

A NEW SPECIES OF *CAULOKAEMPFERIA* (ZINGIBERACEAE) FROM SOUTHERN LAOS

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ABSTRACT

Caulokaempferia laotica (Zingiberaceae), a new species from southern Laos, is described and illustrated.

Key words: *Caulokaempferia laotica*, Zingiberaceae, southern Laos.

In continuation of our taxonomic work on the medicinal plants of the family Zingiberaceae, we have extended our work to cover certain plant groups from Lao People's Democratic Republic (PDR). During several expeditions throughout the country since 2000, we have encountered several undescribed *Caulokaempferia* species, including the recently described *C. burttii* K. Larsen & Jenjitt. (LARSEN & JENJITTIKUL, 2004). Living specimens of this species were brought into Thailand through Chong Mek (Ubol Ratchathani Province) by local plant traders and sold in Chatuchak flower market in Bangkok. The sample purchased from this flower market was established as type specimen (LARSEN & JENJITTIKUL, 2004). The plant has, however, never been seen in or collected from its natural habitat.

In this paper, we report on a second species of *Caulokaempferia* from southern Laos. This new species is closely related to other whitish- to violet-“flowered” *Caulokaempferia*, including *C. burttii* K. Larsen & Jenjitt. Keys to all five whitish-to-violet-“flowered” *Caulokaempferia* found in Thailand and Laos is also provided.

Caulokaempferia laotica Picheans. & Mokkalul, sp. nov.

Type.—Picheansoonthon 581. Lao PDR, Champasak province, Phu Luang on the Bolaven Plateau, N 15° 00.508', E 106° 49.097', alt. 925 m, 22 June 2003. (holotype BKF including dried and spirit materials, isotype SING). Figs 1–5.

Diagnose.—*Caulokaempferia burttii* K. Larsen & Jenjitt. (tab. 6–7) similis, foliis linearibus ad anguste lanceolatis, ligula 2–3 mm longa apice rotundato vel bifido ciliato, calycis tubo bifido apice ciliato, corolla alba, staminodiis labelloque albidis ad dilute violaceis, antherae crista ligulata apice acuto, seminibus pubescentibus differt.

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Diagnosis.—Perennial herbs with short rhizome and spindle-shape storage roots. *Pseudostems* erect, to 65 cm; lower ones with 2–4 bladeless sheaths. *Leaves* 5–7, lower ones smaller; ligule membranous, 2–3 mm long, apex round or bifid, ciliate; leaf blades linear, rarely narrowly lanceolate, 10.2–18.5 by 0.7–1.2 cm, with 2 green bracts, the lower with reduced lamina, 5.0–5.8 by 1.3–2.0 cm, the upper with rudimentary laminae, 4.7–5.3 by 1.0–1.5 cm, and subsequent bracts diminishing proximally, 3.9–4.7 by 0.7–0.8 cm, each subtending 1 flower, bracteoles membranous, elliptic-oblong, *c.* 2.5–3.4 by 0.6–0.7 cm, apex irregularly dentate. *Calyx* tubular, 1.1–1.2 cm long, glabrous, the apex bifid, ciliate. *Corolla* tube narrow, to 5.0 cm long, white, lateral lobes white, oblong to narrowly lanceolate, 1.9–2.3 by 0.5–0.6 cm, dorsal lobe white, narrowly lanceolate, apex hooded, 2.0–2.5 by 0.5–0.7 cm. *Lateral staminodes* suborbicular, pale violet, rarely white, 2.6–2.8 by 2.4–2.6 cm. *Labellum* pale violet, rarely white, broadly obovate to broadly triangular, crenulate, some shallowly emarginate, 2.8–3.1 by 2.8–2.9 cm. *Anther locules* yellow, subsessile, 7–8 mm by *c.* 2.5 mm, opening by two slits; anther crest ligulate, membranous, whitish, apex acute or obtuse, 3–5 mm by *c.* 2 mm. *Style* extending 1–2 mm beyond anther crest; stigma *c.* 2.5 mm wide, cupular, finely ciliate. *Ovary* *c.* 6 mm long, glabrous, 3-locular with axile placentation. *Capsule* narrowly obovate-oblong 2.0–2.6 by 0.5–0.7 cm, glabrous, shining, whitish to pale greenish, crowned with the persistent calyx, dehiscing by 3 recurving valves. Seeds oblong-ellipsoid, 2–3 mm long, greenish to pale yellowish, pubescent; aril short, lacerate (Figs. 1–5).

