Wiedemannia (Diptera: Empididae) newly found in China with description of a new species from Tibet

Authors: Wang, Ning, Wang, Baohai, and Yang, Ding

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Wiedemannia (Diptera: Empididae) newly found in China with description of a new species from Tibet

Ning Wang[1, 2], Baohai Wang[3,] and Ding Yang[1,*]*

Abstract

The genus *Wiedemannia* Zetterstedt is recorded from China for the first time. One species is described from South Tibet: *Wiedemannia tibetensis* **sp. nov.** This new species can be separated from the related species *Wiedemannia glaucescens* (Brunetti) by presence of the pterostigma, discal cell apically with a short appendage, surstylus nearly strip-like and hidden below dorsal portion of epandrium, and distiphallus not swollen without spines at middle. A key to the species of the genus *Wiedemannia* from the Oriental Region is presented.

Key Words: dance fly; *Wiedemannia tibetensis*; Tibet

Resumen

Se registra el género *Wiedemannia* Zetterstedt por primera vez en China. Se describe una especie del sur del Tíbet: *Wiedemannia tibetensis* **sp. nov.** Se puede separar esta nueva especie de la especie relacionada *Wiedemannia glaucescens* (Brunetti) por la presencia de la pterostigma, la célula discal apicalmente con un apéndice corto, el surstylus casi como una banda y oculto debajo de la porción dorsal del epandrium, y no distifalo hinchado sin espinas en la parte media. Se presenta una clave para las especies del género *Wiedemannia* de la Región Oriental.

Palabras Clave: mosca danza; *Wiedemannia tibetensis*; Tíbet

The genus *Wiedemannia* Zetterstedt is a larger genus in the subfamily Clinocerinae with 104 known species, of which 8 species are distributed in the Afrotropical Region, 90 in the Palaearctic, 1 in the Oriental, and 6 in the Nearctic (Yang et al. 2007). The major references dealing with the eastern Palaearctic and Oriental *Wiedemannia* are as follows: Brunetti (1917); Vaillant (1960); Collin (1961); Joost (1981, 1984); Wagner (1990); Niesiolowski (1992); Wagner et al. (2004).

Up to now only one species, *Wiedemannia glaucescens* (Brunetti), was known to occur in the Oriental region, recorded from India and Nepal of the Himalayas (Brunetti 1917; Smith 1965; Wagner et al. 2004). Tibet is a plateau region with an average elevation of 4,900 metres in Asia, located in the north-east of the Himalayas. It mostly belongs to the Palaearctic Region except that Southern Tibet is considered as Oriental. This region harbors a peculiar biodiversity, but the dance fly fauna is poorly known (Yang & Yang 2004; Yang et al. 2007). This genus is recorded from China for the first time with the description of a new species from South Tibet, which belongs to the Oriental Region.

Materials and Methods

Type specimen is deposited in the Entomological Museum of China Agricultural University (CAU), Beijing. Morphological terminology generally follows Cumming & Wood (2009), except male terminalia which follows Sinclair (1995). The following abbreviations are used for setae: acr–acrostichal, av–anteroventral, dc–dorsocentral, h–humeral, npl–notopleural, oc–ocellar, ph–posthumeral, psa–postalar, pv–posteroventral, sa–supraalar, sc–scutellar, v–ventral, vt–vertical.

Results

Genus *Wiedemannia* Zetterstedt

Diagnosis

Face with a distinct notch or carina on lower margin. Gena rather wide. First flagellomere subtriangular. Fore femur with only short weak ventral setulae, but without strong v. Fore tarsomere 2 much longer than tarsomeres 3 or 4. Phallus biarticulated (Sinclair 1995).

Distribution

Afrotropical, Palaearctic, Oriental, and Nearctic Regions.

Remarks

For detailed descriptions of the genus, we refer to Collin (1961) and Sinclair (1995).

