

Cheirostylis tortilacinia (Orchidaceae), a new record for Flora of Thailand

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Abstract: *Cheirostylis tortilacinia*, recently collected from Khao Yai National Park, is reported as a new record for Thailand. An artificial dichotomous key to the species of *Cheirostylis* now known to occur in Thailand is provided. A detailed taxonomic account, descriptions, line drawings, and photographs have been prepared from the Thai material for easy identification.

Keywords: New record, Nakhon Nayok, Orchid Taxonomy, Thailand

Introduction

Blume (1825) established the genus *Cheirostylis* and described *C. montana* Blume as the first species. The genus now consists of about 60 species in tropical to subtropical regions of Africa, Asia, eastern Australia and the Pacific Islands (POWO, 2024). This genus is characterized by a fleshy rhizome (devoid of roots but with internodal rhizoids), obconical ovaries, connate sepals, a labellum usually bearing parallel seriate appendages, and a column with 2 stylidia (Pridgeon *et al.*, 2003).

Seidenfaden and Smitinand (1959–1965), Seidenfaden (1978) and Pedersen (2011) provided full critical treatments of the *Cheirostylis* flora in Thailand. Pedersen (*S.loc.*) recognized eight species (*viz.*, *C. griffithii* Lindl., *C. moniliformis* (Griff.)

Seidenf., *C. montana*, *C. octodactyla* Ames, *C. pusilla* Lindl., *C. spathulata* J.J.Sm., *C. thailandica* Seidenf. and *C. yunnanensis* Rolfe) to which has recently been added *C. takeoi* (Hayata) Schltr. (Pinyot *et al.*, 2023).

During exploration of Khao Yai National Park (located where Central, Eastern and North-Eastern Thailand meet), we found a population of *C. tortilacinia* C.S.Leou flowering in November 2021, identified by comparing with the protologue (Leou, 1990). After perusal of pertinent literature, the species is reported as a new record to Thailand. The species was previously reported from Taiwan, Hainan and Vietnam (Leou, 1990; Huang *et al.*, 2014; Hsu *et al.*, 2020). Based on the collected specimens, a detailed morphological description, line drawings and colour photographs of *C. tortilacinia* are provided here. A dichotomous key to the ten species of *Cheirostylis* now known from Thailand is also provided (adapted from Pedersen, 2011).

Taxonomic treatment

Cheirostylis tortilacinia C.S.Leou, Quart. J. Exp. Forest. 4: 72. 1990. *Cheirostylis chinensis* Rolfe var. *tortilacinia* (C.S.Leou) S.S.Ying, Coloured Illustr. Orchid Fl. Taiwan 1: 224. 1996. *Type:* TAIWAN, **Nantou County**, Hoshe, c. 1000 m, C.S. Leou 4143 (holo NTUF, not found). **Figs. 1 & 2**

