



Kaempferia mahasarakhamensis, a new species from Thailand

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ABSTRACT: *Kaempferia mahasarakhamensis* sp. nov. (Zingiberaceae), a new species from Northeastern Thailand, is described, photographed and illustrated. It can be easily recognized by its erect and elongate pseudostem, length of leaf sheaths and leaves elliptic with apex acuminate. The new species resembles *K. larsenii* Siriruga but it differs in its two leaves, pseudostem high, blade broadly elliptic, leaf apex acute, length of leaf sheath, length of petiole, number flower per inflorescence, white flower and labellum white with two darker purple patches towards the base.

KEY WORDS: *Kaempferia mahasarakhamensis*; Maha Sarakham; New species; Thailand; Zingiberaceae.

INTRODUCTION

Kaempferia belongs to Zingiberaceae (Siriruga, 1992 and Larsen and Larsen, 2006). It comprises about 60 species geographically distributed from India to Southeast Asia, where Thailand appears to be the richest biodiversity region with more than 20 extant species (Techaprasan *et al.*, 2010). In Thailand, several *Kaempferia* species (i.e. *K. grandifolia* Saensouk & Jenjit., *K. galanga* L., *K. marginata* Carey ex Roscoe, *K. elegans* (Wall.) Baker and *K. roscoeana* Wall.) are well known for their ethnomedical uses by local people (Saensouk and Jenjittikul, 2001, Larsen and Larsen, 2006 and Picheansoonthon and Koonterm, 2008). In this paper, *Kaempferia mahasarakhamensis* Saensouk and P. Saensouk was discovered during field trips in Maha Sarakham Province, Northeastern part of Thailand. This species only occurs in Doonlamphan Non-Hunting Area, MahaSarakhm Province, Thailand. It is described and illustrated below.

TAXONOMIC TREATMENT

Kaempferia mahasarakhamensis Saensouk & P. Saensouk, *sp. nov.* **Figs. 1-2**

Type: THAILAND. Maha Sarakham Province: Na Chueak District, Na Chueak, Doonlamphan Hunting Area (15°48'0"N;103°1'54"E), 5 June 2016, *Saensouk 1100*, (holotype KKU!, isotype BK!, BKF!, QBG!, TAI!).

Perennial herb, erect and elongate pseudostem, 25–30 cm high, rhizome short, bearing several roots and storage root. Leaves 2; leaf sheaths up to 7 cm long, glabrous, reddish; petiole up to 5 cm long with glabrous, green and reddish; blade broadly elliptic, 20–25 × 7–10 cm, glabrous and moderately green above, glabrous and pale green below, always thickened with purple

coloration at margins, purple-blotched at apex, apex acute; sheaths 3, up to 6 cm long, glabrous, reddish. Inflorescence terminal, contemporaneous with leafy-shoot, semi-sessile, 1/3rd remained enclosed by the leaf-sheath, each inflorescence with 10–15 flowers which opens one (or two to three) after another. Bract one per flower; lanceolate, outer most 4.5–6.5 × 4–4.5 cm; inner ones lanceolate, smaller in dimension than the outer ones, glabrous on both sides, white towards base, greenish above. Bracteoles folded, lanceolate, 3.5–4 × c. 1 cm, glabrous, translucent white. Flowers 10–15, exerted from bracts. Calyx tubular, 3–4.5 cm long, glabrous, translucent white, unilaterally slit at apex; slit c. 1 cm long. Corolla tube 5.5–6 cm long, glabrous, white; dorsal corolla lobe lanceolate, 3.2–3.5 × c. 0.4 cm, mucronate at apex, hooked, translucent white; lateral corolla lobe linear, c. 3.2 × 0.3 cm, glabrous, translucent white. Labellum broader than long, 3–3.2 × 4–5 cm, deeply bilobed with 2/3rds longitudinal cleft from tip towards the base; lobes overlapping, white with two darker purple patches towards the base, further inside with a longitudinal white band. Lateral staminodes obovoid, 2.8–3 × 2–2.2 cm, white. Anther thecae c. 5 mm long, parallel, white; anther-crest c. 8 × 8 mm, deeply bilobed, reflexed, white. Stigma subglobose with lateral ciliated ostiole. Style very slender, ca. 6 mm long. Ovary cylindrical, 5–7 × 3–4 mm, glabrous, creamy white, 3-loculed; placentation axile, ovules many. Nectary glands 2, very slender, ca. 4 mm long. Seeds ellipsoid, c. 6 × 3 mm; aril lacerate, transparent. **Flowering & Fruiting:** June – August.

Etymology: The specific epithet of the new species is collected from ‘Maha Sarakham Province’, the first discover place.

Distribution: Endemic to Thailand, which is found only in Doonlamphan Hunting Area, Na Chueak District, Maha Sarakham Province, Northeastern, Thailand.

