



## Two new species of *Globba* L. (Zingiberaceae) from Myanmar

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**ABSTRACT:** Two new species of the genus *Globba* (Zingiberaceae), *Globba karenensis* D.Nakano, Paing & Nob.Tanaka and *G. winyawensis* D.Nakano, Paing, Thwin & Nob.Tanaka are described from Kayin State, Myanmar. The first species is assignable to *Globba* section *Nudae* subsection *Mediocalcaratae*, and the second to subgenus *Mantisia*. *Globba karenensis* is characterized by small upright herb with bamboo-like lanceolate leaves and ellipsoid to fusiform yellow fruits. *Globba winyawensis* is a lithophyte and characterized by obovoid to globose, green to yellow fruits. The colored plates for each species are provided. So far both of the new species are known only from eastern Myanmar.

**KEY WORDS:** Burma, ginger, *Globba* sect. *Nudae* subsect. *Mediocalcaratae*, *Globba* subgenus *Mantisia*, Kayin State.

### INTRODUCTION

The genus *Globba* L. (Zingiberaceae) is distributed in Sri Lanka, India, Nepal, Bhutan, Bangladesh, tropical China, and all of Southeast Asia and can be found as far east as Australia and Solomon Islands (Yadav and Gowda, 2024), and about 120 species are known (Sangvirotjanapat and Newman, 2023). The genus *Globba* currently recognizes three subgenera and seven sections based upon the phylogenetic study using internal transcribed spacer (ITS) and *trnK-matK* nucleotide sequence; namely *G.* sect. *Haplanthera* Horan., *Ceratanthera* (Horan.) Petersen, *Globba*, *Nudae* K.Larsen, *Substrigosa* J.Williams, *Sempervirens* J.Williams, and *Mantisia* (Sims) K.J.Williams (Williams *et al.*, 2004). In addition, *G.* sect. *Nudae* K. Larsen is divided into three subsections: subsect. *Nudae* characterized by four anther appendages; subsect. *Mediocalcaratae* (K.Schum.) K.J.Williams characterized by two triangular or linear anther appendages; and subsect. *Pelecantherae* Sangvir. characterized by two rectangular anther appendages (Williams *et al.*, 2004; Sangvirotjanapat *et al.*, 2019, 2020, 2022).

The checklist of Myanmar seed plants (Kress *et al.*, 2003) includes 23 *Globba* species. Since then, *G. praecox* K.J.Williams & Paisooks. was recorded (Tanaka *et al.*, 2018), and *G. macrochila* Sangvir. & M.F.Newman was described from Thailand with citation of the McKee's collection from Tanintharyi Region, Myanmar (McKee 6319, K!). In addition, *G. zwegabinensis* Latt, Naing & Joongku Lee, which is assignable to sect. *Haplanthera*, was described from Kayin State (Latt *et al.*, 2024). The latest checklist of vascular plants of Myanmar made by Aung *et al.* (2025) listed 29 *Globba* names. Tanaka *et al.* (2025) also recorded *Globba decora* Sangvir. &

M.F.Newman from Myanmar. So far 30 *Globba* species have been recorded. Since 66 *Globba* species have been recognized from Thailand (Sangvirotjanapat and Newman, 2023), the genus in Myanmar remains largely understudied, and it is widely believed that many more species await discovery.

Kayin State, where *Globba zwegabinensis* was discovered, has been largely unsurveyed for its flora until now. The intensive field excursions conducted by the second author in Kayin State in 2025 led to discover two hitherto-undescribed species of the genus *Globba* assignable to the sect. *Nudae* subsect. *Mediocalcaratae* and the subgen. *Mantisia* based on their number and presence of anther appendages. After detailed investigation of their morphology, we described them as new to science.

### MATERIALS AND METHODS

Field surveys in Kayin State, eastern Myanmar were performed from June to July, 2025. Herbarium specimens, spirit collection (70% ethanol), photographic data were collected in the field, and studied. The herbarium specimens of *Globba* were examined, including relevant type materials from the digitized herbarium collections of various international herbaria; AAU, BM, CAL, E, K and the JSTOR Global Plants collection (<https://plants.jstor.org/>). The protologues of all published names along with all other pertinent literature on *Globba* were collated and reviewed. Type specimens of new species described here were deposited at RAF and TNS. The description in the taxonomic treatment was made based on the living materials, spirit collection and dried herbarium specimens. Especially the measurements of reproductive organs were made from the living plants

