

# A new species in the genus *Pseudocollinella* Duda (Diptera: Sphaeroceridae) from China

Lixin SU<sup>1</sup>①, Baiyang LI<sup>1</sup>, Jie XU<sup>2</sup>

1. Liaoning Key Laboratory of Urban Integrated Pest Management and Ecological Security, Shenyang University, Shenyang, Liaoning 110044, China

2. Experimental Teaching Center, Shenyang Normal University, Shenyang, Liaoning 110034, China

**Abstract:** One new species, *Pseudocollinella* (*Spinotarsella*) *parahumida* Su **sp. nov.** (Diptera: Sphaeroceridae), is described from Qinghai, China. *Pseudocollinella* (*Spinotarsella*) *pseudohumida* Papp, 2016 is synonymized with *P. (S.) humida* (Haliday, 1836). A key to the species in the subgenus *Spinotarsella* is provided.

**Key words:** Limosiniinae; new synonym; taxonomy; key

## 中国伪丘小粪蝇属一新种（双翅目：小粪蝇科）

苏立新<sup>1</sup>①, 李柏杨<sup>1</sup>, 徐杰<sup>2</sup>

1. 沈阳大学, 辽宁省城市有害生物治理和生态安全重点实验室, 辽宁 沈阳 110044; 2. 沈阳师范大学, 实验教学中心, 辽宁 沈阳 110034

**摘要:** 记述中国青海产双翅目小粪蝇科伪丘小粪蝇属 *Pseudocollinella* 1 新种: 隰湿刺伪丘小粪蝇 *Pseudocollinella* (*Spinotarsella*) *parahumida* Su **sp. nov.**。伪湿刺伪丘小粪蝇 *Pseudocollinella* (*Spinotarsella*) *pseudohumida* Papp, 2016 **syn. nov.**是湿刺伪丘小粪蝇 *P. (S.) humida* (Haliday, 1836) 新同物异名。提供了刺伪丘小粪蝇亚属分种检索表。

**关键词:** 沼小粪蝇亚科; 新异名; 分类; 检索表

## Introduction

*Spinotarsella* Richards, 1929, with the type species *Limosina humida* Haliday, 1836 (by original designation), was reinstated as a subgenus of *Pseudocollinella* Duda, 1924 by Papp in 2016. This subgenus is characterized by the following features: carina protruding between antennae, 2 strong inner orbital bristles, proximal posterodorsal bristle of mid tibia much lower than proximal anterodorsal bristle, a pair of strong presutural acrostichal bristles, and sternite 5 of male simple (Marshall & Smith 1993; Papp 2016). This subgenus is now known to occur worldwide with 2 known Palaearctic species, *Pseudocollinella* (*Spinotarsella*) *humida* (Haliday, 1836) and *P. (S.) jorlii* (Carles-Tolrá, 1990) (Roháček *et al.* 2001; Marshall *et al.* 2011; Papp 2016). In China, only one species, *P. (S.) humida* (Haliday, 1836), was recorded (Su 2011). Here a new species from Qinghai, China is described. A new synonym and a key to the species of the subgenus *Spinotarsella* are provided.

Accepted 30 March 2022. Published online 17 May 2022. Published 25 June 2022.

① Corresponding author, E-mail: sulixin95@163.com

## Material and methods

The specimens were collected by sweep nets in mountains. In the laboratory, the whole abdomen was prepared in 10% KOH until semi-transparent, then rinsed in water and transferred to a cavity slide with glycerin for further examination and dissection. The illustrations were drawn from observations using a Leica DM 2000 compound microscope fitted with a drawing tube. After examination and illustration, the abdomen was moved to a microvial with fresh glycerin and preserved in an ethanol tube together with the wet specimen. The type specimens are preserved in Natural History Museum of Shenyang University (NHMSU), China.

The terminology used here follows Roháček (1998) and Marshall & Smith (1993).

## Taxonomy

### Key to the species of the subgenus *Spinotarsella*

1. Distal posterodorsal bristle of mid tibia shorter than distal anterodorsal bristle (Carles-Tolrá 1990, fig. 18). Postgonite U-shaped (Carles-Tolrá 1990, fig. 24) ..... *P. (S.) jorlii* (Carles-Tolrá)
- Distal posterodorsal bristle of mid tibia slightly longer than or as long as distal anterodorsal bristle. Postgonite straight ..... 2
2. Anterior lobe of anterior surstylus narrow (fig. 9). Postgonite narrow, apically rounded (Roháček 1982, fig. 15; Su 2011, fig. 50C) ..... *P. (S.) humida* (Haliday)
- Anterior lobe of anterior surstylus wide (fig. 7). Postgonite robust, apically hooked (fig. 5) ..... *P. (S.) parahumida* **sp. nov.**

### *Pseudocollinella (Spinotarsella) parahumida* **sp. nov.** (Figs 1–8)

Description. Male. Body length ca. 2.4 mm, wing length ca. 2.3 mm. Body blackish brown, with greyish brown pruinosity.