[1]Department of Entomology, College of Agronomy and Biotechnology, China Agricultural University, Beijing 100193, China
[2]Institute of Grassland Research, Chinese Academy of Agricultural Sciences, Hohhot, Inner Mongolia 010010, China
[3]Tibet Academy of Agricultural and Animal Husbandry Sciences, No. 130 Jinzhu West Road, Lhasa, Tibet 850032, China
*Corresponding author; E-mail: Wangbh@taaas.org (Baohai Wang); dyangcau@126.com, dyangcau@aliyun.com (Ding Yang)

Key to species of *Wiedemannia* from the Oriental Region

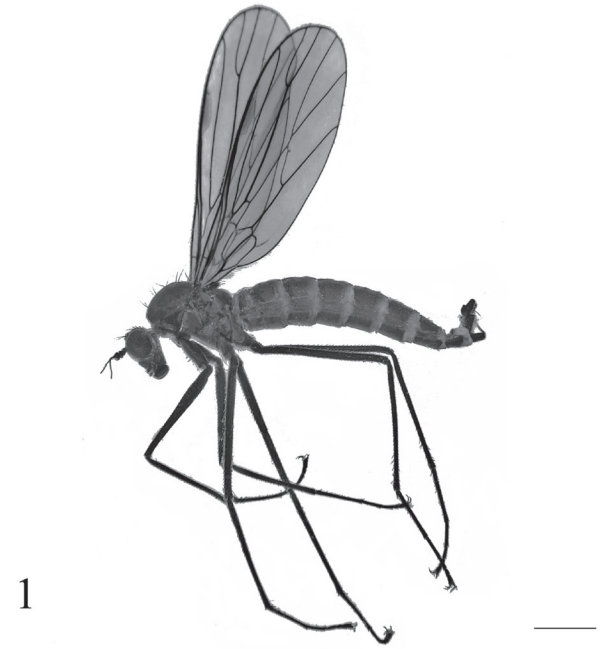
1. Pterostigma present; discal cell with a short apical appendage like a very short vein; epandrial lamella with wide upper margin nearly truncate; surstylus nearly strip-like, hidden below dorsal portion of epandrium; basiphallus relatively short, moderately extended upward near level of upper margin of epandrial lamella; distiphallus not swollen without spines at middle . . . . . *Wiedemannia tibetensis* **sp. nov.**

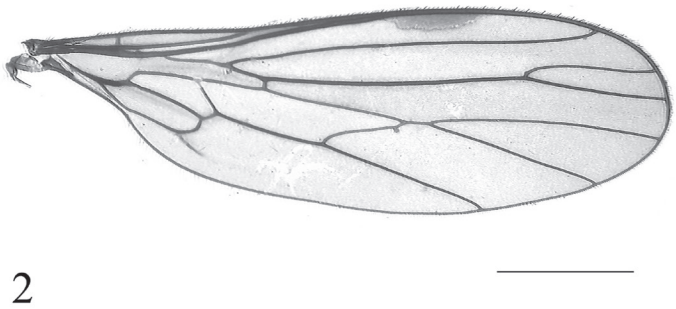
—. Pterostigma absent; discal cell apically without short appendage; epandrial lamella with somewhat narrow upper margin nearly convex; surstylus lobate and exposed in lateral view; basiphallus very long, much extended upward beyond upper margin of epandrial lamella; distiphallus swollen with several spines at middle . . . . . *Wiedemannia glaucescens* (Brunetti)

Wiedemannia tibetensis **sp. nov.** (Figs. 1-3)

Diagnosis

Pterostigma elongated, dark brown. Discal cell apically pointed, M_1 and M_2 basally convergent with short petiole; discal cell with a short apical appendage like a very short vein. Epandrial lamella with wide upper margin nearly truncate. Surstylus nearly strip-like, hidden below dorsal portion of epandrium. Distiphallus not swollen without spines at middle.





Figs. 1 and 2. *Wiedemannia tibetensis* **sp. nov.** (male). 1. Adult ; 2. wing. Scale bar = 1 mm.