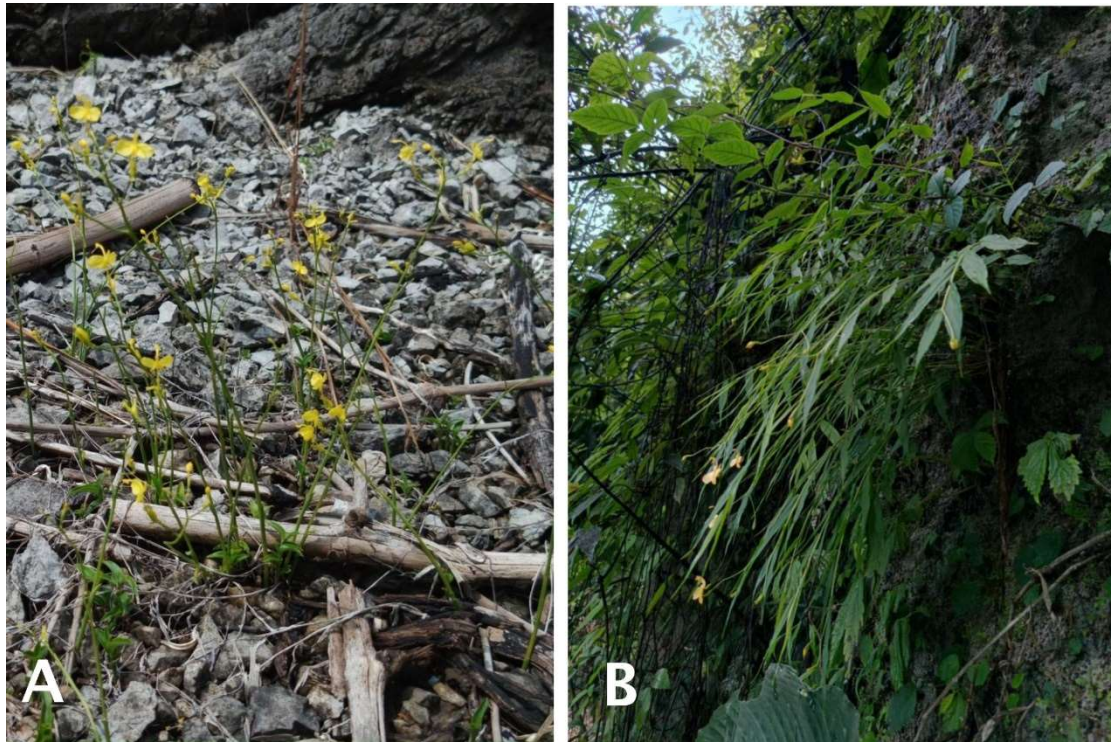


Fig. 1. Habitat of the new species. **A.** *Globba karenensis* D.Nakano, Paing & Nob.Tanaka. **B.** *Globba winyawensis* D.Nakano, Paing, Thwin & Nob.Tanaka. (Photographed by C. S. Paing).

kept in the nursery of the second author, and from spirit specimens kept in TNS. Terminology used in the description chiefly follows Beentje (2016), and Yadav and Gowda (2024). The herbarium acronyms followed Thiers (2025—continuously updated).

