Phyllomyza (Diptera: Milichiidae) Newly Found in Tibet with Descriptions of Two New Species

Authors: Yuqiang Xi, and Ding Yang
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Phyllomyza (Diptera: Milichiidae) newly found in Tibet with descriptions of two new species

Yuqiang Xi and Ding Yang*

Abstract
The genus Phyllomyza Fallén (Diptera: Milichiidae) is recorded from Tibet for the first time. Two species are described as new to science: Phyllomyza drepanipalpis sp. nov. and P. sinensis sp. nov. A key to the known species of Phyllomyza from China is presented.

Key Words: Phyllomyza drepanipalpis sp. nov.; Phyllomyza sinensis sp. nov.; China; key

Resumen
Se registra por primera vez el género Phyllomyza Fallén (Diptera: Milichiidae) en el Tibet. Se describen dos especies nuevas para la ciencia: P. drepanipalpis sp. nov. y P. sinensis sp. nov. Se presenta una clave para las especies conocidas de Phyllomyza en la China.

Palabras Clave: Phyllomyza drepanipalpis sp. nov.; Phyllomyza sinensis sp. nov.; China; clave

Materials and Methods
Genitalia preparations were made by removing and macerating the apical portion of the abdomen in cold saturated NaOH for 6 h. After examination, they were transferred to fresh glycerin and stored in a microvial on the pin below the specimen or moved to an ethanol tube together with the wet specimens. Specimens examined were deposited in the Entomological Museum of China Agricultural University, Beijing (CAU), China. Morphological terminology follows McAlpine (1981) and Brake (2000). The following abbreviations are used: asc = apical scutellar seta(e), bsc = basal scutellar seta(e), dc = dorsocentral seta(e), h = humeral seta(e), ia = intraalar seta(e), kepsts = katepisternal seta(e), npl = notopleural seta(e), pa = postalar seta(e), pos = postsutural seta(e), prs = presutural seta(e), prsc = prescutellar seta(e), sa = supraalar seta(e), S = sternite, T = tergite.

Results

Key to Chinese species (males) of Phyllomyza

1.— Palpus almost bare, without setulae .......................................................................................... 2
1’.— Palpus with short setulae at tip and ventral side .................................................................. 4

2.— Palpus yellow, protruding, but not much broadened, 4.5 times as long as wide ......................... P. luteipalpus Malloch
2’.— Palpus black, much protruding (stretched forward more prominent) and broadened .......... 3

3.— Palpus very long, 1.5 times as long as height of head, parallel-sided; halter black, yellowish at base .......... P. nudipalpus Malloch
3’.— Palpus broad, 2 times as long as wide, leaf-shaped, tapering to apex; halter yellow ............... P. dilatata Malloch

4.— Cercus with ventral appendix ............................................................................................ 5
4’.— Cercus lacking ventral appendix ......................................................................................... 6

Department of Entomology, China Agricultural University, Beijing 100193, China
*Corresponding author; E-mail: dyangcau@126.com; dyangcau@aliyun.com
5.— Halter orange brown; palpus brownish, lanceolate .......................................................... P. epitacta Hendel
5'.— Halter white; palpus darkish yellow, sickle-shaped .......................................................... P. drepanipalpis sp. nov.
6. — First flagellomere not circular .......................................................................................... 7
6'.— First flagellomere approximately circular ...................................................................... 8
7. — First flagellomere hammer-shaped; palpus length 0.2 mm, pointed apically .................... P. claviconis Yang
7'.— First flagellomere irregularly rectangular; palpus greatly lengthened, 0.7 mm, blunted apically ... P. sinensis sp. nov.
8. — M, between r-m and dm-cu as long as dm-cu ..................................................................... 9
8'. — M, between r-m and dm-cu longer than dm-cu ................................................................. 10
9. — Palpus curved; gena narrow, approximately one-eleventh of eye height ......................... P. angustigenis Xi & Yang
9'.— Palpus elongate; gena relatively broad, approximately one-seventh of eye height .......... P. euthypalpis Xi & Yang
10.— Vibrissal angle relatively flat, approximately rectangular; palpus long oval, 3.2 times as long as wide .... P. clavellata Xi & Yang
10'.— Vibrissal angle relatively acute, the tip less than 60 degree angle; palpus long oval, 4.2 times as long as wide ...... P. cuspidera Xi & Yang

Phylloomyza drepanipalpis sp. nov. (Figs. 1–4)

DIAGNOSIS

Gena very narrow, approximately one-eleventh of eye height. Palpus darkish yellow, slightly sickle-shaped, about 0.3 mm (Fig. 1). Surstylus with upper blade of bifurcated tip swollen and lower one shorter; cercus with ventral appendix, which is directed posterior (Figs. 3 and 4).