Distribution.—This species has been found in a wide area around the eastern end of Phu Piang Bolaven (Bolaven Plateau), the area around “Huai Ho Dam” locally known as “Phu Luang (the most spacious mountain)”, Champasak Province in southern Laos. glabrous on both sides, apex acute, base truncate, margin entire. *Inflorescence* with 2–9 flowers surrounded.

Etymology.—Named “laotica” to commemorate the 30th anniversary of the founding of the Lao People’s Democratic Republic (1975–2005).

Vernacular names.—khing bung bod (southern Laos), kham mun san-ya (trader’s name).

Notes.—*Caulokaempferia* comprises two main groups: yellow-“flowered” and the white-to-violet-“flowered”. The yellow-“flowered” group can be further subdivided into two subgroups, the terrestrial and the epilithic. For Thailand, we recently described two new terrestrial species, *C. khaomaenensis* Picheans. & Mokkamul (PICHEANSOONTHON & MOKKAMUL, 2004a) and *C. phuluangensis* Picheans. & Mokkamul (PICHEANSOONTHON & MOKKAMUL, 2004b), and two lithophytic species, *C. jirawongsei* Picheans. & Mokkamul (PICHEANSOONTHON & MOKKAMUL, 2004b) and *C. limiana* Mokkamul & Picheans. (MOKKAMUL & PICHEANSOONTHON, 2004), respectively. All the terrestrial species recognized are montane species. The epilithic species are so far reported from the altitude below 100 m to higher than 1,000 m.

There are currently five whitish- to violet-“flowered” *Caulokaempferia* species reported from Thailand and Laos, *C. alba* K. Larsen & R.M. Smith (LARSEN & SMITH, 1972), *C. thailandica* K. Larsen (LARSEN, 1973), *C. violacea* K. Larsen & Triboun (LARSEN, 2002), *C. burttii* K. Larsen & Jenjitt. (LARSEN & JENJITTIKUL, 2004), and *C. laotica* Picheans. & Mokkamul. The anther crests of *C. thailandica*, *C. violacea*, and *C. laotica* are ligulate-shape, while those of *C. alba* are uniquely 4-dentate and of *C. burttii* are characteristically