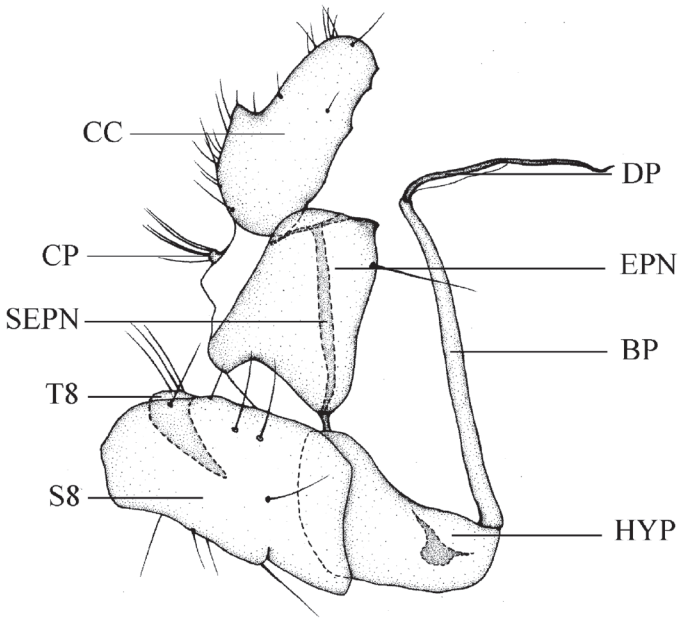


Fig. 3. *Wiedemannia tibetensis* **sp. nov.** (male). 3. genitalia, lateral view. Scale bar = 0.25 mm. Abbreviations: BP = basiphallus; CC = clasping cercus; CP = cercal plate; DP = distiphallus; EPN = epandrium; HYP = hypandrium; SEPN = subepandrial sclerite; S8 = sternum 8; T8 = tergum 8.

Male

Body length 5.9 mm, wing length 5.1 mm.

Head black with pale gray pollinosity. Setulae and setae on head black; upper occiput with a row of 7 strong postocular setae (uppermost being vt), lower half of occiput with minute pale setulae; ocellar tubercle weak with 2 long anterior oc and two pairs of very short posterior setulae. Antenna black; pedicel with circle of black apical setulae; first flagellomere subtriangular with short tip uniformly thin, 1.5 times longer than wide, indistinctly pubescent; arista weakly thickened, more or less uniform in thickness, 2.4 times as long as first flagellomere, indistinctly pubescent. Proboscis black with blackish setulae; palpus black with blackish setulae.

Thorax black with pale gray pollinosity. Setulae and setae on thorax black; biseriate acr short hair-like, 5 long dc, 1 long h, 1 long ph, 2 short npl, 1 long sa, 1 psa slightly shorter than sa; scutellum with 2 long sc and 4 short marginal setulae (2 setulae located between 2 sc). Propleuron with pale lower setulae mostly short. Laterotergite with several short pale setulae. Legs including all coxae black. Setulae and setae on legs black, but those on coxae pale except fore and mid coxae

posteriorly with black setae. Fore femur with row of short hair-like av and pv distinctly shorter than femur thickness. Wing (Fig. 2) hyaline, slightly tinged grayish; stigma dark brown; veins dark brown; discal cell apically pointed, M_1 and M_2 basally convergent with short petiole; discal cell with a short apical appendage like a very short vein. Squama brown with pale setulae. Halter dark brown.

Abdomen black with pale gray pollinosity. Setulae on tergite blackish, on sternites dark yellow.

Male genitalia (Fig. 3). Epandrial lamella rather large, nearly trapezoid, distinctly higher than long, and with wide upper margin nearly truncate. Surstylus nearly strip-like, hidden below dorsal portion of epandrium. Cercal plate small, tubercle-like, with 5 long setae; clasping cercus rather large, lobate, nearly as long as height of epandrial lamella. Hypandrium somewhat trapezoid in lateral view. Basiphallus long, slightly thick, nearly straight, directed upward near level of upper margin of epandrial lamella; distiphallus long, nearly filiform, and with acute tip.