## TAXONOMIC TREATMENT

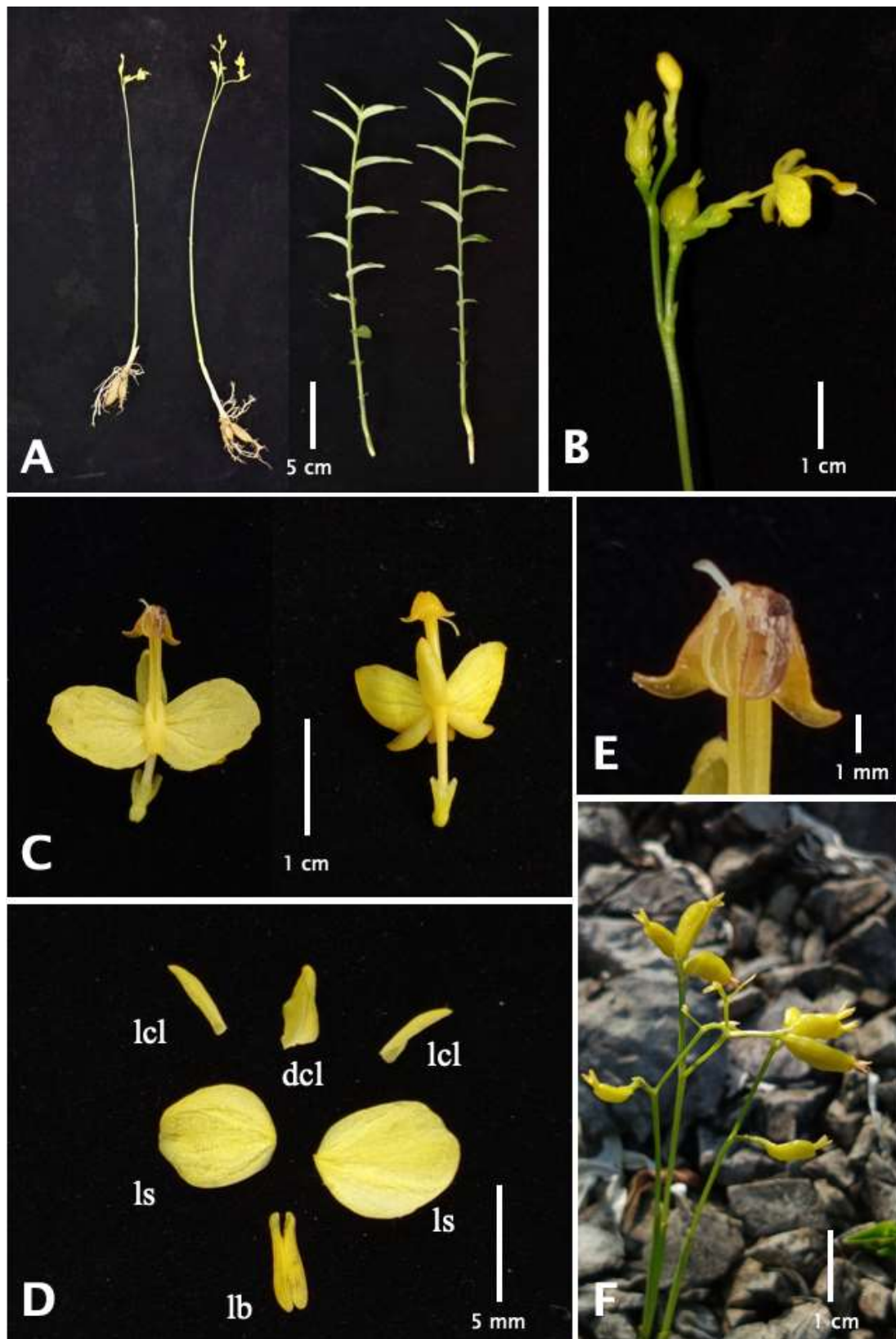
*Globba karenensis* D.Nakano, Paing & Nob.Tanaka, *sp. nov.* **Figs. 1-A & 2**  
(sect. *Nudae* subsect. *Mediocalcaratae*)

**Type:** MYANMAR. Kayin State: Phaungdawoo mountain range, Tilon San Pya Village, Hlaingbwe Township, Hpa-an District, 16°58'08.8"N 97°47'44.2"E, 2 June 2025, *Chit Soe Paing 031* (holotype- RAF; isotype- TNS).

**Diagnosis:** *Globba karenensis* is similar to *G. ranongensis* Pichens. & Tiyaw. in its habit, phenology and floral morphology, however distinguished from it by a combination of the following characters: its phenology (inflorescence arises before the leafy shoot emerges), a small upright herb with bamboo-like lanceolate leaves, orbicular lateral staminodes and ellipsoid yellow fruits.

**Description:** Perennial herb, leafy shoot 21.3–28.7 cm tall. **Rhizomes** thickened into distinct tubers, tubers 2–3, subglobose to ellipsoid, up to 4 cm long, 1 cm in diam., externally yellowish brown. **Leafy shoot** with 10–14 leaves, bladeless sheaths 1–3, stem green, glabrous; *ligule* ca. 2 mm, truncate, translucent, margin ciliate, pubescent outside, glabrous inside; *lamina* lanceolate, ca.

