THAI FOREST BULL., BOT. 52(1): 21–24. 2024.
DOI https://doi.org/10.20531/tfb.2024.52.1.03

Re-discovery of *Fimbristylis tenera* (Cyperaceae) in Thailand

KHANIT WANGWASIT[1], WISETSAK WISETWOHAN[2],
THAWEEP KHAMPAENGMUEANG[2] & KAMOLHATHAI WANGWASIT[1,*]

ABSTRACT

Fimbristylis tenera is re-discovered in Thailand and is described and illustrated. Part of the *Fimbristylis* key in the Flora of Thailand Cyperaceae account is emended to include *F. tenera*.

KEYWORDS: *Abildgaardia*, taxonomy, Thailand.

Accepted for publication: 4 March 2024. Published online: 12 April 2024

INTRODUCTION

The genus *Fimbristylis* Vahl (1805) comprises 314 accepted species (POWO, 2024), distributed mainly in the tropics of both hemispheres (Kern, 1974) and especially in South Asia, Indo-China and Malesia (Simpson & Koyama, 1998). There were 63 species previously reported in Thailand (Simpson & Koyama, 1998; Maxwell, 2002; Wangwasit *et al.*, 2012; Wangwasit *et al.*, 2017). However, the recently described *Fimbristylis fusiformis* K.Wangwasit & D.A.Simpson (Wangwasit *et al.* 2017) and *F. ovata* (Burm.f) J.Kern, were transferred to *Abildgaardia* by Larridon *et al.* (2021). Therefore, 61 Thai species have been retained in *Fimbristylis*, although it is possible that other species will be transferred to *Abildgaardia* after further research.

During fieldwork in 2023 at Don Mo Thong, Bueng Khong Long, Bueng Kan Province in North-Eastern Thailand, a *Fimbristylis* species characterized by minute, cream-coloured nutlets and dotted glumes was found. The specimens were putatively referred to *Fimbristylis tenera* Roem. & Schult. Ostenfeld (1905) and Camus (1912) reported its distribution in Thailand at Tapot-Sah (near Tak) from a specimen collected by *E. Lindhard* housed in **C**. However, it was not reported by Simpson & Koyama (1998). With this re-discovery, *Fimbristylis* in Thailand now comprises 62 species.

MATERIALS AND METHODS

Plant specimens were collected around Bueng Khong Long, Bueng Kan Province, Thailand. Identification was carried out using accounts of the genus in Flora of Thailand (Simpson & Koyama, 1998), Flore Générale de l'Indo-Chine (Camus, 1912), Flora Malesiana (Kern, 1974), Flora of British India (Clarke, 1893), Flora of China (Zhang *et al.*, 2010) and other regional taxonomic literature. Voucher specimens were compared with the image of the type specimen housed in G.

TAXONOMIC TREATMENT

Part of the *Fimbristylis* key in the Flora of Thailand Cyperaceae account (Simpson & Koyama, 1998) emended to include *F. tenera*.

6. Glumes densely gland-dotted
  6A. Glume margins fimbriate-ciliate, apex often emarginate **29. F. leptoclada**
  6A. Glume margins entire, apex acute **F. tenera**
6. Glumes not gland-dotted

[1] Department of Biology, Faculty of Science, Mahasarakham University, Kantharawichai District, Maha Sarakham 44150, Thailand.

[2] Bueng Khong Long Non-Hunting Area, Department of National Parks, Wildlife and Plant Conservation, Seka District, Bueng Kan 43150, Thailand.

* Corresponding author: Kamolhathai.w@msu.ac.th

Fimbristylis tenera, Mant. 2: 57. 1824; Kunth, Enum. Pl. 2: 245. 1837; Boeckeler, Linnaea 37: 26. 1871; C.B.Clarke i Roem. & Schult. n Hook.f., Fl. Brit. Ind. 6: 642. 1893; in W.T.Thiselton-Dyer, Fl. Trop. Afr. 8(3): 420. 1902; T.Durand & Schinz, Consp. Fl. Afr. 5: 610. 1894; Ostenfeld, Bull. Herb. Boiss., ser. 2, 5: 719. 1905; E.G.Camus in Fl. Gén. I.-C. 7: 112. 1912; Koyama, Bot. Mag. (Tokyo) 87: 313. 1974.— *Iria tenera* (Schult.) Kuntze in Revis. Gen. Pl. 2: 753. 1891. Type: India Orientalis [India], *Roxburgh s.n*. (lectotype, designated by Halder *et al.*, 2014: 290, **G** [G00309005 image!]).

