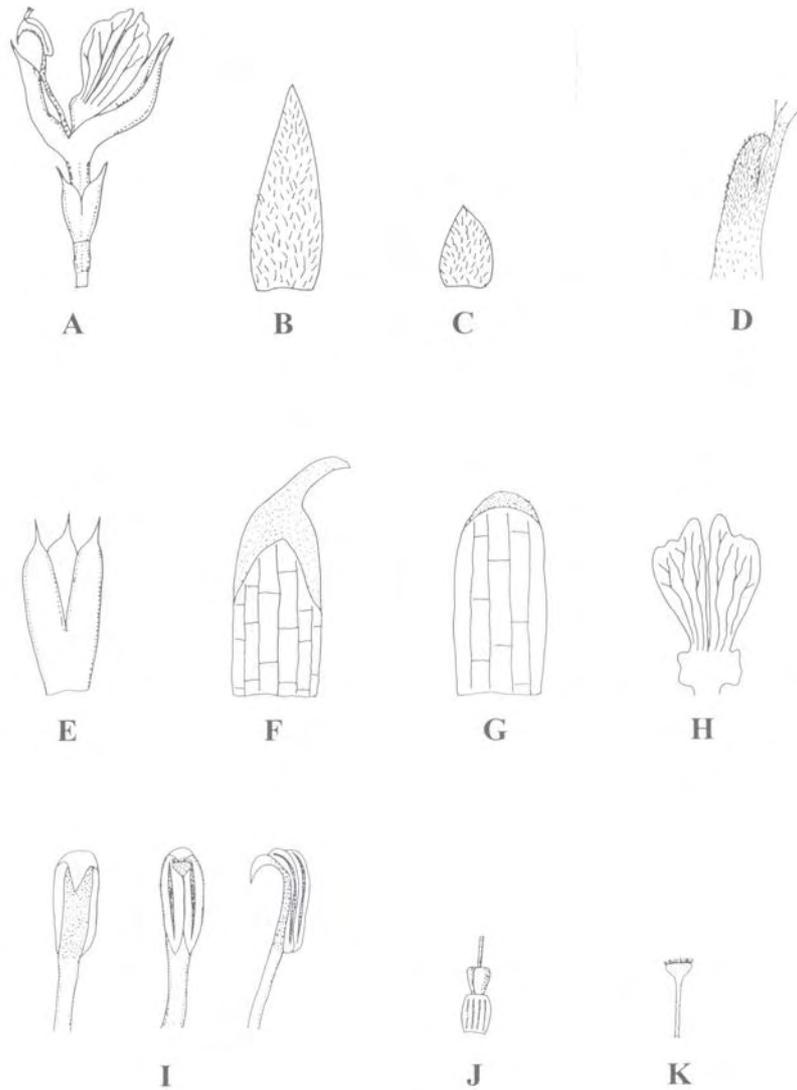


Figure 3. *Alpinia scabra*: A. flower; B. bract; C. bracteole; D. ligule; E. calyx; F. dorsal corolla lobe; G: lateral lobe; H: labellum and lateral staminodes; I: stamen; J: ovary, style and epigynous glands; K: style and stigma. Scale bars = 1 cm.

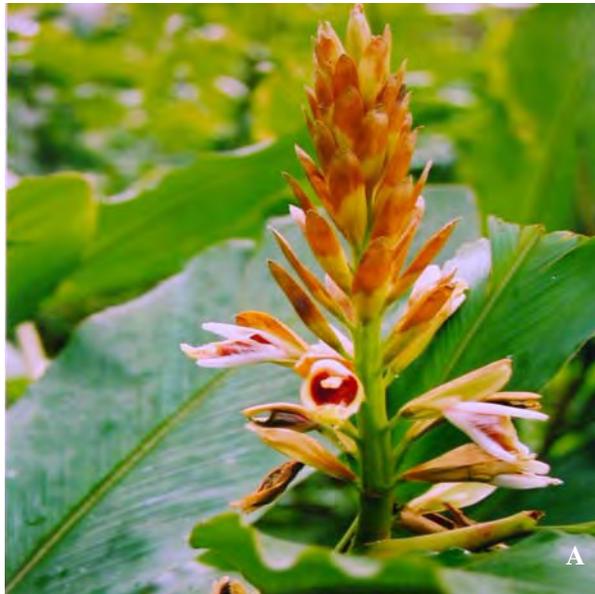


Figure 4. Flowering specimens of *Alpinia blepharocalyx*: A. *A. blepharocalyx* var. *blepharocalyx*; B. *A. blepharocalyx* var. *glabrior*. Photographed by K. Phulphong (A) and S. Saensouk (B).