3.3 cm long, ca. 0.75 cm wide, base obtuse, apex attenuate, margin entire, adaxial surface dark green, glabrous, abaxial surface light green, glabrous, amplexicaul, sessile. **Inflorescence** borne on a separate shoot, appearing before the leafy shoots, conical, lax, erect, 9.6–11.4 cm long, 2.7–3.3 cm wide; *bladeless sheaths* 4–5; *peduncle* 7.4–11.6 cm long, green, glabrous; *rachis* green, glabrous; *bracts* ovate, 2–3.5 mm long, 1–2 mm wide at the base of the inflorescence, diminishing in size gradually towards apex of inflorescence, apex obtuse, margin ciliate, both surface glabrous, greenish yellow, persistent, cucullate; *cincinni* 2–4 per inflorescence, each cincinnus 3–4 flowered; bracteole ovate ca. 3.5 mm long, ca. 2 mm wide, apex acute, margin ciliate, both surface glabrous, greenish yellow, persistent, cucullate; *floral pedicel* for the basal flowers 2.5–3 cm long, for terminal flowers 0.8–1.2 cm long, pale green, glabrous. **Flowers** ca. 2.1 cm long; *calyx* infundibuliform, 2.3–2.8 mm long, apex trilobed, greenish yellow, margin membranaceous, ciliate; *floral tube* 5.8–6.2 mm long, lemon yellow, puberulent, beyond the calyx; *dorsal corolla lobe* elliptic, 4.4–4.9 mm long, ca. 1.8 mm wide, apex obtuse, margin ciliate, glabrous, lemon yellow, cucullate; *lateral corolla lobes* elliptic, 4.5–4.7 mm long, ca. 1 mm wide, apex obtuse, margin ciliate, glabrous, lemon yellow, cucullate; *lateral staminodes* 6.1–7.6 mm long, 4.3–7 mm wide, orbicular, apex rounded, spreading almost horizontally at 90 degrees to the axis, lemon yellow, glabrous; *labellum* oblong, 4.2–5 mm long, ca. 2 mm wide, base obtuse, apex



**Fig. 2.** *Globba karenensis* D.Nakano, Paing & Nob.Tanaka. **A.** Habit; reproductive shoot with tuberous roots (left) and leafy shoot (right). **B.** Inflorescence. **C.** A front view and back view of a flower. **D.** Flower dissection; dcl=dorsal corolla lobe, lcl=lateral corolla lobe, ls=lateral staminode. **E.** Anther with two appendages. **F.** Infructescence. (Photographed by C. S. Paing)

**Table 1.** Comparison of major morphological characters of *G. karenensis*, *G. ranongensis* and *G. insectifera*

Infrageneric taxa		Sect. Nudae	Subsect. Mediocalcaratae	Sect. Nudae	Subsect. Nudae
Characters		<i>G. karenensis</i>	<i>G. ranongensis</i>	<i>G. insectifera</i>	
Ligule	apex	truncate	bilobed	truncate or shallowly bilobed	
Lamina	shape	lanceolate	narrowly lanceolate to oblong	oblong to elliptic	
	size	ca. 3.3 × 0.75 cm	11.3–16.6 × 1.6–2.4 cm	5.5–18 × 0.6–3.5 cm	
	base	amplexicaul	cuneate or truncate	obliquely cuneate	
	apex	attenuate	caudate	acuminate	
	margin	entire	slightly undulate to undulate	entire	
	adaxial surface	glabrous	stiff hairs on midrib	strigose	
	abaxial surface	glabrous	pubescent on midrib	puberulous	
Peduncle and Pedicel	indumentum	glabrous	hairy	pubescent	
Rachis	color	green	brownish red	light green	
	indumentum	glabrous	hairy	pubescent	
Bract	color	greenish yellow	reddish	light green	
	indumentum	glabrous	hairy	glabrous to pubescent	
Bracteole	indumentum	glabrous	hairy	glabrous to pubescent	
Lateral staminodes	shape	orbicular	obovate	obovate	
	size	6.1–7.6 × 4.3–7 mm	6–8 × 1.3–1.5 mm	1.8–2 × 0.9–1.1 cm	
Labellum	shape	oblong	deltoid	obtriangular	
	size	4.2–5 × ca. 2 mm	7–9 × 5–7 mm	1.2–1.4 × 0.4–0.5 cm	
Filament	length	ca. 7 mm	1.8–2 cm	2.6–2.8 cm	
Ovary	indumentum	glabrous	hairy	not known	
Fruits	shape	ellipsoid to fusiform	ovate to ovate-oblong	ellipsoid	
	size	8–8.5 × 3.9–4.2 mm	ca. 1.3 × 0.8 cm	to 2.5 × 1 cm	
	color	bright yellow	yellowish brown to brownish	green	
	indumentum	glabrous	hairy	glabrous	

