
Tripogon debilis (Poaceae), a New Species from Western China

Cai Lian-bing

Northwest Plateau Institute of Biology, The Chinese Academy of Sciences, Xining,
Qinghai 810001, China. cailb@nwipb.ac.cn

ABSTRACT. A new species of *Tripogon* from western China (Sichuan Province), *T. debilis* L. B. Cai, is described and illustrated. This species is similar to both *T. chinensis* (Franchet) Hackel and *T. sichuanicus* S. M. Phillips & S. L. Chen, but distinguished from these two species by its pendent spikes, relatively long glumes and lemma awns, denticulate upper glumes, and its paleas strikingly shorter than the lemmas.

Key words: China, Poaceae, *Tripogon*.

The genus *Tripogon* Roemer & Schultes consists of approximately 30 species. One species is distributed in Australia and two in America; the remainder are in Asia and Africa. The greater number are concentrated in southern Asia, especially in India, for which Bor (1960) reported 13 species. China has 10 previously recognized species, but only 4 are endemic, and most of them occur in the mountains of western China (Keng, 1959; Keng & Liou, 1960; J. L. Yang, 1983; X. L. Yang, 1983, 1990; Phillips & Chen, 2002). Recent research on the genus in this region revealed two collections representing an unknown taxon. Thorough, immediate investigation and collection in the localities of these specimens in the summer of 2003 revealed that this taxon is different from all other species of this genus in its external morphology. Hence, it is reported as a new species here.

Tripogon debilis L. B. Cai, sp. nov. TYPE: China. Sichuan: Jiulong County, Tanggu, 3210 m, 29°6'N, 101°36'E, 23 July 2003, L. B. Cai 0318 (holotype, HNWP; isotype, CDBI). Figure 1.

Culmi tenues, 25–34 cm alti. Spicae laxae, graciles, 8–15 cm longae. Spiculae 6–8 mm longae (aristis exclusis), 6- ad 8-flores gerentes; glumis lanceolatis, 1- ad 3-nervis, infera integra, 2.5–3.5 mm longa, supera 4.0–5.0 mm longa, infra apicem bidenticulata; lemmate primo 3.5–4.5 mm longo (arista exclusa), nervo medio in aristam 3–4 mm longam extenso; paleis lemmatibus ca. 1.1 mm brevioribus.

Perennial herb, with thick fibrous roots. Culms erect or slightly geniculate below, smooth, caespitose, 25–34 cm tall, ca. 0.8 mm diam., 2- or 3-

noded. Leaf sheaths shorter than the internodes, white-villose at abaxial sheath summit; ligules very short or nearly absent; leaf blades involute, 4–11 cm long, lower surface glabrous, upper surface scabrous or sometimes pubescent toward the base. Spikes lax, slender, pendent, 8–15 × ca. 0.25 cm; inflorescence rachis internodes glabrous, generally 5–13 mm long. Spikelets sessile, brownish green, appressed along the rachis, usually 6- to 8-flowered, 6–8 mm long (excluding awns); glumes lanceolate, glabrous, slightly membranous along the margins; lower glume 1-nerved, entire, pungent at the apex, 2.5–3.5 mm long; upper glume obscurely 3-nerved, 2 denticulate below the apex, 4–5 mm long; lemmas glabrous, lanceolate, 3-nerved; first lemma 3.5–4.5 mm long, its median vein extended into a straight awn 3–4 mm long, lateral veins extended into mucros 0.3–0.5 mm long, toothed between the mucros and the median awn; callus obtuse, with ca. 0.3 mm long hairs; paleas semi-membranous, 2-nerved, shorter than the lemmas by ca. 1.1 mm, densely ciliate along upper keels; anther 1, rarely 2 or 3, yellow, 1.3–1.5 mm long. Caryopses unknown.

Etymology. The epithet “*debilis*” refers to the slender spikes and culms of the new species.

Distribution and habitat. *Tripogon debilis* is known only from the Hengduanshan district of Sichuan Province, western China, where it grows on roadsides, wasteland, and stony slopes from 3100 to 3800 m. According to field observations, this species is locally rare.