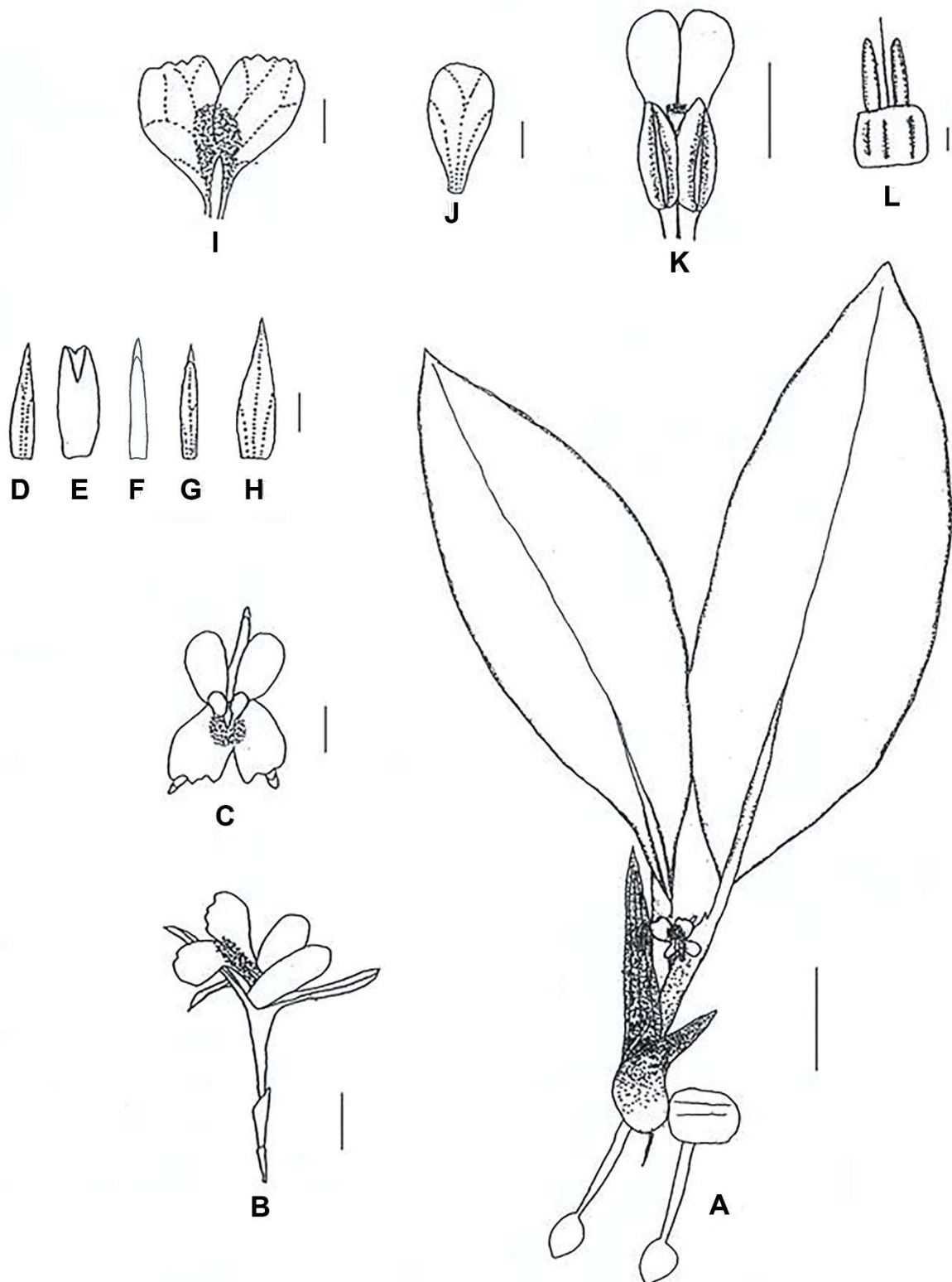


Fig. 1. *Kaempferia mahasarakhamensis*: A. plant habit, showing leafy stem, rhizome and storage root, B. flower, C. top view of flower, D. bracteole, E. calyx tube, F. dorsal corolla lobe, G. lateral corolla lobe, H. bract, I. labellum, J. lateral staminode, K. anther with anther crest, L. ovary (scale bars; A= 5 cm; B-L = 1 cm), Drawing by Surapon Saensouk.