Female

Unknown.

Type Material

HOLOTYPE ♂, CHINA: Tibet, Nyingchi (N29°38'18", E94°21'46"), Sejilashan, Zhongshan Station, 4200 m, 20.VIII-10.VII.2014, Malaise trap, leg. Baohai Wang & Zhaohui Pan (CAU).

Distribution

China (Tibet).

Remarks

Two Oriental species, *Wiedemannia tibetensis* **sp. nov.** from Tibet and *W. glaucescens* (Brunetti) from India and Nepal, are closely related and easily separated from the Palaearctic species by the discal cell apically pointed, M_1 and M_2 basally convergent with short petiole, clasping cercus nearly as long as height of epandrial lamella and apical portion wide and obtuse. They cannot be placed in any known species groups of *Wiedemannia* from the Palaearctic region. This new species may be easily separated from *W. glaucescens* by the wing with the dark brown stigma, discal cell with a short apical appendage like a very short vein, surstylus nearly strip-like and hidden below dorsal portion of epandrium, basiphallus moderately extended near the level of the upper margin of the epandrial lamella, and distiphallus not swollen without spines at middle. In *W. glaucescens*, the wing has no stigma, the discal cell has no apical appendage, the surstylus is lobate and exposed in lateral view, the basiphallus is much extended beyond the level of the upper margin of the epandrial lamella, and the distiphallus is swollen with several spines at middle (Brunetti 1917; Wagner et al. 2004).

Etymology

The specific name refers to the type locality Tibet.

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References Cited

Brunetti E. 1917. Diptera of the Simla District. Records of the Indian Museum 13: 59-101.

Collin JE. 1961. Empididae. British Flies 6: 1-782. Cambridge University Press, Cambridge.

Cumming JM, Wood DM. 2009. Adult morphology and terminology, pp. 9-50. *In* Brown BV, Borkent A, Cumming JM, Wood DM, Woodley NE, Zumbado MA [eds.], Manual of Central American Diptera. Vol. 1. NRC Research Press, Ottawa.

Joost W. 1981. Beitrag zur Kenntnis der Hemerodromiinae des Kaukasus (I) (Diptera, Empididae). Reichenbachia 19: 183-191.

Joost W. 1984. *Wiedemannia (Philolutra) mauersbergeri* n. sp. aus der Mongolei (Diptera, Empididae). Mitteilungen aus dem Zoologischen Museum in Berlin 60(1): 123-126.

Niesiolowski S. 1992. Empididae Aquatica (Insecta: Diptera). Fauna Polski 14: 1-128.

Sinclair BJ. 1995. Generic revision of the Clinocerinae (Empididae), and description and phylogenetic relationships of the Trichopezinae, new status (Diptera: Empidoidea). The Canadian Entomologist 127: 665-752.

Smith KGV. 1965. Diptera from Nepal: Empididae. Bulletin of the British Museum (Natural History), Entomology 17(2): 61-112.

Vaillant F. 1960. Quelques Empididae Atalantinae d'Asie russe [Dipt.]. Bulletin de la Société Entomologique de France 65: 170-186.

Wagner R. 1990. Neue *Wiedemannia*-Arten aus der *rhynchops*-Gruppe (Diptera, Empididae, Clinocerinae). Entomofauna 11(13): 229-240.

Wagner R, Leese F, Panesar AR. 2004. Aquatic dance flies from a small Himalayan mountain stream (Diptera: Empididae: Hemerodrominnae, Trichopezinae and Clinocerinae). Bonner Zoologische Beiträge 52(1-2): 3-32.

Yang D, Yang CK. 2004. Diptera, Empididae, Hemerodromiinae and Hybotinae. Fauna Sinica Insecta, Vol. 34. Science Press, Beijing. 329 pp.

Yang D, Zhang KY, Yao G, Zhang JH 2007. World Catalog of Empididae (Insecta: Diptera). China Agricultural University Press, Beijing, 599 pp.