Relationships. This new species is similar to *Tripogon chinensis* (Franchet) Hackel in its slender culms to 34 cm tall, lax and graceful spikes, short spikelets appressed to the rachis, and its lemmas with only central awns. It differs from *T. chinensis* in having pendent spikes and spikelets with 6 to 8 florets; lower glumes 2.5–3.5 mm long; upper glumes 4–5 mm long, with 2 teeth below the apex; lemma awns 3–4 mm long, and paleas being strikingly shorter than the lemmas. In addition, the general appearance of spikes in *Tripogon sichuanicus* S. M. Phillips & S. L. Chen suggests some similar-

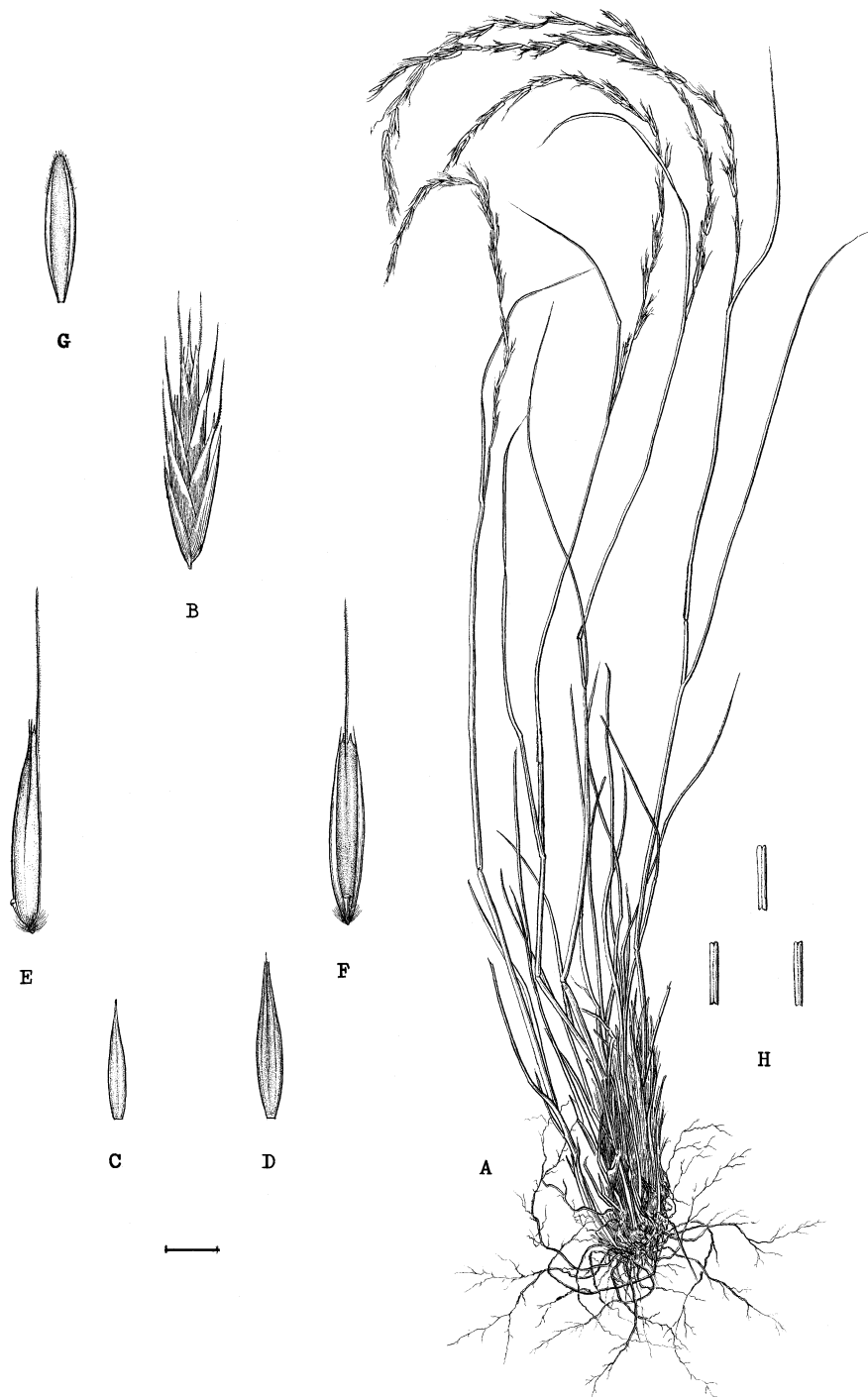


Figure 1. *Tripogon debilis* L. B. Cai. —A. Plant. —B. Spikelet. —C. Lower glume. —D. Upper glume. —E. Lateral view of the first lemma. —F. Ventral view of the first lemma. —G. Palea. —H. Anthers. Scale bar: A = 12 mm; B = 0.17 mm; C, D = 0.13 mm; E–H = 0.11 mm. A–H drawn from the holotype (*L. B. Cai 0318*, HNWP).

ities with this species, but *T. sichuanicus* can be distinguished from this species by its erect or slightly curved spikes, lower glumes 2.1–2.7 mm long; upper glumes entire 3.5–4.3 mm long, lemmas oblong-ovate 2.8–3.0 mm long, with blunt teeth and short central awns 1.8–3.3 mm long, and its paleas being subequal to the lemmas.

Morphologically, *Tripogon debilis*, *T. chinensis*, *T. sichuanicus*, and some other species, such as *T. humilis* X. L. Yang and *T. purpurascens* Duthie, form a distinct group within *Tripogon*. Members of the group have slender spikes, entire lower glumes, the lemmas without the lateral awns (at most mucronate), and central awns that are shorter than or subequal to the lemmas. Such species as *T. bromoides* Roemer & Schultes, *T. yunnanensis* J. L. Yang