DESCRIPTION

Male. Body length 1.6–1.8 mm; wing length 1.6–1.8 mm.

Head black with grayish microtomentum; orbital plates subglossy blackish brown with microtomentum; ocellar triangle darkish brown without microtomentum; lunule strap-shaped, darkish brown with black margin. Posterior eye margin ventrally divergent from head margin; eye 1.3 times as high as long, gena approximately one-eleventh of eye height. Setae and setulae on head black; ocellar triangle with 2 ocellar setae and 3 short setae; frons with 3 orbital and 2 frontal setae on blackish brown orbital stripe without microtomentum, orbital setae laterocline and frontal setae mediocline, 3 interfrontal setae; postocellar setae cruciate. Lunule with 2 setae. Vibrissal angle relatively blunt; vibrissa strong, located at level of lower eye margin. Antenna brownish yellow with microtomentum; pedicel with short black setulae at middle and margin, setulae at margin longer than others, longest one about 4 times longer than others; 1st flagellomere irregularly circular, with pubescence; arista 3.5 times as long as 1st flagellomere, brown, distinctly pubescent. Proboscis slightly thick and geniculate, darkish brown, margin with sparse setulae. Palpus slightly sickle-shaped in lateral view, about 0.3 mm, 3.5 times longer than wide; brownish yellow with short dense brownish pubescence, margin with sparse black setulae.

Thorax blackish brown with grey microtomentum, except mesonotum glossy brown with sparse black microtomentum; scutellum brown with gray microtomentum. Setae and setulae on thorax black; 1 h, 2 dc, 1 psc, 2 npl, 1 prs, 1 pos, 1 sa, 1 ia, 1 pa, 1 kepsts (setulae at forward position); scutellum 1.5 times wider than long, with pair of asc and bsc, asc 2.5 times longer than bsc. Legs slender; coxae and femora darkish brown, tibiae yellow except hind tibia darkish brown at middle, tarsi yellowish. Setae and setulae on legs black. Mid tibia with 1 black preapical dorsal seta. Wing hyaline, unspotted; veins brown; Sc strong; M, between r-m and dm-cu longer than dm-cu. Calypter yellowish with dense brownish microtrichae, margin with thin, sparse long setulae. Knob of halter white, stalk yellowish.

Abdomen brown with gray microtomentum. Setae and setulae on abdomen black; T2–T5 with setae, marginal setae longer than others; sternites with sparse black setulae at posterior 3/4. Posterior mediad triangular projection of T1 into T2 strong; S2 irregularly widely horseshoe-shaped, with blunt apex, S3 irregularly vertically trapezoid, S4 horizontally trapezoid, S5 irregularly trapezoid.

Male genitalia (Figs. 3 and 4). Epandrium with 4 strong, long black setae; surstylus with upper blade of bifurcated tip swollen, the lower one slightly swollen and shorter than upper one; cercus arched with ventral appendix.

FEMALE

Body length 1.7–1.9 mm; wing length 1.6–1.9 mm.

Similar to male, but palpus yellow and shorter. Female terminalia: T8 brownish, margin with setulae. Supra-anal plate irregularly triangular; subanal plate nearly trapezoid. Cercus with long setulae.

TYPE MATERIAL

HOLOTYPE ♂, CHINA: Tibet, Medog (29°14'30.42"N, 95°10'31.74"E), Beibeng, 1,100 m, 17-IX-2013, G. Yao (CAU).

PARATYPES: 2 ♂, same data as holotype; 2 ♂, Tibet, Medog (29°14'33.46"N, 95°10'29.69"E), Beibeng, 700 m, 30-VII-2012, X. K. Li (CAU); 1 ♂ 1 ♀, Tibet, Medog (29°14'32.06"N, 95°10'30.36"E), Beibeng, 1,100 m, 17-IX-2013, G. Yao (CAU).

DISTRIBUTION

China (Tibet).

REMARKS

This new species is similar to P. beckeri Kramer, but can be separated easily from the latter by the gena approximately one-eleventh of eye height and thorax blackish brown with 2 dc. In P. beckeri, the gena is approximately one-sixth of eye height; the thorax is brown with 4 dc (Kramer 1920).