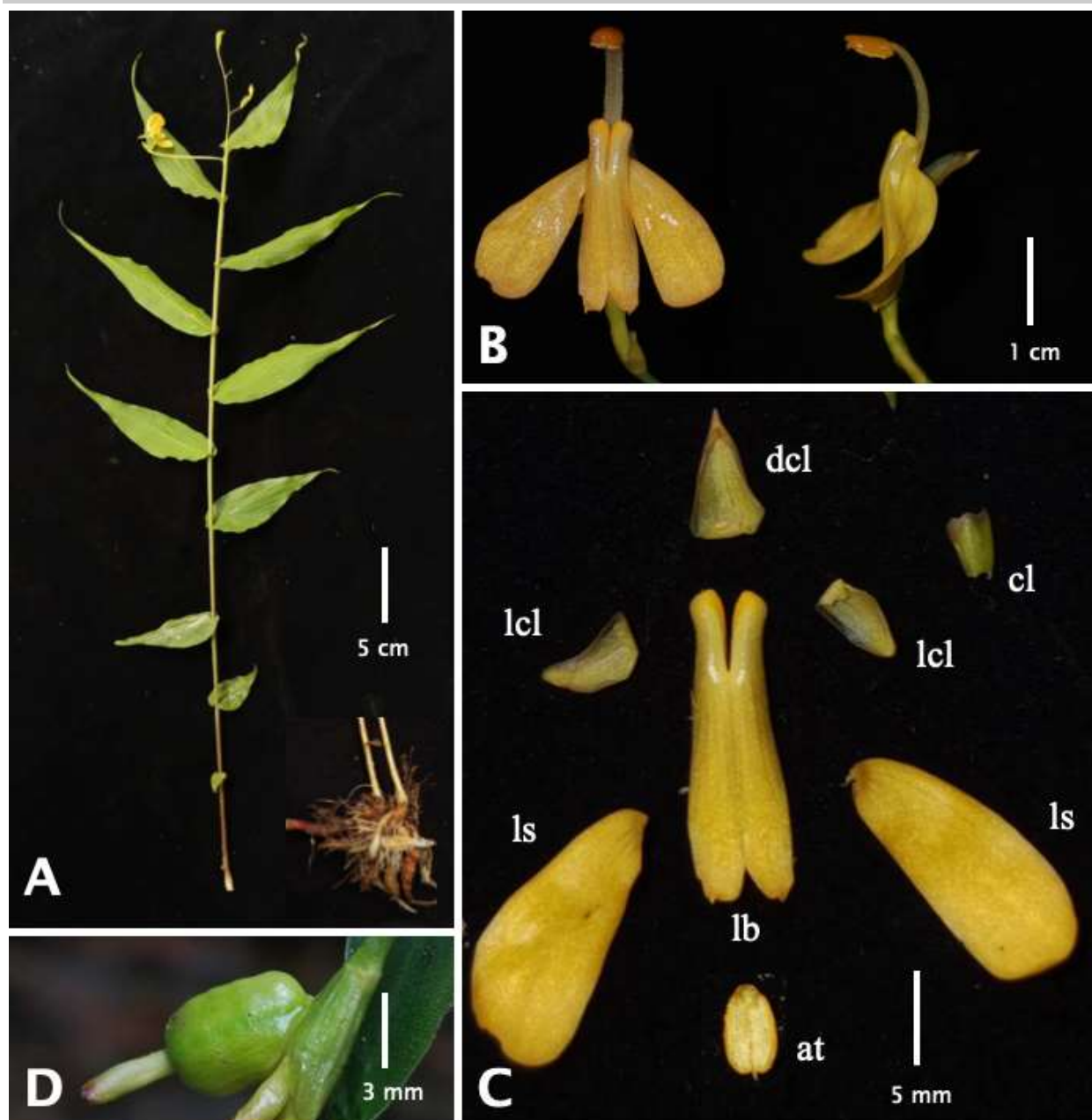
emarginate, nectar tube ca. 2 mm long, echinate inside of nectar tube, lemon yellow. **Stamen** 8.5–9.5 mm long; *filament* ca. 7 mm long, lemon yellow, arching; *anther* ovate, ca. 3 mm long, lemon yellow, apex slightly concave, crest absent; connective tissue and appendages semi-transparent lemon yellow, appendages 2, appendage 1.2–1.5 mm long, falcate, apex abruptly curved upward, base covering lower half of anther. **Ovary** globose, 1–1.8 mm long, greenish yellow, glabrous; *epigynous glands* 2, subulate, 0.4–0.5 mm long; *style* filiform, apex broader than the base; *stigma* funnel-shape, beyond stamen, ostiole ciliate. **Fruit** ellipsoid to fusiform, 8–8.5 mm long, 3.9–4.2 mm in diam., longitudinally ridged, bright yellow, glabrous, crowned by persistent calyx; *seeds* 1.8–2.4 mm long, ovoid, pubescent, brown; aril white. **Bulbils** not observed.