— *Scirpus tenellus* Roxb., Hort. Bengal. 81. 1814; in Fl. Ind. 1: 224. 1820; Nees, Linnaea 9: 290. 1834, **nom. illeg.**

— *Trichelostylis tenella* Nees, in R.Wight, Contr. Bot. India: 103. 1834; Linnaea 9: 290. 1834.

— *Fimbristylis oxylepis* Steud. in Syn. Pl. Glumac. 2: 110. 1855.— *F. tenera* var. *oxylepis* (Steud.) C.B.Clarke in Hook.f., Fl. Brit. India 6: 642. 1893.— *Fimbristylis tenera* subsp. *oxylepis* (Steud.) T.Koyama, Bot. Mag. (Tokyo) 87: 315. 1974. Type: India Orientalis, Senampur, *W. Griffith s.n.* (holotype **P** [P00051566 image!]).

— *Fimbristylis glabra* Hochst. ex Steud. in Syn. Pl. Glumac. 2: 111. 1855. Type: India Orientalis, Karnataka Prope urbem Mangalor, 1847, *R.F. Hohenacker 131a* (holotype **P** [image!]; isotype **K** [K000974039 image!]. Figs. 1–2.

Annual. *Culms* tufted, 18–23 cm by 0.3–0.5 mm, 3–5-angular, smooth. *Leaves* basal, 2-ranked; blade filiform, 1.5–4.8 cm by 0.5–1 mm, subacute, dorsiventrally flattened; glabrous or strigillose on the upper surface, margin strigillose mostly upper the upper part; ligule 0. *Involucral bracts* 3–5, leaf-like, the longest up to 8 mm, margin strigillose. *Inflorescence* compound to decompound, 1–2.6 by 1.8–3.5 cm, primary branches up to 1.7 cm long,

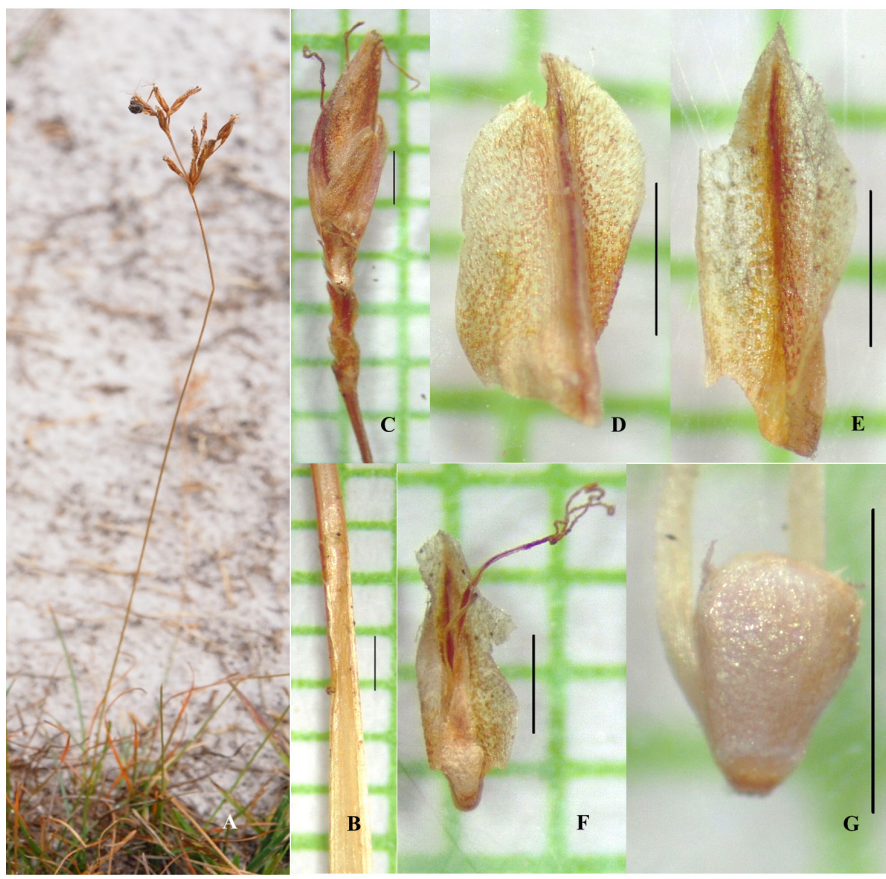

Figure 1. *Fimbristylis tenera* Roem. & Schult.: A. habit; B. leaf without ligule; C. spikelet; D. abaxial side of lower glume; E. adaxial side of upper glume; F. glume and ovary with style and stigma; G. Nutlet. Scale bar B–F = 1 mm; G = 0.5 mm. Photos by Khanit Wangwasit.