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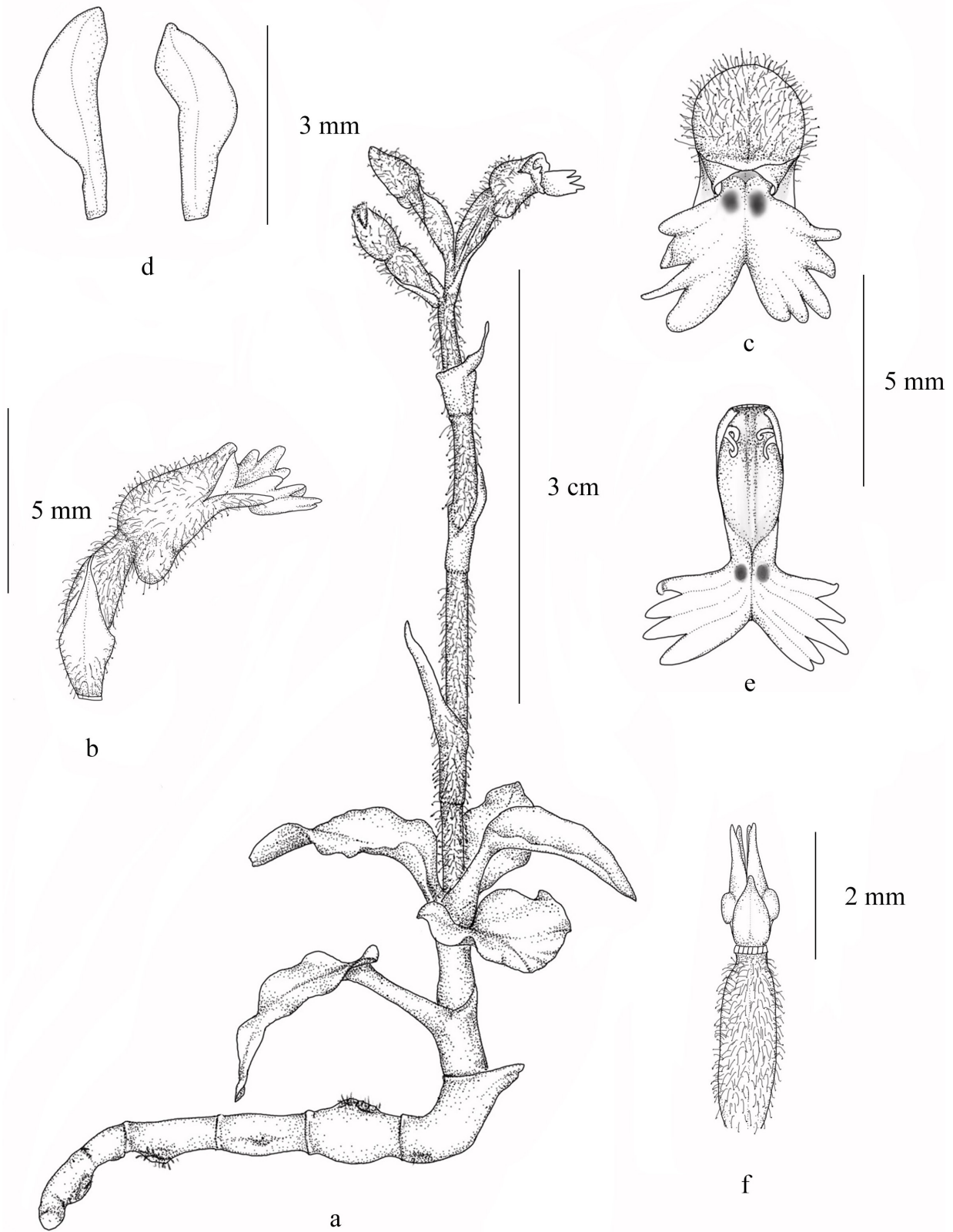


Fig. 1. *Cheirostylis tortilacinia* C.S.Leou: **a.** Habit; **b.** Flower and bract–side view; **c.** Flower–upper view; **d.** Petals; **e.** Labellum; **f.** Ovary and column (drawn by T. Chanokkhun).



Fig. 2. *Cheirostylis tortilacinia* C.S.Leou: **a.** Habit; **b.** Leaves; **c.** Upper part of inflorescence; **d.** Flower—upper view; **e.** Flower—side view showing the distinctly saccate synsepal (photos by T. Chanokkhun).

Terrestrial, sympodial herbs, up to 7 cm tall. Rhizomes short, creeping, distally ascending, greenish brown, moniliform with up to 13 nodes up to 0.5 cm apart, fleshy, c. 6 cm long, c. 0.5 cm in diam. Leaves c. 5, petiolate; petioles 0.5-0.7 cm long, base sheathing; lamina narrowly to broadly ovate, 1-1.5 × 0.7-0.8 cm, subcordate at base, acute at apex, margins entire, glabrous, greenish to reddish brown. Racemes terminal, erect, 4.5-5 cm tall; peduncle c. 3.5 cm long, greenish or reddish brown, densely pubescent with 0.5-0.8 mm long glandular hairs, bearing 3 lanceolate-ovate, sheathing scale leaves; rachis up to 1 cm long, laxly 1-7-flowered. Bracts ovate, 7-8 × 2.9-3 mm, cuspidate at apex, shorter than ovary, sparsely glandular-pubescent, greenish brown to reddish brown. Flowers short-pedicelled, 4.4-4.5 mm in diam., greenish to dull green with white petals, labellum white with two (sometimes confluent) spots at the base of the epichile. Synsepal distinctly saccate at base, 5.2-5.4 mm long, apically trilobed with triangular, obtuse lobes, densely glandular-pubescent on the outer surface. Petals obliquely to falcately oblanceolate, 3.0-3.1 × 0.6-0.7 mm, adherent to the synsepal, apices not protruding from the lateral sinuses of the synsepal, subacute, 1-veined. Labellum differentiated into hypochile and epichile, 5-6 mm long along the mid-line; hypochile saccate at base, inside with a short row of 2-3 papilla-like appendages on either side; epichile cleft for about half of its length to form 2 moderately spreading, subsimilar, subquadrate, 2.3-2.4 × 1.5-2 mm, coarsely 4-5 dentate lobes. Column 1.3-1.5 mm long; stigma bipartite, extended in 2 linear-triangular stylids that are parallel and subequal to the rostellum lobes. Rostellum bifid with linear lobes, c. 2 mm long; anther cuspidate in front, c. 1.8 mm long; pollinia 2, clavate, c. 1.3 mm long; viscidium not seen. Ovary green to brownish green, cylindrical-fusiform, 4.9-5 mm long, densely glandular-pubescent. Capsule not seen.