**Other specimen examined:** MYANMAR. Kayin State: Phaungdawoo mountain range, Tilon San Pya Village, Hlaingbwe Township, Hpa-an District, 16°58'08.8"N 97°47'44.2"E, 7 June 2025, *Chit Soe Paing 032* (RAF, TNS [TNS01382990]).

**Etymology:** The specific epithet “*karenensis*” refers to its type locality, Karen Hills. Kayin State was formerly known as Karen State.

**Distribution & Habitat:** Thus far, *Globba karenensis* is known only from the type locality in Karen Hills, Kayin State (Fig. 4). However, it could be distributed in a wider range of limestone hills lying in eastern part of Myanmar, and a more accurate distribution range may be determined in the future. The species grows in open rocky sunny place, and often making clusters.

**Notes:** *Globba karenensis* is most similar to *G. ranongensis*, but also somewhat similar to *G. insectifera* Ridl. in floral morphology and phenology. It differs from *G. insectifera* in lamina is glabrous on both surfaces, the lamina base amplexicaul, peduncle and rachis are glabrous, anther with two appendages and yellow fruits. A morphological comparison of these taxa was summarized in Table 1. Subsect. *Mediocalcaratae* comprises 19 known species, and within this subsection only *G. ranongensis*, shares the same life cycle (Picheansoonthon and Tiaworanant, 2010). Elsewhere in the genus *Globba*, species with a similar life cycle include *G. insectifera*, belonging to subsect. *Nudae*; *G. radicalis* Roxb., *G. spathulata* Roxb., and *G. wengeri* (C.E.C.Fisch.) K.J.Williams, all belonging to sect. *Mantisia*; and *G. praecox*, which is not assigned to any existing section. These species flower in the early rainy season from late May to June. Fruiting individuals were also observed in June, therefore the fruiting period would be from the beginning to the mid-rainy season. This new species is unique in having small upright herb with bamboo-like lanceolate leaves. Further molecular studies will clarify the precise phylogenetic relationship between this new species and the Thai species with similar phenology. An accurate assessment of its distribution range has to wait for further investigation. Therefore, the species is assigned a preliminary conservation status of Data Deficient [DD] according to the IUCN Red List Categories and Criteria (IUCN, 2012).



**Fig. 3.** *Globba winyawensis* D.Nakano, Paing, Thwin & Nob.Tanaka. **A.** Habit. **B.** A front and a rear view of a flower. **C.** Flower dissection; dcl=dorsal corolla lobe, lcl=lateral corolla lobe, ls=lateral staminode, cl= calyx, at=anther thecae. **D.** Fruits. (Photographed by C. S. Paing)

*Globba winyawensis* D.Nakano, Paing, Thwin & Nob.Tanaka, *sp. nov.* **Figs. 1-B & 3**  
(subgen. *Mantisia*)

**Type:** MYANMAR. Kayin State: Kyats Ta Nyin Cave, Kwooprai Taung, Twee Maung Hto village, near the Winyaw River, Kyarinnseikkyi Township, Kyarinnseikkyi District, 9 September 2025, 16°01'52.1"N 97°58'32.0"E, C.S.Paing & W.M.Thwin 052 (holotype- RAF; isotype- TNS [TNS01395547]).

**Diagnosis:** *Globba winyawensis* is similar to *G. zwegabinensis* in its flower shape and lax inflorescence,

however, it can be distinguished from it by leafy shoot with 8–10 leaves (vs. leafy shoot with up to 5 leaves), and shorter ligule (0.5 mm long vs. 1–2 mm long), lamina with caudate apex and cordate base (vs. lamina with acuminate to attenuate apex and obtuse base), hirsute adaxial surface and glabrous abaxial surface (vs. glabrous adaxial surface, pubescent abaxial surface), pubescent rachis, floral pedicel and floral tube (vs. glabrous), pubescent triangular bract (vs. lanceolate to linear glabrous bracts), obovoid to globose yellow fruits (vs. oblong green fruits).