margin strigillose. *Spikelets* 10–15 per inflorescence, solitary, fusiform to narrowly oblong-ellipsoid, terete, 3–6 by 0.7–1.2 mm, apex acuminate. *Glumes* 7–9 per spikelet, spirally arranged, ovate-oblong, 2.5–2.8 by 1–1.2 mm, acute to acuminate, side membranous, brown, densely reddish-brown gland-dotted; margins pale hyaline, entire; keel obtuse, 1–3-nerved. *Stamens* 3; filament filiform, anthers 1.5–1.8 mm long. *Style* ciliate at base; stigma 3. *Nutlets* conical, obovoid, trigonous, 0.5–0.8 by 0.3–0.4 mm, white or greyish-white, apex truncate or emarginate, smooth, epidermal surface with minute papillae.

Thailand.— NORTHERN: Tak [Tapot-Sah, *E.Lindhard 20* (**C**, not seen); NORTH-EASTERN: Bueng Kan [Don Mo Thong, Bueng Khong Long, Seka Dist., 4 Feb. 2023, *Wangwasit & Wangwasit 230204-1* (**BKF**)].

Distribution.— Tropical Africa, Pakistan, India, Bangladesh, and Sri Lanka.

Ecology.— Open areas on sandy soil.

Vernacular.— Kok nuat suea dao (กกหนวดเสือดาว) (Proposed here).

Note.— *Fimbristylis tenera* is distinguished by having reddish-brown dotted glumes with entire margins and small, triangular nutlets with minute papillae on the surface.

The specimen collected from Tapot-Sah, believed to be in **C**, was not found despite a thorough search for it (J. Soelberg, pers. comm.). However, based on the description in Camus (1912) we have no reason to doubt its identity and we accept it here as the first record for Thailand.

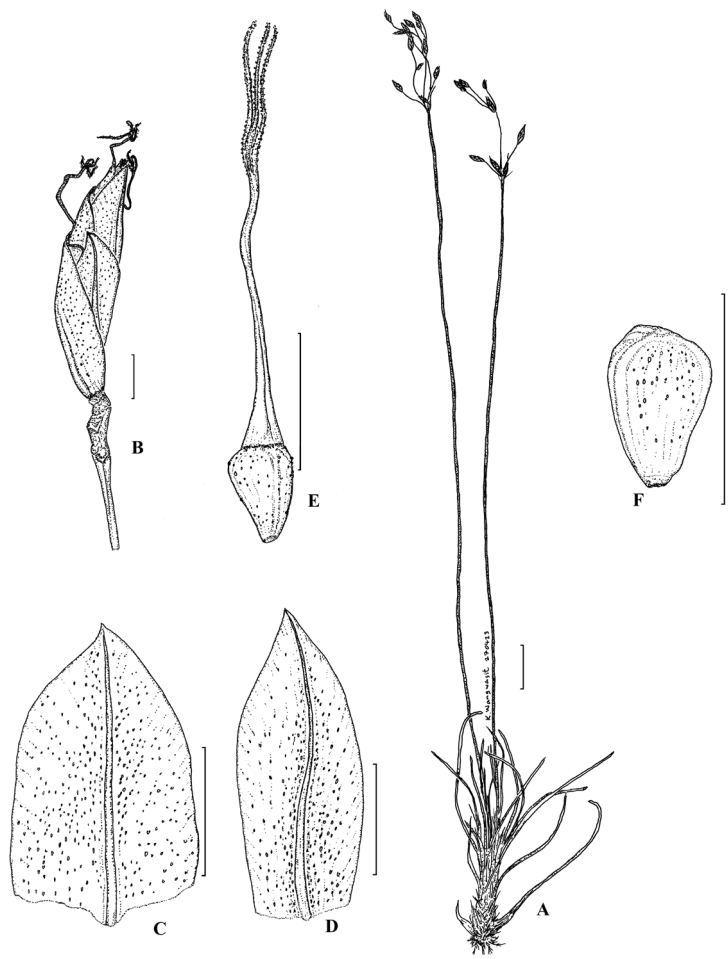

Figure 2. *Fimbristylis tenera* Roem. & Schult.: A. habit; B. spikelet; C. abaxial side of lower glume; D. abaxial side of upper glume; E. ovary with style and stigma; F. Nutlet. Scale bar A= 1 cm, B–F = 1 mm. Material from *Wangwasit & Wangwasit 230204-1* (**BKF**). Drawn by Khanit Wangwasit.