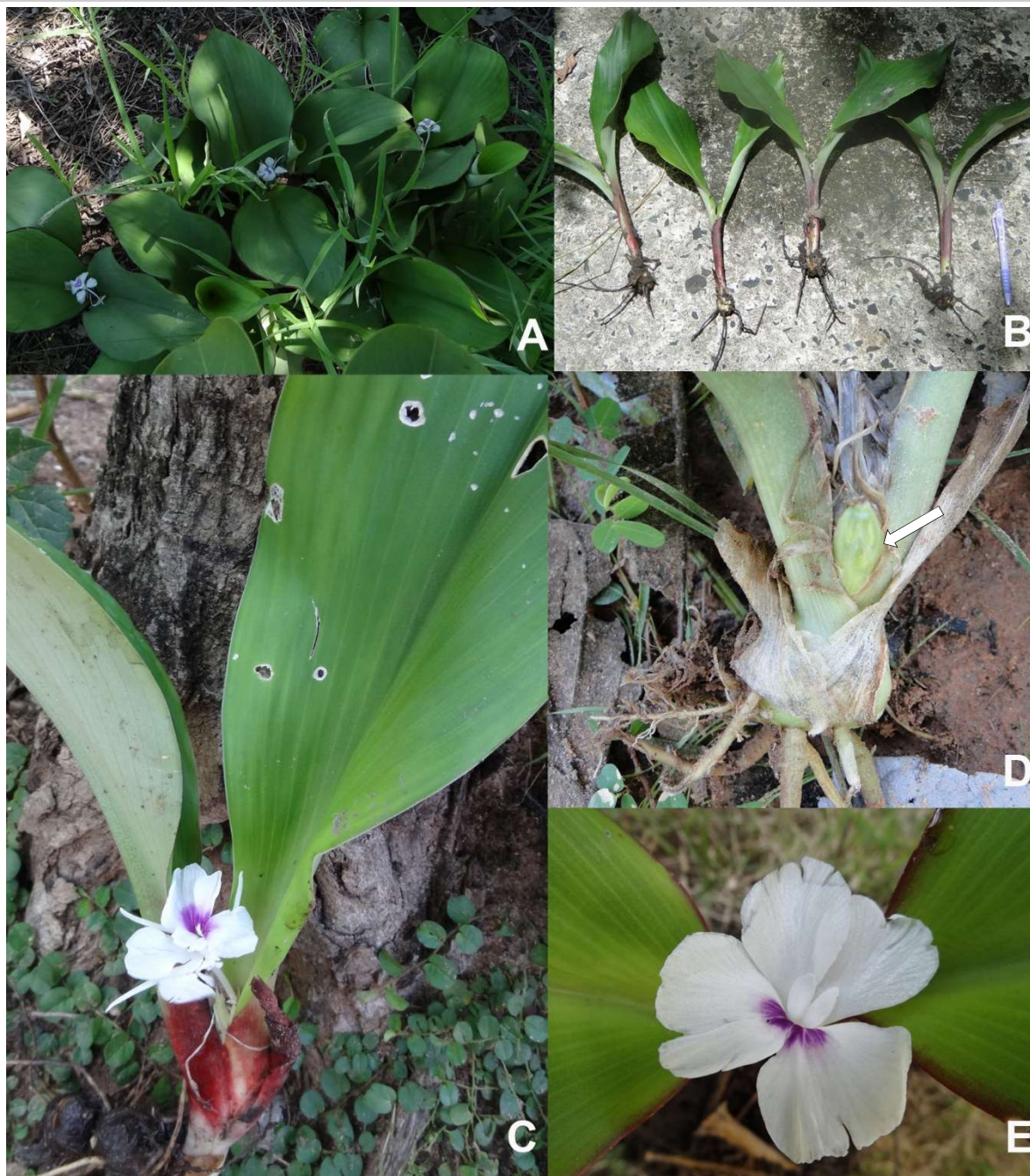


Fig. 2. *Kaempferia mahasarakhamensis*: **A.** Habit, **B.** Habit showing rhizome and pseudostem, **C.** Habit showing rhizome and inflorescence, **D.** Fruit (arrow), **E.** Flower, Photos taken from the type locality by Surapon Saensouk

Moreover, it was presented common from the type locality.

Ecology: It grows on an open area and under the shade of dry deciduous forests and mixed deciduous forests. It appears only in the rainy season.

Vernacular Names: Wan-Toob-Moob-Sarakham (ว่านตูปหมอบสารคาม)

Uses: The young leaves and rhizomes of this new species are used as a vegetable and eaten with local food.

DISCUSSION

When comparing all *Kaempferia* L. species reported in previous study by Sirirugsa (1992) and many botanists, the morphology of *Kaempferia mahasarakhamensis* sp. nov. was most similar to *K. larsenii* Sirirugsa but it differs in its leaves 2, pseudostem high, blade broadly elliptic, leaf apex acute, length of leaf sheath, length of petiole, number flower per inflorescence, white flower

**Table 1.** Comparison between *Kaempferia larsenii* (based on Sirirugsa, 1992) and *K. mahasarakhamensis*.

Characters	<i>K. larsenii</i>	<i>K. mahasarakhamensis</i>
Habit	Pseudostem tall up to 10 cm	Pseudostem tall 25-30 cm
Leaf	2-4	2
Leaf shape	elliptic-linear to linear	broadly elliptic
Leaf apex	hooded and acute	acute
length of leaf sheath	3.4 cm long	upto 7 cm long
length of petiole	c. 1 cm long	upto 5 cm long
inflorescence	with 8 flowers	with 10 –15 flowers
flower	purple	white
labellum	purple	white with two darker purple patches towards the base

and labellum white with two darker purple patches towards the base (Table 1 and Figs. 1-2). It is rare and endemic to Thailand which is found only in type locality. Therefore, the conservation status of the plant base on the evaluation criteria of the IUCN Red List (2017) should be Endangered (EN) status.

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