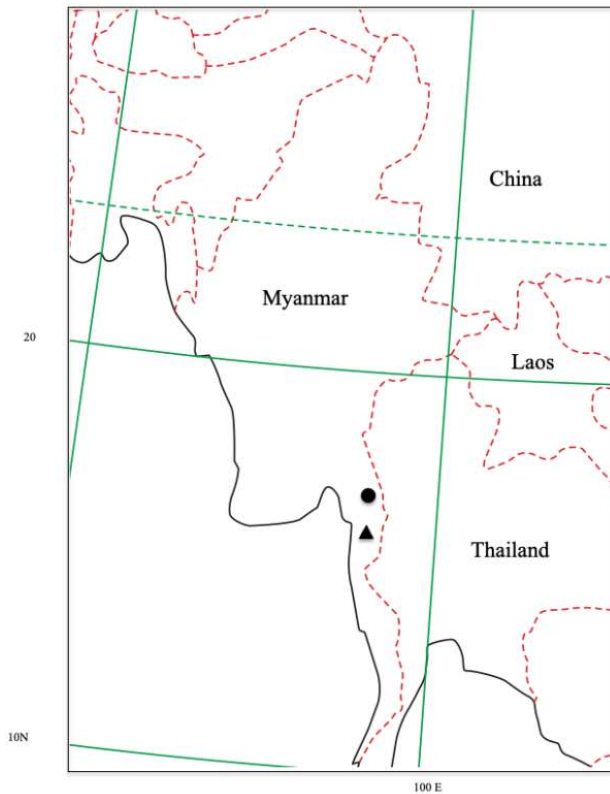


Fig. 4. Map showing the type locality of *G. karenensis* (circle), *G. winyawensis* (triangle).

**Description:** Lithophytic perennial herb, 37–40 cm tall. **Rhizomes** thickened, ca. 5 mm in diam., brown externally, pale yellow internally, bearing epiphytic orchid-like roots growing upward. **Leafy shoots** with 8–10 leaves, bladeless sheath ca. 3, stems whitish green, hirsute; **ligule** 0.5 mm long, forming a collar at the base of lamina, margin entire, outside puberulous, inside glabrous, red; **lamina** lanceolate, plicate, 5–10 cm long, 1.6–2.6 cm wide, base cordate, red tint, apex caudate, margin undulate, adaxial surface hirsute, green, abaxial surface glabrous, whitish green, **petiole** sessile. **Inflorescence** terminal on the leafy shoot, conical, lax, 4.7–10 cm long, 4.8–6 cm wide; **peduncle** reduced, puberulous; **rachis** ca. 6.5 cm long, puberulous; **bract** ca. 1 mm long, ca. 1 mm wide, triangular, apex acute, margin ciliate, adaxial surface glabrous, abaxial surface pubescent, persistent; **cincinni** 2–3 per inflorescence, each cincinnus 2–3-flowered, flowers condensed at tip; **bracteole** ovate ca. 0.6–1 cm long, 0.4 cm wide, apex acute, margin ciliate, both surfaces glabrous, persistent; **floral pedicel** for the basal flowers 3–4.5 cm long, decreasing in length toward the apex, pale green, puberulous. **Flowers** ca. 2.7 cm long; **calyx** infundibuliform, ca. 2.5 mm long, apex shallowly trilobed, margin ciliate, light green, glabrous; **floral tube** ca. 13 mm long, beyond calyx, strongly curved upwards holding the flower upright, puberulous, dull yellow; **dorsal corolla lobe** cucullate, prominently hooded toward the apex, triangular, ca. 5.5 mm long, ca. 3 mm wide, apex

acuminate, both surface glabrous, dull yellow; **lateral corolla lobes** cucullate, ovate, 3–4 mm long, 2–2.5 mm wide, both surface glabrous, dull yellow; **lateral staminodes** 11–16 mm long, 5–8 mm wide, narrowly obtriangular or obovate, apex obtuse, both surface glabrous, dull yellow; **labellum** ca. 13 mm long, ca. 5 mm wide, obtriangular, apex emarginate, base truncate, yellow-orange tint basally, nectar tube ca. 3 mm long, dull yellow, puberulent near base and inside of nectar tube. **Stamen** 15 mm long; **filament** 10–11 mm long, puberulent, whitish yellow, arching; **anther** ovate, ca. 4 mm long, orange, crest ca. 1 mm long, glabrous; **connective tissue and appendages** semi-transparent orange, non-appendaged. **Ovary** ellipsoid, ca. 2.8 mm long, ca. 1.1 mm diam., glabrous, smooth, yellowish green; **epigynous glands** 2, subulate, 1.5–1.7 mm long, whitish yellow; **style** filiform, apex broader than the base; **stigma** funnel-shape, ostiole slightly collapsed, margin ciliate, yellowish green. **Fruits** obovoid to globose, 5–7 mm long, 3–5 mm in diam., glabrous, green to bright yellow, crowned by persistent calyx; **seeds** not observed. **Bulbils** not observed.