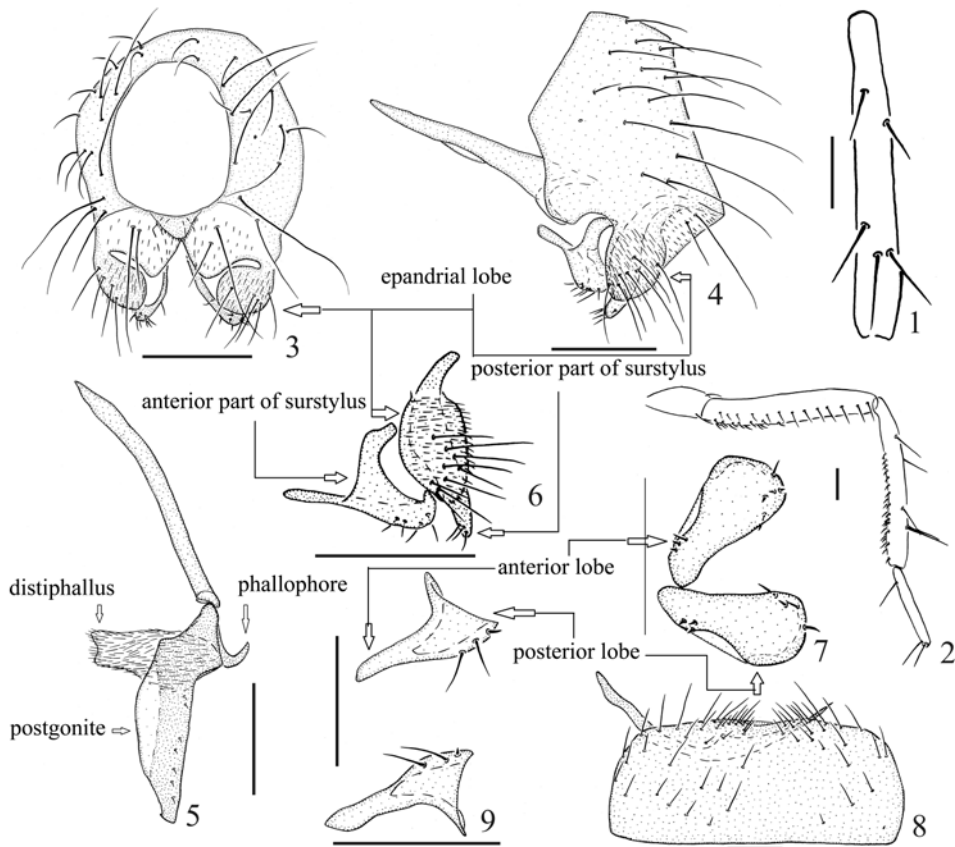
Head. Postvertical bristles absent. Interfrontal bristles in 4 pairs, upper pair small, lower 3 pairs subequal in length, large and almost cruciate. 2 additional bristles inside orbital bristles besides 4–5 minute setulae. Frontal lunule long, carina wide and protruding between antennae. Arista ca. 1.2× as long as head height; arisal hairs short, as long as arisal basal width. Anterior genal bristle slightly shorter than vibrissa; eye height 3× as long as genal height.

Thorax. Internal humeral bristle short, 1/3× as long as external humeral bristle; below the external an additional minute setula. Dorsocentral bristles 1+2; acrostichal setulae in 6 rows in front of suture, middle pair of acrostichals in front of suture enlarged, prescutellar pair of acrostichal setulae slightly enlarged, 2× as long as others. 2 sternopleural bristles, the anterior small, the posterior strong, reaching the middle level between its base and wing base. Scutellum with 4 marginal bristles.

Leg. Mid femur (Fig. 2) with anteroventral and posteroventral rows of stout bristles on basal fourth. Mid tibia (Figs 1, 2) with anteroventral row of stout bristles on distal three fourths, and posteroventral row of stout bristles on distal half; distal anterodorsal and posterodorsal bristles subequal in length. Mid basitarsus (Fig. 2) with a ventral bristle near the base.