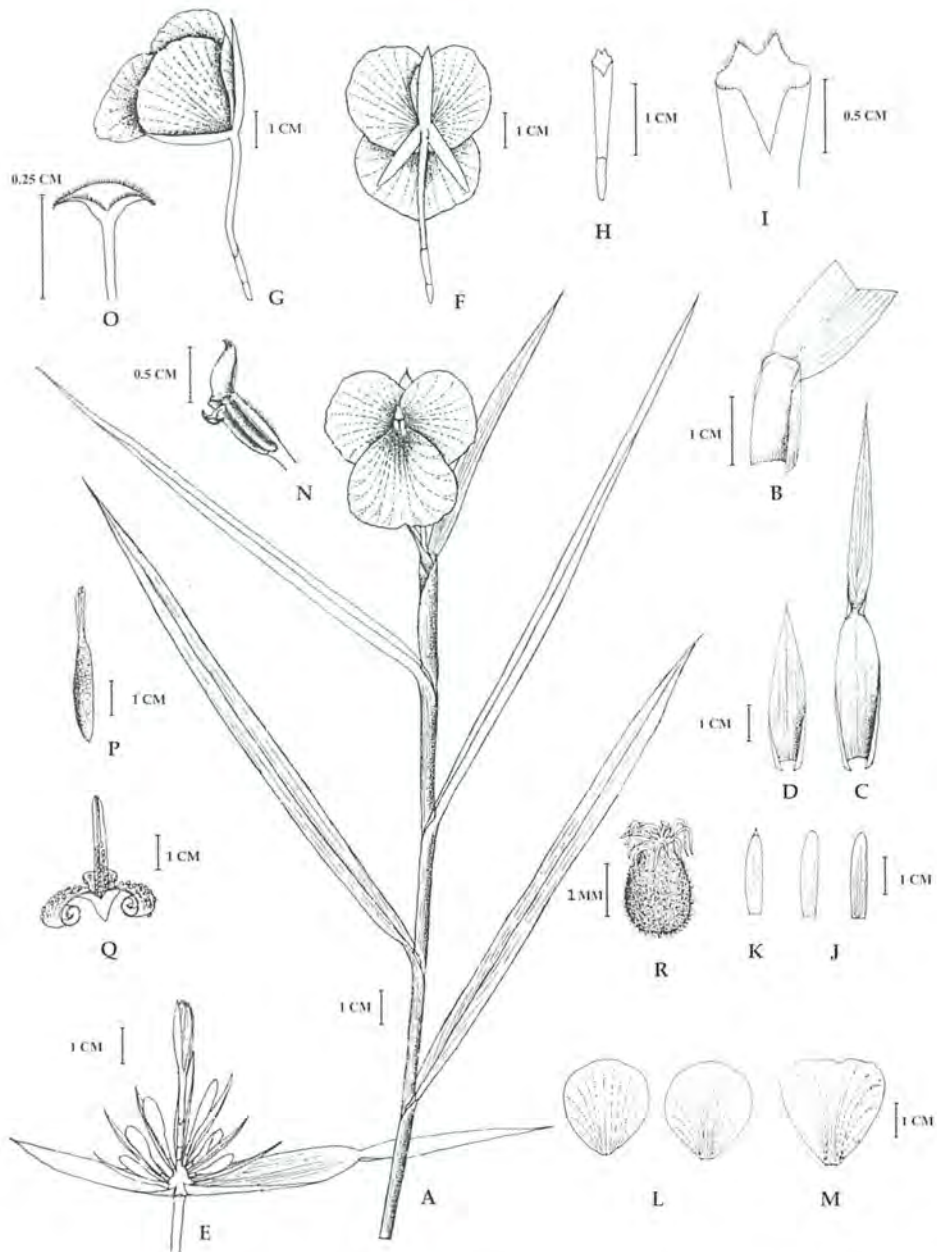


Figure 1. *Caulokaempferia laotica* Pichens. & Mookamol A, upper part of flowering stem; B, lower part of a leaf blade, showing ligule; C, lower bract with reduced lamina; D, upper bract; E, inflorescence (side view) with all bracts spread out showing floral arrangement; F, & G, a flower (ventral and side views, showing corolla lobes); H, calyx and ovary; I, upper part of calyx; J, lateral corolla lobes; K, dorsal corolla lobe; L, staminodes; M, labellum; N, anther locules, anther crest, style and stigma; O, style and stigma; P, capsule with persistent calyx; Q, dehiscent capsule showing three recurved valves; R, seed. Drawn by Piya Mookamol.



Figure 2. *C. laotica*, habit showing linear leaf blades and pale violet staminodes and lip.



Figure 3. Rear view of a flower showing white corolla lobes, staminodes and lip.



Figure 4. Front view of a flower showing staminodes and labellum.



Figure 5. Stigma, style, anther locules, and anther crest.



Figure 6. *C. burtii* K. Larsen & Jenjitt, ventral view showing violet corolla lobes.



Figure 7. *C. burtii* K. Larsen & Jenjitt, stigma, anther locules and anther crest.

minute, bifid with round lobes (Fig. 7). *C. laotica* can be readily distinguished from others by its long linear leaf blades (Figs. 1–2), white corolla lobes (Fig. 3), and pale violet staminodes and labellum (Fig. 4), and ligulate anther crest, frequently with acute tips (Fig. 5).

Paratype.—Picheansoonthon 559 (BKF), flat sandstone plateau at N 15° 03.480', E 106° 38.803', elevation 902 m, Champasak Province, Laos PDR, July 3, 2004.

Key to the Whitish-to-violet-“flowered” *Caulokaempferia* in Thailand and Laos

1. Anther crest ligulate.2.
1. Anther crest otherwise.4.
- 2 “Flowers” whitish, pinkish, or pale violet, labellum saccate.3.
2. “Flowers” pale violet to violet, labellum flat. *C. violacea* K. Larsen & Triboun
3. Leaf blades lanceolate. *C. thailandica* K. Larsen
3. Leaf blades linear to narrowly lanceolate. *C. laotica* Picheans. & Mokkamul
4. “Flowers” white, anther crest 4-dentate. *C. alba* K. Larsen & R.M. Smith
4. “Flowers” violet, rarely white, anther crest minute, bifid with round lobes.
..... *C. burttii* K. Larsen & Jenjitt.

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