ex S. M. Phillips & S. L. Chen, *T. longiaristatus* Hackel ex Honda, and *T. filiformis* Nees ex Steudel have broader spikes, lobed lower glumes, and lemmas with lateral awns as well as central awns that are longer than the lemmas. *Tripogon nanus* Keng not only has lateral and central awns longer than the lemmas, but also distinct awns on the lobes between lateral and median awns. Further research is needed to determine whether these species groups should be recognized as sections.

Paratypes. CHINA. **Sichuan:** Jiulong County, Tanggu, Y. B. Yang 29478 (HNWP); Daocheng County, Haizhi, Z. G. Liou 29030 (HNWP).

Acknowledgments. I thank Ma Bi-hua, Qiao Zhi-xin, and Zhang Chang-quan for assistance with fieldwork, Song Yu-zhu for preparing the excellent illustration, and Chen Chun-fang for making the holotype collection. This work was financially supported by the Systematic and Evolutionary Biology Foundation of the Chinese Academy of Sciences.

Literature Cited

- Bor, N. L. 1960. Grasses of Burma, Ceylon, India and Pakistan. Pergamon Press, Oxford.
- Keng, P. C. & L. Liou. 1960. A study on the tribe Eragrostideae and its two genera new to China. *Acta Bot. Sin.* 9: 48–75.
- Keng, Y. L. (Editor). 1959. Pp. 458–462 in *Flora Illustralis Plantarum Primarum Sinicarum Gramineae*. Sci. Publ. House, Beijing.
- Phillips, S. M. & S. L. Chen 2002. The genus *Tripogon* (Poaceae) in China. *Kew Bull.* 57: 911–924.
- Yang, J. L. 1983. New species of Gramineae from Sichuan. *Acta Bot. Yunnan.* 5: 47–53.
- Yang, X. L. 1983. New taxa of *Tripogon* and *Aeluropus*. *Acta Bot. Yunnan.* 5: 72–74.
- . 1990. *Tripogon*. Pp. 58–63 in S. L. Chen (editor), *Flora Reipublicae Popularis Sinicae*, Tomus 10(1). Science Press, Beijing.