Wing. Wing membrane brownish, veins dark brown. C very slightly overpassing R<sub>4+5</sub>.

Cs<sub>2</sub> 1.5× as long as Cs<sub>3</sub>. R<sub>2+3</sub> slightly sinuate; R<sub>4+5</sub> very slightly sinuate. Alula small, relatively wide, apically slightly rounded. Haltere knob white, stem pale brown.



Figures 1–9. 1–8. *Pseudocollinella (Spinotarsella) parahumida* sp. nov., ♂; 9. *Pseudocollinella (Spinotarsella) humida* (Haliday), ♂. 1. Mid tibia, dorsal; 2. Mid leg excluding tarsomeres 2–5, anterior; 3. Genitalia, caudal; 4. Genitalia, lateral; 5. Aedeagal complex, lateral; 6. Surstylus and epandrial lobe, lateral; 7. Anterior part of surstylus, ventral; 8. Sternite 5, ventral; 9. Anterior part of surstylus, ventral. Scale bars = 0.1 mm.

Abdomen. Syntergite 1+2 anteromedially with a small pale area. Sternite 5 (Fig. 8) simple, as in *P. (S.) humida* (Haliday), but posteromedially with 2 clusters of short setulae.

Genitalia. Epandrium (Figs 3, 4, 6) small, with long bristles especially around anal fissure, epandrial lobe oval. Cercus (Figs 3, 4) pale, with a long bristle, ventrally slightly tapered. Surstylus (Figs 6, 7) as in *P. (S.) humida* (Haliday), but anterior lobe of anterior part relatively short and wide in ventral view in contrast to that of *P. (S.) humida* (Haliday) (Fig. 9). Phallopore (Fig. 5) small, posteriorly with a short upcurved apical epiphallus. Distiphallus (Fig. 5) very thin, with hairs. Postgonite (Fig. 5) robust, anterior half pale, posterior half dark and with a row of minute setulae, apically hooked. Ejacapodeme not observed. Phallapodeme (Fig. 5) simple.

Female. Unknown.

**Holotype.** ♂, China, Qinghai, Qilian, Zhamashi, Donggou, 3020 m, 38°9'11"N,

100°1'22"E, 19-VIII-2019, Lixin SU. **Paratypes.** 4♂, **China**, Qinghai, Qilian, Babao, Huangzangsi, 2580 m, 38°15'49"N, 100°10'34"E, 18-VIII-2019, Lixin SU.

**Etymology.** This specific epithet is derived from the Greek “*para*” meaning “near” plus *humida* meaning this new species is extremely similar to *Pseudocollinella* (*S.*) *humida* (Haliday, 1836) in external features and male genitalia.

**Diagnosis.** Distal posterodorsal bristle of mid tibia as long as distal anterodorsal bristle.  $Cs_2$  longer than  $Cs_3$ . Male cercus ventrally slightly tapered. Anterior lobe of anterior surstylus short and wide in ventral view. Postgonite robust, apically hooked.

**Remarks.** *Pseudocollinella* (*Spinotarsella*) *parahumida* can be most easily distinguished from other *Spinotarsella* members by its short, wide anterior lobe of anterior surstylus, and robust, apically hooked postgonite. Additionally, based on distal posterodorsal bristle of mid tibia slightly longer than or as long as distal anterodorsal bristle and carrying a row of minute setulae, straight postgonite, this new species is more closely related to *P.* (*S.*) *humida* (Haliday, 1836).

***Pseudocollinella* (*Spinotarsella*) *humida* (Haliday, 1836) (Fig. 9)**

*Limosina humida* Haliday, 1836: 328.

*Leptocera* (*Opacifrons*) *humida*: Roháček, 1982: 69–70.

*Pseudocollinella humida*: Marshall & Smith, 1993: 835–839; Su, 2011: 91–93, 196.

*Pseudocollinella* (*Spinotarsella*) *pseudohumida* Papp, 2016: 16. **syn. nov.**

**Specimens examined.** 1♂, **China**, Beijing, Huai'rou, 25-V-2016, Lixin SU. 1♂, Beijing, Huai'rou, 02-VII-2016, Lixin SU; 1♂, Qinghai, Menyuan, Xianmi, Meihua, 2860 m, 37°14'37"N, 102°7'23"E, 14-VIII-2019, Lixin SU; 1♂1♀, Qinghai, Qilian, Babao, Huangzangsi, 2580 m, 38°15'49"N, 100°10'34"E, 18-VIII-2019, Lixin SU; 2♂, Ningxia, Liupanshan National Nature Reserve, Heshangpu, 2095 m, 23-VI-2008, Lixin SU; 2♂, Ningxia, Liupanshan National Nature Reserve, Fengtai, 2300 m, 21-VI-2008, Lixin SU; 1♂, Jilin, Changbaishan, 1200–1760 m, 29-VII-2008, Lixin SU.