**Etymology:** The specific epithet “*winyawensis*”, is derived from the Winyaw River, bordering Kyats Ta Nyin Cave, Mt. Kwooprai, where this species was discovered.

**Distribution & Habitat:** Thus far, it is known only from the type locality in Kayin State (Fig. 4). This species grows hanging down from the wet and shaded limestone cliff.

**Notes:** *Globba winyawensis* is most similar to *G. zwegabinensis*, but also somewhat similar to *G. securifer* Sangvir. & M.F.Newman described from Cambodia in lax cincinni and yellow flower. It differs from *G. securifer* in having a rounded ligule apex, lacking anther appendages, and bearing obovoid to globose fruits that turn yellow when mature. *Globba winyawensis* is considered to belong to either sect. *Substrigosa* or sect. *Haplanthera* of subgen. *Mantisia*, based on the absence of anther appendages and the position of the lateral staminodes. A morphological comparison of these three similar species was summarized in Table 2. Sect. *Haplanthera* is characterized by small, caducous bracts and comprises approximately nine species (Sangvirotjanapat and Newman, 2023; Latt *et al.*, 2024; Yadav and Gowda, 2025; Singh *et al.*, 2026). In contrast, sect. *Substrigosa* is distinguished by larger, more brightly colored, persistent bracts and currently includes only three known species (Williams, 2003). In both sections, the fruit surface is verrucose. However, the present species possesses small but persistent bracts and a smooth fruit surface, which does not conform well to the diagnostic characters of either section. Until additional evidence is available, this species is placed in subgen. *Mantisia* but remains unassigned to a section. As *G. winyawensis* grows on steep cliffs, and leafy stem grows almost straight down, its floral tube is strongly curved upwards holding the flower upright. Numerous

**Table 2.** Comparison of major morphological characters of *G. winyawensis* and its similar species, *G. zwegabinensis* and *G. securifer*.

	Infrageneric taxa	Subgen. <i>Mantisia</i>	Sect. <i>Haplanthera</i>	Sect. <i>Nudae</i> Subsect. <i>Pelecantherae</i>
Characters	<i>G. winyawensis</i>	<i>G. zwegabinensis</i>	<i>G. securifer</i>	
Leafy shoot	No. of leaves	8–10	up to 5	6–8
	indumentum	hirsute	glabrous	sparsely puberulous
Ligule	length	ca. 0.5 mm	1–2 mm	3–5 mm
Lamina	shape	lanceolate	ovate or broadly elliptic	elliptic
	size	5–10 × 1.6–2.6 cm	5–13 × 3–5.5 cm	5–18 × 1.7–5.2 cm
	base	cordate	obtuse	obliquely obtuse
	apex	caudate	acuminate to attenuate	long acuminate
	adaxial surface	hirsute	glabrous	strigose
	abaxial surface	glabrous	pubescent	pubescent
Rachis	indumentum	puberulous	glabrous	puberulent
Bracts	shape	triangular	lanceolate to linear	elliptic
	size	ca. 1 × 1 mm	20–30 × 5–8 mm	ca. 5 × 2 mm
	apex	acute	acuminate	acute
	abaxial surface	pubescent	glabrous	sparsely pubescent
Floral pedicel	indumentum	puberulous	glabrous	puberulent
Calyx	length	ca. 2.5 mm	ca. 7 mm	ca. 4 mm
Floral tube	indumentum	puberulous	glabrous	puberulent
Filament	length	10–11 mm	7–9 mm	ca. 20 mm
	indumentum	puberulent	glabrous	glabrous
Anther crest	length	ca. 1 mm	2–3 mm	ca. 0.2 mm
Anther appendages	No. of appendages	0	0	2
Fruits	shape	obovoid to globose	oblong to ovate	ellipsoid
	color	bright yellow	green	green

roots are produced from the rhizome, some of which grow upward and act as aerial roots, which are thought to be an adaptation to growing on limestone rocks and cliffs. So far, we have found this new species only from the type locality in southern Kayin State. Since limestone areas are distributed along the Tanintharyi Region of peninsula, Kayin, Kayah and Shan States in the eastern part of Myanmar, an assessment of its distribution range has to wait for further inventory studies. Therefore, the species is assigned a preliminary conservation status of Data Deficient [DD] according to the IUCN Red List Categories and Criteria (IUCN, 2012).

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