ETYMOLOGY

The species name refers to the sickle-shaped palpus.
Figs. 1–4. Phyllomyza drepanipalpis sp. nov. (male), 5–8. Phyllomyza sinensis sp. nov. (male). 1,5. Head, lateral view; 2,6. Wing; 3,7. Epandrium, cercus, and surstylus, posterior view; 4,8. Epandrium, cercus, and surstylus, lateral view. Scale bar = 0.1 mm.
**Phyllomyza sinensis** sp. nov. (Figs. 5–8)

**DESCRIPTION**

Male. Body length 1.5–1.7 mm; wing length 1.6–1.8 mm.

Head blackish brown with grayish microtomentum; orbital plates subglossy blackish brown with microtomentum; ocellar triangle darkish brown without microtomentum; lunule strap-shaped, darkish gray with black margin. Posterior eye margin ventrally divergent from head margin; eye 1.4 times as high as long, gena approximately one-tenth of eye height. Setae and setulae on head black; ocellar triangle with 2 long ocellar setae and 3 short setae; frons with 3 orbital and 2 frontal setae on brown orbital stripe without microtomentum, orbital setae laterociliate and frontal setae mediociliate, 3 interfrenal setae; post-ocellar setae cruciate. Lunule with 2 setae. Vissibral angle relatively blunt; vibrissa strong, located at level of lower eye margin. Antenna darkish brown with microtomentum; pedicel with short, black setulae at middle and margin, setulae at margin longer than others, longest one about 2.5 times than others; 1st flagellomere with pubescence, irregularly rectangular; arista 3 times as long as 1st flagellomere, darkish brown, distinctly pubescent. Proboscis very short, folded, blackish brown, margin with sparse black setulae. Palpus very long, slightly curved at basal 1/3, about 0.7 mm, 9 times longer than wide; darkish brown with short, dense black setulae, margin with sparse short setae.

Thorax darkish brown with gray microomentum, except mesonotum glossy darkish brown with sparse black microtomentum; scutellum darkish brown with gray microtomentum. Setae and setulae on thorax black; 1 h, 2 dc, 1 prsc, 2 npl, 1 prs, 1 pos, 1 ia, 2 pa, 1 kepsts (setulae at forward position); scutellum 1.5 times wider than long, with pair of asc and bsc, asc 2.5 times longer than bsc. Legs slender; coxae and femora darkish brown, tibiae darkish brown except fore tibia darkish yellow, tarsi yellowish. Setae and setulae on legs black. Mid tibia with 1 black preapical dorsal seta. Wing hyaline; veins brown; Sc strong; M, between r-m and dm-cu longer than dm-cu. Calypter yellowish with dense darkish brown microtrichae, margin with brownish setulae. Knob of halter darkish brown, stalk brown.

Abdomen darkish brown with gray microtomentum. Setae and setulae on abdomen black; T2–T5 with setae at posterior 3/4, marginal setae longer than others; sternites with sparse black setae. Postero medial triangular projection of T1 into T2 weak; S2 generally horseshoe-shaped, apical margin blunt; S3 vertically rectangular; S4 trapezoid, apical margin slightly wider than basal margin; S5 irregularly trapezoid, narrowed, apical margin slightly wider than basal margin.

Male genitalia (Figs. 7 and 8). Epandrium with strong setae at middle; surstylus with upper blade of bifurcated tip extremely swollen and lower one slightly sharp at tip; cercus arched with short sparse setae, without ventral appendix.

**Female.** Unknown.

**TYPE MATERIAL**

**HOLOTYPE** ♀, CHINA: Tibet, Medog (29° 14′33.46″N, 95° 10′29.69″E), Beibeng, 700 m, 30-VII-2012, W. L. Li (CAU). **PARATYPES:** 1 ♀, Tibet, Medog (29° 14′33.46″N, 95° 10′29.69″E), Beibeng, 700 m, 30-VII-2012, 2015 — Florida Entomologist — Volume 98, No. 2

X. K. Li (CAU); 1 ♀, Tibet, Medog (29°14′32.06″N, 95°10′30.36″E), Beibeng, 1,100 m, 17-IX-2013, G. Yao (CAU).

**DISTRIBUTION**

China (Tibet).

**REMARKS**

This new species is similar to *P. proceripalpis* Iwasa from Japan, but it can be separated from the latter by the palpus approximately 2.5 times longer than the greatest horizontal length of the eye and the surstylus with the upper blade of the bifurcated tip extremely swollen and the lower one slightly sharp at tip. In *P. proceripalpis*, the palpus is approximately 2 times longer than the greatest horizontal length of the eye; the upper blade of the bifurcated tip of the surstylus is prominently swollen and the lower one slender (Iwasa 2003).

**ETYMOLOGY**

The species name refers to the type locality China.

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