Fimbristylis glabra Hochst. ex Steud. is a synonym of *F. tenera*. We found type specimens in **P** (P00045458, P00051567) and **K** (K000974039). Both specimens from **P** are referred to as 'holotypes' (Muséum National d'Histoire Naturelle, 2024). However, the protologue in Steudel (1855) cites only one specimen, '*nr.131 a*', which corresponds to *R.F. Hohenacker 131a*. P00045458 (**P**) and K000974039 (**K**) are specimens corresponding to this collection and are designated holotype and isotype respectively. P00051567 is, therefore, not a type.

ACKNOWLEDGEMENTS

We thank Laurence Loze, the herbarium secretary, and Dr Fred Stauffer, the head curator of G, for contributing the fine digitized images of type material. We also thank Jens Soelberg, the collection manager of C, for checking specimens. This research project was financially supported by Thailand Science Research and Innovation (TSRI).

REFERENCES

Camus, E.-G. (1912). *Fimbristylis*. In: M.H. Lecomte (ed.), Flore Générale de l' Indo-Chine 7: 88–126. Messon et Cie Editeurs, Paris.

Clarke, C.B. (1893). Cyperaceae. In: J.D.Hooker (ed.), Flora of British India (Orchideae to Cyperaceae) Vol. 6: 585–748. L. Reeve & Co., London.

Kern, J.H. (1974). Cyperaceae. In: van Steenis, C.G.G.J. (ed.), Flora Malesiana ser.1 Vol. 7(3): 435–753. Noordhoff International Publishing, Leyden.

Larridon, I., Zuntini, A.R., Léveillé-Bourret, É., Barrett, R.L., Starr, J.R., Muasya, A.M., Villaverde, T., Bauters, K., Brewer, G.E., Bruhl, J.J., Costa, S.M., Elliott, T.L., Epitawalage, N., Escudero, M., Fairlie, I., Goetghebeur, P., Hipp, A.L., Jiménez-Mejías, P., Sabino Kikuchi, I.A.B., Luceño, M., Márquez-Corro, J.I., Martín-Bravo, S., Maurin, O., Pokorny, L., Roalson, E.H., Semmouri, I., Simpson, D.A., Spalink, D., Thomas, W.W., Wilson, K.L., Xanthos, M., Forest, F. & Baker, W.J. (2021). A new classification of Cyperaceae (Poales) supported by phylogenomic data. Journal of Systematics and Evolution. 59(4): 852–895.

Maxwell, J.F. (2002). *Fimbristylis alata* E.-G. Camus (Cyperaceae): a new record for Thailand. Natural History. Bulletin of Siam Society 50: 115–116.

Muséum National d'Histoire Naturelle. (2024). Vascular plants (P). https://science.mnhn.fr/institution/mnhn/collection/p/item/search/form?listCount=11459&listIndex=71/ [Accessed on 28 February 2024].

Ostenfeld, C.H. (1905). A list of plants collected in the Raheng district, upper Siam, by Mr. E. Lindhard. Bulletin de l'herbier Boissier Sér. 2, 5(8): 709–724.

POWO (2024). Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew; http://www.plantsoftheworldonline.org/ [Accessed on 28 February 2024].

Simpson, D.A. & Koyama, T. (1998). Cyperaceae. In: T.Santisuk & K.Larsen (eds) Flora of Thailand Vol. 6(4). The Forest Herbarium, Royal Forest Department, Bangkok.

Steudel, E.G. (1855). Synopsis plantarum glumacearum. Vol. 2. Stuttgartiae, J.B. Metzler.

Vahl, M. (1805). Enumeratio Plantarum Vol. 2. Hauniae, Impenis auctoris, & prostat apud J.H. Schubothe.

Wangwasit, K., Wangwasit, K. & Chantaranothai, P. (2012). *Fimbristylis pubisquama* (Cyperaceae), a new record for the Flora of Thailand. Thai Forest Bulletin (Botany) 40: 141–143.

Wangwasit, K., Muasya, A.M., Chantaranothai, P. & Simpson, D.A. (2017). Taxonomy and phylogenetic position of *Fimbristylis fusiformis*, a new species of Cyperaceae from Thailand. Blumea 62(1): 47–52.

Zhang, S., Liang, S.Y., Koyama, T. & Simpson, D.A. (2010). *Fimbristylis* L. In: Z.Y.Wu, P.H.Raven & D.Y.Hong (eds). Flora of China vol. 23 (Acoraceae through Cyperaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St Louis.