**Distribution.** China (Beijing, Jilin, Ningxia, Qinghai); Afrotropical: ?Madagascar, ?Zaire; Palaearctic: Afghanistan, Algeria, Andorra, Armenia, Austria, Belgium, Bulgaria, Czech Republic, Denmark, England, Estonia, Faeroe Is. (Denmark), Finland, France (incl. Corsica), Germany, Great Britain, Greece (incl. Crete), Georgia, Hungary, Iceland, Ireland, Israel, Italy (incl. Pantelleria I., Sardinia), Kazakhstan, Latvia, Lebanon, Lithuania, Malta, Mongolia, Netherlands, Norway, Poland, Romania, Russia (CET, FE, NET, SET, WS), Serbia, Slovakia, Slovenia, Spain (incl. Balearic Is.), Sweden, Switzerland, Ukraine, Tadjikistan, Tunisia.

**Remarks.** *Pseudocollinella* (*Spinotarsella*) *pseudohumida* Papp, 2016 from Beijing in China was described by Papp (2016), but the description and figures are undoubtedly equivalent to those of *P.* (*S.*) *humida* (Haliday) (It is obvious the captions to figure 49 and figure 50 listed by Papp (2016) are incorrect and respectively equivalent to epandrial lobe and posterior part and anterior part of surstylus). Hence *P.* (*S.*) *pseudohumida* Papp is treated as a junior synonym of *P.* (*S.*) *humida* (Haliday).

**Acknowledgements**

This research was partly supported by the National Natural Science Foundation of China

(31772541), the Natural Science Foundation of Liaoning Province (20170540642), the General Project of Scientific Research of the Education Department of Liaoning Province (L2015359), and the Key Project of the Qinghai Qilian Mountain Nature Reserve Administration (QHTX-2021-006).

## References

- Carles-Tolrá M. 1990. New species and records of Sphaeroceridae (Diptera) from Spain. *The Entomologist's Monthly Magazine*, 126: 33–46.
- Duda O. 1924. Berichtigungen zur Revision der europäischen Arten der Gattung *Limosina* Macq. (Dipteren), nebst Beschreibung von sechs neuen Arten. *Verhandlungen der zoologisch-botanischen Gesellschaft in Wien*, 73(1923): 163–180.
- Haliday AH. 1836. British species of the Dipterous tribe Sphaeroceridae. *Entomological Magazine*, 3: 315–336.
- Marshall SA & Smith IP. 1993. A revision of the Nearctic *Pseudocollinella* Duda (Diptera: Sphaeroceridae). *Canadian Journal of Zoology*, 71: 835–857.
- Marshall SA, Roháček J, Dong H & Buck M. 2011. The state of Sphaeroceridae (Diptera: Acalyptratae): a world catalog update covering the years 2000–2010, with new generic synonymy, new combinations, and new distributions. *Acta Entomologica Musei Nationalis Pragae*, 51(1): 217–298 (263–264).
- Papp L. 2016. An overview of the Old World species of *Pseudocollinella* Duda (Diptera: Sphaeroceridae) with description of a new subgenus. *Acta Zoologica Academiae Scientiarum Hungaricae*, 62(1): 1–58.
- Richards OW. 1929. Systematic notes on the Borboridae (Diptera) with description of new species of *Leptocera* (*Limosina*). *The Entomologist's Monthly Magazine*, 65: 171–176.
- Roháček J. 1982. *Leptocera* (*Opacifrons*) *digna* sp. n. (Diptera, Sphaeroceridae) from Bulgaria, with a key to Palaearctic species of the subgenus. *Acta Entomologica Bohemoslovaca*, 79: 64–72.
- Roháček J. 1998. 3.43. Family Sphaeroceridae. In: Papp L & Darvas B (Eds.), *Contributions to a Manual of Palaearctic Diptera. Vol. 3, Higher Brachycera*. Science Herald, Budapest, pp. 463–496.
- Roháček J, Marshall SA, Norrbom AL, Buck M, Quiros DI & Smith I. 2001. *World Catalog of Sphaeroceridae (Diptera)*. Slezské zemské Museum, Opava, 414 pp.
- Su LX. 2011. *Lesser Dung Flies*. Liaoning University Press, Shenyang, 229 pp.