Flowering & fruiting: Flowering in November; fruiting not observed.

Habitat: Terrestrial in hill evergreen forest, growing in soil with litter in a moist, shaded area.

Distribution: Hainan, Taiwan, Thailand and Vietnam.

Specimens examined: THAILAND, **Nakhon Nayok**, Pha Diew Dai, Khao Yai, N 14°21'57.35", E 101°24'22.43", c. 1100 m alt., 25.11.2021, Chanokkhun 424 (QBG!).

Key to species of *Cheirostylis* in Thailand (adopted from Pedersen, 2011)

1. Foliage leaves scattered along the stem 2
1. Foliage leaves assembled in a loose to dense rosette 3
2. Lamina of longest leaf less than 1.2 cm long; synsepal less than 7 mm long; hypochile inside with one, basally 2- or 3-branched appendage on either side; epichile bilobed with slightly erose-dentate to erose-crenulate lobes
C. pusilla
2. Lamina of longest leaf more than 1.2 cm long; synsepal more than 7 mm long; hypochile inside with a longitudinal row of 15-20 appendages on either side; epichile transversely elliptic, coarsely 7- to 9-dentate
C. octodactyla
3. Petals free from the synsepal along their whole length; apices protruding from the lateral sinuses of the synsepal 4
3. Petals adnate or adherent to the synsepal along their whole length or nearly so; apices not protruding from the lateral sinuses of the synsepal (occasionally protruding in *C. spathulata*) 5
4. Apical part of labellum emarginate to deeply bilobed (lobes often unequal) with slightly erose to dentate-laciniate margin; basal part inside with a short row of 3-6 papilla-like appendages on either side *C. thailandica*
4. Apical part of labellum obtuse to subacute with entire margin; basal part devoid of appendages *C. takeoi*

- 5. Ovary glabrous *C. moniliformis*
- 5. Ovary glandular-pubescent (sometimes sparsely so) 6
- 6. Margins of epichile subentire to erose-crenulate or irregularly dentate 7
- 6. Margins of epichile deeply lacinate or coarsely dentate 8
- 7. Synsepal less than 6 mm long; epichile transversely oblong to moderately bilobed (i.e., entire or cleft for up to about half of its length) *C. montana*
- 7. Synsepal more than 6 mm long; epichile deeply bilobed (i.e., cleft in its whole length or very nearly so) *C. spatulata*
- 8. Synsepal more than 9 mm long; hypochile inside with two rows of numerous papillae; epichile lobes deeply lacinate *C. griffithii*
- 8. Synsepal less than 9 mm long; hypochile inside with two rows of 2–4 papillae; epichile lobes coarsely dentate 9
- 9. Leaves assembled in a dense, basal rosette; Inflorescence more than 5 cm long; rachis moderately pubescent with short glandular hairs. Synsepal not saccate. Epichile flat in front view (i.e., lobes widely spreading) *C. yunnanensis*
- 9. Leaves assembled in a loose, sub-basal rosette; Inflorescence less than 5 cm long; rachis densely pubescent with long glandular hairs. Synsepal distinctly saccate. Epichile U-shaped in front view (i.e., lobes moderately spreading) *C. tortilacinia*

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